RATE OF RETURN ON INVESTMENT IN UNIVERSITY EDUCATION: A CASE STUDY OF IRAQ

Thesis Submitted for the Degree of Doctor of Philosophy at the University of Leicester

by

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TO MY PARENTS

AND

TO MY WIFE SURAB

WITH LOVE

AND APPRECIATION FOR HER PATIENCE,

ENCOURAGEMENT, AND SACRIFICES

ACKNOWLEDGMENTS

I am deeply indebted to my supervisor Dr. David J. Pyle for his academic guidance, encouragement, and support throughout the development of this thesis, and also to Professor Peter J. Jackson who gave me some advice specially in the early stage.

I would also like to express my appreciation to all staff of University of Baghdad, Faculties, Ministry of Higher Education and Scientific Research, Ministry of Planning, who gave me assistance to collected the data of this thesis.

Thanks are extended to all staff of Economics Departments, Computer Center especially to Dr. Richard J. Mobbs and Miss Pan Gibson, Library, Higher Degree and Accommodation Office in Leicester University, who presented their assistance throughout my period of study.

Last, but not mean least, I must express the debt I owe to my wife Surab. Without her support, patience, and understanding this work would have not been possible. I would also like to express my appreciation to my family who encouraged and supported me throughout my study.

ABSTRACT

RATE OF RETURN ON INVESTMENT IN UNIVERSITY EDUCATION

A CASE STUDY OF IRAQ

by

Hamid Sultan JAWAD

This study is concerned with a cost-benefit analysis of university education in Iraq. The major purpose is the calculation of the monetary private and social rate of return to investment in particular forms of university education in Iraq, represented by University of Baghdad. The subjects chosen for calculating were fifteen different programs. The present study evaluated the decision to invest in various university subject groups at age eighteen (i.e. immediately after secondary school graduation) and at later age. Costs and benefits are calculated from point of view of three entities: Private; the institution; and society as a whole. Costs and benefits per student year and per graduate are also calculated. The results indicate that private rates of return are higher than social rates of return in all subject groups; that the social and private rates of return on investment in Engineering are the highest; that the private and social rates of return for Medicine program higher than other programs (four-year and five-year program) except for engineering; that the private rates of return to investment in five programs (Engineering, Medicine, Pharmacy, Dentistry, and Veterinary Medicine) are found to be greater than returns associated with other kind of investment i.e. to exceed 12%); that the social rate of return, while the social rate of return in Engineering are found lower than 7%; that the social rate of return, while the social rate of return in Engineering is greater than 12%; that there is a negative relationship between the commencement age and private rate of return; that there is a positive relationship between commencement age and private cost). The implications of these results for allocation of government spending on university education in Iraq are discussed.

Iraq are discussed.

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ABBREVIATIONS

Number

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1	Science
2	Engineering
3	Medicine
4	Pharmacy
5	Dentistry
6	Nursing
7	Veterinary Medicine
8	Agriculture
9	Administration and Economics
10	Law and Politics
11	Arts
12	Education
13	Physical Education
14	Fine Arts
15	Alsharia
16	Administration Office
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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Education is highly important not only for economic reasons but also for the social and political development of a country. From a purely economic point of view, education is an investment in human resources and may bring about technological improvement and an increase in productivity. Education provides the labour force with skills and other knowledge which are required for the productive activities in an economy. For this reason, investment in education is as important to economic development as investment in physical capital. Economists writing in the eighteenth and nineteenth century, including Adam Smith, Alfred Marshall, and others, drew attention to the importance of education as a form of national investment and considered the question of how education should be financed. Adam Smith¹ in 'The Wealth of Nations', drew the analogy between expenditure on education and investment in physical capital, and compared the difference between the wages of skilled and unskilled labour with the returns or profit derived from an expensive machines.

"When any expensive machine is erected, the extraordinary work to be performed by it before it is worn out, it must be expected, will replace the capital laid out upon it, with at least the ordinary profits. A man educated at the expense of much labour and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines."

More than a century later, Alfred Marshall² also drew attention to the correspondence between human and physical capital from the point of view both of the nation and of educated individuals. He also stated that "The wisdom of expending public and private funds on education is not to be measured by its direct fruits alone. It will be profitable as a mere investment, to give the masses of the people much greater opportunities than they can generally avail themselves of."³

¹ Smith, A., The Wealth of Nations. Bk. 1, Chp. 10, pt. 1, no. 6, 2nd Edition edited by James E. Thorold Rogers, (Clarendon press, Oxford), 1880, p. 106.

²Marshall, A., <u>Principles of Economics</u>, Bk. 4, chp. 6, no. 7, Third Edition, (Macmillan and Co. Ltd., London, 1895).

However the implications for economic behaviour were not really recognized until the early 1960's⁴ perhaps because social values and cultural traditions had discouraged us from treating human beings as capital goods; for even today the mere thought of treating education as investing in human beings may annoy many people.

Today it is generally accepted that education is an investment process because of the benefits which it is expected yield in the future.⁵ Many economists and those who are interested in economic development and the economics of education accept this as a fact.⁶ They also accept the importance of education for development, by helping increase the national income, and raising manpower productivity. Most studies and researches into education in its developmental role emphasize the importance of the "Residual Factor", which is attributed to education and scientific research, in influencing growth rates obtained in many countries.⁷

One of the studies of the residual factor is that by Schultz which showed that 83 per cent of the increase in agricultural production realized in the U.S.A. between the two periods (1910-1914), and (1945-1949) might be due to this residual factor whilst the other production factors had not contributed more than 17 per cent.⁸

Education, in most countries, takes a substantial share of society's scarce resources. Taxpayers question the qualitative and quantitative aspects of educational activities in view of the resource inputs to education vis-a-vis other investment opportunities. The question is particularly important in less developed countries. Consequently, these countries are searching for new and better ways of using their resources to speed up their economic and social development. The questioning of resource allocation is not limited to the "social" policy. Individuals ask

³ Marshall, A., Principles of Economics, Bk. 4, chp. 6, no. 7, Third Edition, (Macmillan and Co. Ltd., London, 1895), p. 299.

⁴ Blaug, M. <u>An Introduction to the Economics of Education</u>, (The Penguin press, London, 1972), p. 3.

⁵ Sheehan, J. <u>The Economics of Education</u>. (George Allen and Unwin Ltd., Oxford, 1973), p. <u>31</u>.

⁶ Such as Denison, Edding, Sheehan, Schultz, and others.

⁷ Abdul-Salam, M. Studies in the Economics of Education. (Dar Al-Talea Press, Beirut, 1974, p. 14 (In Arabic).

8 Schultz, T. W., "Economic Prospects of Primary Products." In Ellis, H. S. (ed) Economic Development for Latin America (Proceeding of a conference held by the International Economic Association), Ch. 11, pp. 308-331, London, Macmillan, 1961.

themselves: "should I invest my time and limited resources to furthering my education, or should I do something else instead?"

If properly developed, human resources will be a great asset to a nation; if not, they will inhibit its development For example, the unemployment of educated people in developing countries represents an unfortunate waste.

Investment in education uses scarce resources which can be used for an alternative purpose e.g. investment in physical capital. In other words, investment in education competes with investment in physical capital in the allocation of available scarce resources for the purpose of increasing economic productivity. It is important to see which type of investment is more productive in the economy.

The economics of education, particularly the study of rates-of-return on education, is intended to provide economic information to help societies and individuals to make investment decisions among competing alternatives. While resource allocation among alternatives is important both in developed and developing countries, the issue becomes even more important in developing countries.

Formal education is becoming the subject of increased conscious planning throughout the world. Such planning must include more or less explicit decisions concerning several types of resource allocation. One involves the portion of national product that is to be devoted to education in general. A second concerns allocation between various levels of schooling such as primary, secondary, and higher education. A third deals with allocation between various programs within universities such as law, medicine, agriculture, engineering, Science etc., and at secondary level a choice between academic and vocational training (commercial, agriculture, and industrial). This thesis is deals with the various programs of university education in Iraq.

1.2 The Purpose of This Study

The major purpose of this study is to undertake a systematic economic evaluation of the private and social returns to investment in particular forms of university education in Iraq, represented by the University of Baghdad. The programs chosen for analysis were four-year degree courses in Engineering, Science, Nursing, Agriculture, Economics and Administration, Law and Politics, Education, Physical Education, Arts, Fine Arts, Alsharia⁹; five-year degree courses in Pharmacy, Dentistry, and Veterinary Medicine; and a six-year degree course in Medicine. An additional purpose

 $^{^{9}\,}$ Alsharia is the college which teaches Islamic Law, Arabic, and Islamic Religion.

of this study is to increase information about the application of the rate-of-return method to investment in education in Iraq. Such techniques have not been previously applied in Iraq to estimate public sector investments.

The present study evaluated the decision to invest in university education at age eighteen, but furthermore, an economic evaluation of similar investment decisions at later ages was included. Therefore, the later cases deal with the situation of individuals who choose to commence a program of formal education after spending one or more years in the labour market.

To achieve the purpose of this study, the benefits and costs of university education in Iraq needed to be determined, defined, and evaluated. The economic benefits to investment in higher education will be divided into three categories: (1) private benefits; (2) social benefits; and (3) institutional benefits. The private and social benefits will be sub-divided into two categories: (i) measurable and (ii) non-measurable. The measurable private benefits are those increases in lifetime earnings attributable to the investment in higher education. These are also called direct benefits, and are measured by calculating the difference in lifetime earnings between university graduates and secondary school graduates respectively. The non-measurable private benefits of education are the private "consumption" benefits of education. It is well recognized that education expenditures are not only investment in human capital, but also represent at the same time a "consumption" benefit. 10 A troublesome problem in the cost- benefit analysis of education is knowing how much of the cost is an expenditure which is expected to yield benefits only in the future and how much is expenditure for immediate satisfaction. Should all costs of education be regarded as investment and none as expenditure for immediate consumption? Note that we are concerned here only with immediate If we were interested also in the future non-monetary consumption. benefits of further education, then the monetary benefits are a complete measure of the returns on educational investment (at least in the private

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¹⁰ See the following: Becker, Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education, (New York: National Bureau of Economic Research, 1964), chp. 1. Blaug, M. An Introduction op. cit., pp. 16-22. Angus Maddison, "What is Education for?", Lloyds Bank Review, no. 112, (New York: Columbia)

<sup>Research, 1964), chp. 1.
Blaug, M. An Introduction op. cit., pp. 16-22.
Angus Maddison, "What is Education for?", Lloyds Bank Review, no. 112,
(April 1974), pp. 19-21.
Schultz, T. W, The Economic Value of education. (N. Y.: Columbia University press, 1963), pp. 54-63.
Vaizey, J. The Political Economy of Education, (London: Gerald Daukworth & Co., 1972), p. 66.
Woodhall, M., Cost Benefit Analysis In Educational Planning, UNESCO, Internal Institute For Education Planning, 1970, pp 25-34.
Carr-Hill R. and Magnussen, Indicators of Performance of Educational Systems, (Paris: OECD, 1973), chp. VI.</sup>

case), that costs include investment, expenditures for immediate consumption, and expenditures for a consumer durable item. But if we argue that monetary returns understate the total benefits of investment in education, then we cannot also argue that some costs of education should be viewed as expenditures for consumer durables.

Bowen (1964) suggested that the rational way to proceed is to make an explicit monetary evaluation of the consumption contributions of education, add this sum to the monetary returns from education, and then compare the total returns with the total costs. However, because of difficulties in estimating the consumption benefits, most studies of the rate-of-return to education have proceeded by ignoring the consumption component entirely and have treated education as a pure investment in human capital. This study therefore includes only the direct, monetary return to individuals resulting from further education.

Direct measurable benefits to society as a whole are worker productivity gains which are reflected in increased personal income. Therefore, differential lifetime incomes between groups of individuals completing different educational levels can be taken as a partial measure of both private and social benefits. The increased income is the direct, individual private benefit, and reflects the direct social benefits of increased worker productivity. Obviously, there could be gains in worker productivity which were the result of extended education, but which did not result in increased earnings. This would be the case in any but a perfectly competitive world where the marginal product of labour must be equal to its wage. Finally, differences in lifetime income across individuals who have completed different levels of schooling, can be only partially explained by these differences in extent of education.¹¹

Some private and social benefits involve explicit financial payment; other do not. Some benefits are internal to a particular decision maker; others are external to a particular decision maker or group decision makers.¹² In other words, externalities refer to those educational benefits that are external to the person who receives the schooling. They represent an important concept in rate-of-return analysis. A list of those indirect benefits of education that have been cited in the literature is provided by Blaug.¹³ Most private and social benefits which are external to any particular decision maker are virtually non-measurable. For example, external benefits of education such as better management employee

¹¹ See Weisbrod, B. A., "Preventing High School Dropouts", In R. Dorfman (ed.), <u>Measuring Benefits of Government Investments</u>, (Washington, D. C.: The Brookings Institution, 1965), p. 117.

¹² Weisbrod B. A., External Benefits of Public Education: An Economic Analysis, (Princeton, New Jersey: Industrial Relation Section, Princetion University, 1964.

relationships or increased political awareness are not easily measurable. Whether or not the external benefit is measurable, its essential feature is that it cannot be quantitatively apportioned to an individual or to any sub-group of individuals within the society.

There are certain external benefits which can be estimated, as, for instance, the possible effect of added years of education on the unemployment rate. If an extra year of education reduces unemployment and generates increased income, it would reduce the costs of total welfare and unemployment compensation and, on the income side, increase the total tax take. Further, reductions in the cost of crime prevention might be counted as an external social benefit of the extra education, assuming that direct welfare benefits reduce if unemployment is decreased and that people are more law-abiding when they are employed. To be sure, the savings in actual monies spent on social services are but a small measure of economic benefits accruing to the society at large; there is no implication that total increment in social welfare can be measured by these cost savings or increases in tax take. It was claimed that some external benefits are, for all practical purposes, unmeasurable, while others are measurable. Though it is not always easy to identify and evaluate all of these external benefits, there is no doubt that some of these benefits are quite significant and cannot be ignored if the evaluation of investment in higher education is to be meaningful. Vaizey argues that ignoring externalities can be seriously misleading because they are so great that in many circumstances they may outweigh the direct benefits.¹⁴ His view is undoubtedly valid and is shared by Weisbrod.¹⁵ However, external benefits for different university education programs may be the same, so that their

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- According to Blaug's listing, the externalities include:
 1. The current spillover income gains to other persons.
 2. The spillover income gains to subsequent generations.
 3. The supply of convenient mechanisms for discovery and cultivation of potential talent.
 4. The means of assuring occupational flexibility of the labour force.
 5. The provision of an environment that stimulates research.
 6. The tendency to encourage lawful behaviour.
 7. The tendency to foster political stability.
 8. The supply of social control, transmission of common culture and heritage.

- heritage.
- 9. The enhancement of enjoyment of leisure. See Mark Blaug, "The Rate of Return on investment in Education", In Economics of Education, Vol. 1, Mark Blaug (ed.) (Baltimore: Penguin Books, 1968, p. 243.

¹⁴ Vaizey, J. The Role of Education in Economic Development, in Plan Education for Social and Economic Development, Herbert S. Parnes, (paris, OECD, 1963), pp. 40, 50-52. in Planning

¹⁵ Weisbrod, B. A. "Education and Investment in Human Capital, Journal of Political Economy, LXX, no. 5, part 2, Supplement 1962, pp. 106-123.

effect in calculating rates of return in this study is not significant. To illustrate some of these secondary benefits, let us consider briefly the case of the Medical College in Iraq (see Appendix D). In the course of instructing medical students, the college staff (doctors, Surgeons, technicians, etc.) perform operations, administer treatment and provide various other services, free of charge, for patients at the various teaching hospitals. Although such medical services are a necessary and integral part of medical education, they nevertheless provide simultaneously tangible economic benefits to society as a whole, over and above their primary educational objectives. In the present study some of these spillover benefits will be identified and, whenever possible, they will be quantified in monetary terms (see Appendix D). These estimates, however, will not be taken into account in the rate of return calculus.

Finally, the institutional benefits in general derive from tuition paid by the students or their families, and from miscellaneous sources such as consulting services to industry, agriculture etc., rent of equipment and facilities, sale of goods produced in laboratories and experimental farms, and receipts from various activities such as museum fees. The revenue of most universities today (specially state universities) is derived almost entirely from governmental grants and subsidies. However, grants and subsidies are essentially transfer payments and must not therefore be viewed as income in cost-benefit analysis.

In the University of Baghdad (as in all universities in Iraq) since tuition is entirely free, the sources of revenue are the government grants and institutional revenue. But the latter is very limited and the magnitude of such revenue is small when compared to the magnitude of the government grants or the costs.

For the purpose of this evaluation, costs like benefits, will be divided into three main categories: (1) institutional costs, (2) private costs, and (3) social costs. The private and social costs will be divided into measurable and non-measurable costs. Institutional costs include the direct expenditures for salaries (for teachers and other staff), books, supplies and equipment, maintenance of buildings and other fixed assets to operate an educational institution, the indirect cost of depreciation on buildings and equipment and machines which are used by the institution. The institutional expenditure data were obtained from the annual financial statements of each college of the University of Baghdad for the years 1981/82-1986/87. The average institutional cost per student in a particular year is calculated. Also, the cost per graduate is estimated by using the cost-per-student year method (see chapter 5) for the same period under consideration.

The measurable private costs are those current expenditures which are incurred by the individual student or his family. These include tuition fees, expenditure for academic supplies, books, transportation to and from
the educational institution. In addition there are measurable opportunity costs, which are the forgone earnings of students who choose to continue education rather than enter the labour market. They are estimated by calculating what such students would have earned during the relevant time period had they chosen to seek employment. In the present study, the direct private costs are assumed to be zero, because there are no tuition fees, and most of books and related educational materials are supplied (or loaned) by the university to students free of charge. In other words, the private costs of university education in Iraq are equal to forgone earnings by the student which he could have earned as a secondary school graduate had he not chosen to pursue a university education.

Social costs of higher education in Iraq consist of (i) educational costs incurred by the society (institutional costs), and (ii) the opportunity cost or forgone income incurred by individuals during the period when further education is acquired.

In summary, this study examines the private and social monetary returns to university graduates who have undertaken one of several forms of programs. The study provides an assessment of the relationship between private and social monetary returns and the following variables: (i) type of program; (ii) the length of program; and (iii) the age at which the individual chooses to commence such a program.

1.3 Methodology

The approach used to appraise the economic contribution of education is known as rate-of-return analysis. Cost-benefit analysis is a technique for the assessment of investment projects in the public sector. It considers all benefits and all costs (sacrifices) regardless of to whom they accrue. In the cost-benefit analysis, the concern is the economy as a whole and the welfare of the society at large.

Cost-benefit analysis is an accepted planning tool used to evaluate an investment project by comparing expected total costs with expected total benefits. However some writers do not seem to agree whether or not to define it strictly as a separate planning tool or as a one of several approaches to educational planning namely, social demand and manpower requirements approaches.

Cost-benefit analysis is essentially an investment assessment technique which attempts to do explicitly what the market price system does implicitly.¹⁶ It does this by estimating the expected total benefits and comparing them with the expected total costs. Since the cost and benefits

¹⁶ Blaug, M. An Introduction op. cit., p. 120.

of all investment projects flow nonuniformly over the life of the project, it is necessary to reduce these costs and benefits to a common denominator if the comparisons are to be meaningful, i.e. all future streams of benefits and costs are discounted to the present.

1.3.1 The Net Present Value Method

The net present value method of the investment is the difference between the present value of the benefits stream and the present value of the cost stream.

Several investment criteria are given by Turvey and Prest (1965)¹⁷ for a case in which no projects are interdependent or mutually exclusive, and where starting dates are given and no constraints are operative. The choice of projects which maximize the present value of the total benefits less total costs can be expressed in any of following four equivalent ways:

- 1. Select all of the projects where the present value of the benefits exceed the present value of the costs.
- Select all of the projects where the ratio of the present value of benefits to the present value of costs exceeds unity.
- 3. Select all of the projects where the constant annuity with the same present value as benefits exceeds the constant annuity (of the same duration) with the same present value as costs.
- 4. Select all the projects in which the internal rate of return exceeds the chosen rate of discount.

If the values of benefits, costs, and the discount rate are determined, the net present value of the investment is easily calculated. However, often the discount rate is either not known or cannot be agreed upon. In such circumstances, the net present value may be calculated for a range of discount rates thereby providing the decision makers with a form of sensitivity analysis.

1.3.2 The Internal Rate of Return

More commonly in education projects, however, the internal rate of return of the investment is calculated. The internal rate of return is defined as that discount rate which would equate the present value of total benefits with the present value of total costs. In other words, it is that

¹⁷ Turvey, R and Prest A. R., "Cost-Benefit analysis: A Survey". <u>The</u> <u>Economic Journal</u>, Vol. 75, 1965, pp. (683-735).

discount rate which would cause the net present value of an investment to become zero.

1.3.2.1 An Alternative Approach To Rates - Of - Return

There are three main methods for calculating the rate of return to investment in education. The method adopted by various writers often depends upon the availability of data or the degree of desired accuracy. These methods are: (1) the elaborate method; (2) the earnings function method; and (3) the short-cut method.

1. The Elaborate or Discounting Method

This method of estimating the profitability of investment in education requires detailed data on age-earnings profiles by educational level and unit costs of each level of education. The rate of return (r) could be found by solving the following formula:

$$\sum_{t=m+1}^{n} (E_{h} - E_{h-1})_{t} (1 + r)^{-t} = \sum_{t=1}^{m} (C_{h} + E_{h-1})_{t} (1 + r)^{-t} \dots \dots \dots (1)$$

Where E is worker earnings; $E_{h}-E_{h-1}$ represents the earnings differential between a more educated worker and less educated worker; E_{h-1} represents the student's foregone earnings or indirect costs; C_{h} represents the direct costs of schooling consisting of tuition, books, transportation, etc.; n represents the expected working life of the higher educated worker; and m represents the length in years of schooling cycle.

2. The Earnings Function or Regression Method

This amounts to fitting a Mincerian earnings function expressed as:

¹⁸ For more details see Psacharopoulos, G. and R. Layard "Human Capital and Earnings: British Evidence and a Critique", Review of Economic Studies, Vol. 46, no. 3, 1979, pp. 485-503; Psacharopoulos, G. "Returns to Education: an Updated International Comparison", Comparative Education, Vol. 17, no. 3, 1981, pp. 321-341; Psacharopoulos G. The Cost-Benefit Model, in Psacharopoulos, G. The Economics of Education, 1987, pp. 342-347; Psacharopoulos, G. and Alam, A., Earnings and Education in Venezuela: An Updated from 1987 Household Survey, Economics of Education Review, Vol. 10, No. 1, 1991, pp. 29-36; and Psacharopoulos, G., and Y. NG: "Earnings and Education in Latin American", <u>The World Bank</u>, 1992, WPS 1056.

 $Ln Y_{i} = a + b.S_{i} + C.EX_{i} + d.EX_{i}^{2} \qquad (2)$ Where

This method does not include any specific reference to direct educational costs, although it does incorporate earnings forgone which are a high proportion of total costs. Depending on data availability, the Mincer method may be relatively quick and easy to compute using a standard regression package. The major disadvantage of this method is that it is applied to data for broad aggregates (often for the whole of education) and thus does not provide results that are readily implementable at the micro level.¹⁹

3. The Short-Cut Method

Age-earnings profiles by educational level are not always available. In some cases, however, average (over all ages) wages by schooling level are available and have been used to estimate the rate of return. The rate of return could be estimated by solving the following formula:

$$r_{h} = \frac{V_{h} - V_{h-1}}{S(C_{h} + V_{h-1})}$$
(3)

Where \mathbb{W}_h is the average wage for a higher educated person; \mathbb{W}_{h-1} is the average wage for a less educated person; S is the length of the school cycle in years; C_h is the direct annual cost of schooling; and r_h is the rate of return to higher education.

In this method, the rates of return are estimated on the basis of the following three assumptions: (1) the earnings differential is fixed throughout the worker's lifetime; (2) the earnings last forever (to infinity); and (3) the cost of schooling occurs at one point in time.

¹⁹ Tan, J-P, and Paqueo, V. B., The Economic Returns to Education In the Philippines, International Journal of Educational Development, Vol. 9, No. 3, 1989, pp. 243-250.

The major advantage of this method is that one can use ready available information on the earnings of workers by educational level in order to estimate the private rate of return. Moreover, it is easy to add the resource cost of schooling in the denominator in order to calculate the social rate of return.

However, this method is inferior to any of the other methods reported above. The main problem with this method lies in the abstraction from the fact that age-earnings profiles are concave, and that the discounting process (including the true rate of return) is very sensitive to the early values entering the computation. However, Psacharopoulos²⁰ (1981) suggested that "this can be rectified in case the mean earnings by educational level are available for large age groups. Then, choice of, say, the 35-45 age group for computation of the rate of return somehow prevents biases associated with the early experience profiles.²¹ (1981) suggested that "this can be rectified in case the mean earnings by educational level are available for large age groups. Then, choice of, say, the 35-45 age group for computation of the rate of return somehow prevents biases associated with the early experience profiles.²¹ (1981) suggested that "this can be rectified in case the mean earnings by educational level are available for large age groups. Then, choice of, say, the 35-45 age group for computation of the rate of return somehow prevents biases associated with the early experience profiles." However, the elaborate or discounting method is applied in this study.

1.3.2.2 Private Versus Social Rates Of Return

There are two aspects of education as an investment i.e. the private and the social. The private return aspect looks at education from the individual's point of view. It considers the relationship between the costs incurred by the individual his/herself or by his/her family in obtaining education and his/her life-time earnings (where these can be attributed to education). The benefits (earnings) must be taken on an after taxes. The social aspect looks at education from the point of view of the society (national economy) at large. This aspect considers the relationship between the total costs (cost to the individuals and society) and benefits accruing to society as a whole. The benefits must be taken on a before tax basis. Private returns and social returns are discussed in more detail in chapter 6.

²⁰ Psacharopoulos, G. "Returns to Education: an Updated International Comparison", Comparative Education, Vol. 17, no. 3, 1981, pp. 326.

²¹ Psacharopoulos, G. "Returns to Education: an Updated International Comparison", Comparative Education, Vol. 17, no. 3, 1981, pp. 326.

1.4 The Assumptions of this study

The following assumptions are made in this study of rates-of-return to university education in Iraq:

- 1. Individuals have decided to invest in the university education rather than in some form of physical capital. This assumption obviates the necessity of considering the many alternatives that could be followed.
- 2. Because of estimation difficulties, consumption benefits ignored.
- 3. It is assumed that all university education costs are assumed to be investment.
- 4. The period of working life is as follows: Secondary school graduates enter the labour market at age 18, and retire at age 60; while university graduates enter the labour market at ages 22, 23, and 24 depending upon whether they study for a four-year program, five-year program or six-year program respectively. All retire at age 60.
- 5. It is assumed that all graduate students continue their programs directly after secondary school graduation and complete their work for an under-graduate degree without interruption (except see chapter 7 section 3 where we consider late entrants).
- 6. For university graduates, there is guaranteed employment in the public sector.
- 7. There is no salary differences between males and females since the majority of university graduates work in the public sector. in other words, both are equal in the promotion and salary pattern. It also assumed that all graduates enter the labour force immediately after graduation and complete their lifetime working without interruption except married women who take a maternity leave. However, women employed in public sector in Iraq are paid full salaries for this period (one year). According this assumption the private rate of return may be the same for both men and women. But the social rate of return for women are most likely less than for men, because the former is less productivity than the latter. Also may effect the private rate of return for women the women are not paid for the maternity leave period, i.e. Private rate of return for women less than for men.
- 8. Monetary benefits and costs only are taken into account. that is, the external or spillover benefits and costs of education are ignored because of estimation difficulties.
- 9. It is assumed that no students work part-time while attending university.
- 10.Because all university schooling is free in Iraqi, the direct costs are assumed to be zero.
- 11.Most research is carried out by the council of studies and scientific

research which was founded in 1969 or by research centres which have a separate budget. in the universities, therefore, it seems reasonable to assume that academic salaries are teaching function.

1.5 The Scope and Limitations of This Study

- 1. The author faced considerable difficulties in obtaining directly relevant data. It is hoped that the study will stimulate and encourage the government authorities to survey and research this area thoroughly. The study utilizes the 1972 national survey of government and public sector employees in Iraq in order to provide the salary and wage data. However, these data were adjusted for increases in salaries and wages for the period between 1972 and 1987. Data upon the costs of university education, the number of students enrolled, the number of graduates etc. were obtained from the financial statements of faculties and service offices in the University of Baghdad, financial records, official documents, national or regional surveys, and other sources of statistics. This data would have to be obtained from various sources, examined, and reclassified systematically. Unfortunately such an undertaking is often not possible due to time and resource constraints. Because of such difficulties, the data on the institutional costs of university education in the present study were based not on the total Iraqi system of university education, but rather on the basis one representative university. It was decided to focus upon the University of Baghdad (see ch. 5)
- 2. The study was restricted to the evaluation of private and social returns on investment in fifteen different programs of the University of Baghdad in Iraq.
- 3. The types of university education chosen for investigation were eleven four-year programs, three five-year programs, and one six-year program, namely Science, Engineering, Nursing, Agriculture, Economics and Administration, Law and Politics, Arts, Fine Arts, Education, Physical Education, and Alsharia; Pharmacy, Dentistry, and Veterinary Medicine; and Medicine respectively.
- 4. The internal rate of return is used to evaluate the private and social returns to investment in different programs of university education in Iraq. The internal rate of return is calculated by using The "Elaborate or Discounting Method". This method is refined by using different values of alpha coefficient, and different ages of commencement.
- 5. No attempt was made to investigate the economic contributions of other alternatives such as investment in 'on-the-job industrial training', or indeed investment in physical capital rather than human capital.

6. The study was restricted to students (without any distinction between males and females) who have graduated from the University of Baghdad.

- 7. The indirect benefits (external economic benefits and social benefits) were omitted from this thesis because of quantification difficulties. In this thesis only the monetary benefits are used to evaluate the returns on investment in university education. Therefore, the private and social returns to investment in university education were understated.
- 8. Earnings differentials are due not only to extra education received but also to other factors such as family income, social background, occupation, natural ability, age, region of work, and so on. Ideally to arrive at the economic benefits of education, all of these factors should be taken into consideration. To do so, however, would require data about all of the above factors. Instead cost-benefit analysts adjust the observed earnings differentials of educated workers by an arbitrary coefficient to allow for these non-educational factors. In this thesis, three values of the so-called alpha coefficient were applied (1, 2/3 and 1/2).

1.6 Structure of This Study

In **Chapter two** we present an overview of the establishment and development of university education in Iraq as well as some information about the organization of the Ministry of Education and the Ministry of Higher Education and Scientific Research, and the financing of the educational system. We also present some background information about Baghdad University, such as the number of students enrolled, graduates, the number of teaching staff compared with other universities in Iraq, and the postgraduate programs.

In **Chapter three**, previous studies of the costs, benefits, and rate of return to education are reviewed. This chapter concentrates on the rate of return studies and covers the social and private rates of return for males and females, white and non-whites, urban and rural dwellers, as well as rates of return for different levels of education and for various subjects in different countries.

Chapter four considers the specific issues encountered in the application of cost-benefit analysis in the field of higher education, particularly in Iraq.

Chapter five is concerned with the estimation of the costs of university education in Iraq from the point of view of the individual, the educational institutional and society at large. In this Chapter the institutional costs per student and per graduate are calculated; the social institutional cost per student and graduate are also estimated. All costs are adjusted for 1987 prices.

Chapter six analyses the benefits of higher education from the private, institutional, and social points of view. In this Chapter, the private and social benefits are calculated using the salaries and wages of government and public sector employees. Different values of the alpha coefficient are used to adjust the earnings for factors other than education.

The private and social rates of return on university education in Iraq are discussed in **Chapter seven**. The private rates of return are also estimated for people who commenced their studies at different ages.

A Summary of the main findings and recommendations is presented in **Chapter eight.** In this Chapter some conclusions about costs, benefits, and private and social rates of return to university education in Iraq are drawn. The implications of the results for the allocation of government expenditure on university education are discussed. The problems of data availability are discussed as well.

CHAPTER TWO

AN OVERVIEW OF IRAQ'S HIGHER EDUCATION SYSTEM

2.1 Establishment and Development of University Education in Iraq

Higher education in Iraq started slowly with a limited range of higher studies. The "School of Law" was established in 1908 and later developed into the College of Law and Politics. The Higher Teacher Institute was established in 1927 (later renamed as the College of Education), the College of Medicine also opened in 1927, the College of Pharmacy in 1936, Engineering in 1942, the College of "Al-Sharia" (which teaches religion and Arabic) in 1946, the Alia Queen for Ladies in 1947 (later renamed as the Ladies College, and closed in 1969), the College of Commerce in 1947 (renamed as the Administration and Economics College), the College of Arts in 1949, the College of Science in 1949, and the Higher Agricultural Institute in 1950 (in 1952 it was renamed the College of Agriculture).¹

Therefore, by 1952 there were 11 Colleges offering first degree courses. Few other Colleges were set up in the 1950's until the year 1957 when the need for a university became apparent following the rise in the number of colleges. Therefore, the constitution of the University of Baghdad was designed in 1956 and this was the cornerstone of the foundation of the University which took place in the end of 1957. The first meeting of the University Council was held in 1958 during which the colleges which were to be part of the University were defined.² According to the law No. 28 in 1958, ³ Baghdad University consisted of the following colleges:

AL-Zauba'e, A. and Al-Ghannam M. Higher Education in Iraq, Its Trends and Problems, University of Baghdad, Government Press, 1968, P.7. (In Arabic Version)

² University of Baghdad, Leaflet of University of Baghdad, for the Year 1962/63, Al-Ianai Press, Baghdad, 1963, pp. 5-8.

³ Mathews and Akrawi said that "At least two attempts were made in 1943, 1945 to incorporate the existing colleges, but neither attempt went beyond producing a draft charter and a draft law for the proposed university". See Mathews E. D. and Akrawi M. Education in Arab Countries of Near East. (Footnote continued)

College of Science.
 College of Engineering.
 College of Medicine.
 College of Pharmacy.
 College of Dentistry.
 College of Agriculture.
 College of Veterinary Medicine.
 College of Education.
 College of Arts.
 College of Ladies.
 College of Law and Politics

The 1960's witnessed a rapid increase in the number of colleges associated with Baghdad University in addition to the establishment of several other universities. These universities are (i) Al-Mustansyrai, founded in 1963 as a private university and later (1974) converted to an official public university, (ii) Al-Basrah opened in 1964, (iii) Al-Mosul (1967), (iv) Salah Al-Dean (1968), (vi) and the Technology University (1975). Each of these offered courses in almost all of the major specialisms, such as medicine, engineering, pure science, law, and economics. In 1987, four new universities were established. These are the Universities of Al-Anbar, Al-Qadissiya, Tikreet, and Cuoffa. Therefore, the total number of universities in Iraq has become 10, excluding the Technical Institutes.

During the year of the revolution (1968/69), the Revolutionary Council adopted a policy for the re-organization of the higher education system. A number of colleges and institutes were abolished and at the same time several similar faculties in different colleges were merged.⁴ In September 1969 the "Council" for higher studies and scientific research was formed, which again initiated some re-organization in the higher education system.

The Ministry of Higher Education and Scientific Research was established in 1970, which incorporated the Directorate of Higher Education Council which was the body in charge of the education, cultural, scientific and technological policies.

³ (continued) America Council on Education, Washington, 1949, p. 199.

⁴ Ministry of Planning, Educational and Social Office, Department of Educational Planning, report No. 3, 1971, <u>Higher Education in Iraq for the</u> period 1960/61-1969/70.

2.2 System of Administration of Education in Iraq

Higher education is administered by the Ministry of Higher Education and Scientific Research. However, The Universities are independent in most technical professional matters.⁵ Various technical Ministries such as Agriculture and Agrarian Reform, Communications, Health, Industry, and Labour and Social affairs also organize training programs which are mainly at the skilled worker's level.

The organization of the Ministries of Education and Higher Education and Scientific Research are shown in Figures 2.1 (p. 25) and 2.2 (p. 26).

Education Law No. 124 of 1971 re-defined overall functions and duties of these Ministries in the light of the objectives of the government policy. In this, the first duty of the Ministry of Education is to plan for education and follow up the approved planning.

As a consequence of this Law ordinance No. 13 of 1972 was issued, involving a major reorganization of the administrative machinery of the Ministry and the development of new functions.⁶

According to Law No. 132 of 1970, the Ministry of HESR is responsible for the execution of the technical, scientific, cultural and educational policy of the state in the sphere of public institutes at the post-secondary level. The Ministry also prepares the financial estimates for Higher education and Scientific Research. It is also responsible for negotiating external cultural delegations and scientific missions. The Law also provides for a Board of Higher Education which is the highest authority in dealing with all policy matters in high education in Iraq.⁷

2.3 Structure and Organization of the System

The structure of the education system in Iraq is shown in the Fig. 2.3 (p. 27) It can be seen that pre-school education based on a two-year Kindergarten program, forms the lowest rung of the education ladder. This is followed by six-years of primary school (grades 1-6). Secondary education is also of six-years' duration, but is divided into two sub-levels: an intermediate program of three years, followed by a

7 Ibid.

⁵ Ministry of Education, Development of Education in Iraq, during 1974/75-1975/76. Directorate General of Education Planning, Baghdad, 1978, p. 14, (in English version).

⁶ Ministry of Education, <u>A Report on Educational</u> <u>Development in Iraq</u>. Baghdad, 1977, p. 2, (in English version)

preparatory levels of the same duration. While the intermediate program provides common and general education courses for all, the preparatory schools are diversified to cater for individual interests on the one hand and to the needs of economy on the other. Scondarty school is divided into two main sections: Academic and Vocational. The Academic section provides one year of general education at the end of which students may specialize either in literary or scientific subjects for a period of two years in grades 11 and 12. The vocational section comprises of three streams namely: Agricultural, Industrial and Commercial.

There are three main types of teacher training institutions, namely:

- (i) Teacher Training Schools (TTS) which offer a 3 year course after the intermediate school leaving certificate.
- (ii) Teacher Training Institutes (TTI) which offer a 2 year course after the preparatory school leaver certificate.
- (iii) College of Education (CE) which offers a 4 year course after the preparatory school leaver certificate.

Higher education is provided either in Higher Technical Institutes, normally having a two or three year cycle, or in universities and colleges which offer courses extending over four to six years, depending on the field of specialization.

2.4 Financing of Education

In Iraq, education is considered as one of the main public services, alongside Health, Housing and Communication, that government has to provide for the people. It is free at all levels from kindergarten, through to postgraduate studies. The Ministry of Education budget provides for kindergarten, primary, secondary (both general and vocational) education, and teacher training. The Ministry of Higher Education and Scientific Research finances all university, institute, and postgraduate technical education.

Expenditure on public education in Iraq is provided in two ways:⁸

- 1. <u>The Government Annual Budget</u>, which provides such recurrent funds as salaries and wages, maintenance, administration, general expenditure for improving and developing the curricula, textbooks, technical committees and the like.
- <u>Capital expenditure</u>, which is provided from the Economic Development Plan Budget. This includes provision for the construction of new school buildings, new classrooms, and land purchases. Other capital

⁸ Ministry of Education, Official Report (1969-77) Directorate General of Educational Planning, Baghdad, 1978, PP. 52-54, (in Arabic version).

expenditures include tools and laboratories, school furniture, and audio-visual aids. The capital expenditures and recurrent expenditure of Iraqi Universities for years 1981/82 to 1986/87 are shown in Table 2.7 (p. 31)

2.5 Baghdad University

2.5.1 Introduction

The University of Baghdad, is the oldest and the largest university in modern Iraq. The University comprises of fifteen colleges and nine research centres, with about 55,000 students. It provides instruction in humanities, sciences and other spheres of learning.

The University offers bachelor degrees, high diploma⁹, masters' degrees, and doctorates in various fields of sciences and arts, and carries out applied and pure scientific research and gives technical consultations to various state establishments.

This section focuses on four aspects; the Administration, the Academic program, the students (enrolled and graduate), and the Academic teachers.

2.5.2 The Administration

As stated in section 2.1 above, The University of Baghdad is composed of the fifteen colleges. It has also nine Research Centres which have their own administrative systems. However these Centres are financed by a separate budget. These are as follows:

University Research Centres

- 1. Natural History Research Centre
- 2. Education and Psychological Research Centre
- 3. Economics and Administrative Research Centre
- 4. Medical Research Centre
- 5. Palestinian Studies Centre
- 6. Centre of Psychiatry
- 7. Urban and Regional planning Centre
- 8. Dental Research Centre
- 9. Arab Scientific Research Centre

The University of Baghdad is the largest university in Iraq, in terms of

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⁹ High diploma is higher than a BA/BSc degree.

the number of colleges, except for the Technical Institute. See Table 2.1 (p. 28).

2.5.3. Academic Program

The required period of attendance for undergraduate program is four years with the exception of five years at the Colleges of Pharmacy, Dentistry, and Veterinary Medicine, and six years at the College of Medicine. The required period of study for the masters' program it is 3-6 semesters and for the doctors' program it is 4-8 semesters.

2.5.4 The Students

The number of students enrolled in the University increased from 3,244 in 1959/60 to 6,730 in 1964/65 and reached 10,018 in 1979/80. However by 1988/89 the number of students had reached 55,351. Table 2.2 (p. 28) shows the development in terms of the number of students enrolled and graduates for the years 1959/60 - 1988/89.

The reasons for the sharp increase in the student numbers were the exclusive availability of some studies or programmes in Baghdad University, the internal migration of students to Baghdad, who prefer to be in the capital because the facilities and services are better than in other cities.

The number of Baghdad University graduates increased from 1196 in 1959/60 to 7141 in 1984/85 and 5904 in 1986/87.

Also, the number of students enrolled and graduating are higher than in any other university in Iraq (see Tables 2.3 and 2.4, p. 29).

2.5.5 The Academic Teachers

Provision of an academic staff is one of the basic requirements for education and it plays a major role in the success of the education process. The University of Baghdad faced since its establishment the problem of a shortage of qualified persons and this led to efforts to close the gap. The shortage was overcome by:

a. employment of foreign teachers;

- **b.** using mutual agreements between Iraq and other countries in the provision of some academic staff;
- c. securing qualified staff by assigning scholarships for students and training programmes.

Table 2.5 (p. 30) shows the academic staff of Baghdad University from year 1964/65 to 1988/89. It shows that the number of academic staff increased from 566 in 1964/65 to 2641 in 1988/89.

The student/teacher ratio has declined from 38 in 1964/65 to 21 during the year 1988/89.

The Student/ teacher ratio in Baghdad University is higher than in other Iraqi Universities, except for Al-Mustanssirya University. Numbers of teachers and Student/teacher ratio are shown in Table 2.6 (p. 30)

2.6 Post-graduate Courses

Postgraduate students could be divided into graduates from inside Iraq and graduates from abroad.

2.6.1 PostgraduateStudents from Inside Iraq

Post-graduate courses started early in the 1960's at the University of Baghdad. The number of students registered for MSc. degrees increased from 14 in 1961 to 125 in 1967, for the year 1972 the figure totalled 705 students. In 1988/89 the number of Postgraduate students reached 2099.

2.6.2 Postgraduate students From abroad

The second source of supply of individuals is Iraqi graduates from foreign universities and institutions. Since the Second War the number of Iraqi students who received educational training abroad has increased rapidly. The increase accelerated after 1958 as the government offered a larger number of scholarships for students to pursue higher education courses abroad. During the years 1960/69 successive governments financed the studies of approximately 2,000 students in foreign countries. among these 223 students were pursuing their education in Arab countries, such as Egypt, Syria and Lebanon, while 861 students were receiving education in European countries such as Germany, The U.K. and France. Of the remainder, 383 were in America and 412 in socialist countries. The courses for which they were sent abroad included engineering, physics, chemistry, economics, law and anthropology . Out of the 2,000 sponsored students, 1113 have completed the courses successfully, while a large proportion of the remainder were still pursuing their educational training.

In additional to the 2,000 government sponsored students there were 17,000 private students studying abroad. A sample of 250 of these students was analysed by the Educational Section of the Ministry of Planning.¹⁰ Their results showed that of the sample 65 were studying in Arab countries, 51 in European countries, 76 in Socialist countries, 20 in America and 38 in Turkey and other Eastern countries. Approximately one-third of the 250 students had successfully completed their courses, while a significant proportion of the remainder were still following the educational training courses. However, more meaningful results could have been obtained with a larger sample size. That is to say the sample considered was very small, constituting 1/68 of the total private student population during the years 1960-69. The results would have been more useful if the period considered was longer than nine years, since it would require a minimum of ten years to proceed from a pre-first degree course to the Ph.D degree. The implication is that there was a higher proportion of private students who obtained educational qualifications than the results of the sample survey had shown. In 1985, The Iraqi government offered about 2000 scholarships to students to continue their higher education abroad.

To conclude, it is clear that the educational system was already well established in the early 1950's and that the output of this system, that is, graduates with first degrees and postgraduate degrees, increased substantially over the years. Ultimately these joined the labour force and by so doing they imported quality improvements to the labour force which in turn constituted an important element in the production process.

¹⁰ An Evaluation of the Studies of Iraqi Students Abroad for years 1960-1969, The Educational Planning Section, Ministry of Planning, Baghdad, No. 1977.

FIG 2.1 ORGANIZATION OF MINISTRY OF EDUCATION IN IRAQ.





Directorates under their respective Directors-General

1.1 Head quarters; 1.2 personnel; 1.3 Local Affairs; 1.4 Accountant;1.5 Supplies; 1.6 Production works; 1.7 Printing press. 2.1 Physical Education (boys); 2.2 Physical Education; (girls); 2.3 Youth training in School 2.4 Boy Scouts & Girl Guide. 3.1 Primary Education; 3.2 Kindergartens; 3.3 Special Education; 3.4 Pilot project (Education and rural Development). 4.1 Secondary Education; 4.2 School Activities.5.1 Educational Planning; 5.2 Follow-up & Evaluation; 5.3 Statistics; 5.4 School Buildings; 5.5 Studies and Documentation. 6.1 Curriculum & Textbooks; 6.2 Teaching Aids; 6.3 Educational Television; 6.4 Laboratories; 6.5 Libraries. 7.1 Cultural Exchanges; 7.2 Information; 7.3 UNESCO Affairs & other International Organizations; 7.4 Cultural Counsellors Abroad. 8.1 Evaluation & Educational Guidance; 8.2 Examinations; 9.2 Supervision (Primary Education); 9.3 In-service Training (Secondary Education); 9.4 In-service Training (primary Teachers); 9.5 Central Institute for in-service Training of Educational Workers. 10.1 Statistics & Follow-up; 10.2 Curriculum & Textbooks; 10.3 Audio-visual Aids; 10.4 Supplies.

Abbreviations Used:

IFA: Institute Fine of Arts; IDELTI: Institute for the Development of English Language Teaching In Iraq; HC/CETA: High Committee for the Development of Curriculum, Examination and Teaching Aids.



Source: Ministry of Education, Development of Education in Iraq During 75-/76, Baghdad, 1977, p. 50.

Note: The author has added the new universities which were established in 1987.

Directorate under the respective Department

8.1 Central Registration; 8.2 Admissions & Transfers; 8.3 Guidance and Follow-up; 8.4 Administrative Affairs. 9.1 Accounts; 9.2 Administrative services and Follow-up; 9.3 Personnel; 9.4 Legal Affairs; 9.5 Mail & Filing; 9.6 Library & Documentation; 10.1 Finance & Investment; 10.2 Co-ordination & Follow-up; 10.3 Appraisal of Layouts; 11.1 Plan Aggregation & Co-ordination; 11.2 Statistics; 11.3 Electronic Computer; 12.1 Agreements; 12.2 Arab & Foreign Students; 12.3 Exchange of Professors; 12.4 Information; 12.5 International Organization & Associations & Scientific Unions. 13.1 Scholarships Home and East; 13.2 Scholarships (Europe); 13.3 Scholarships (America); 13.4 Equating of Degree; 13.5 Administration.



AL-Habeeb, M. J., Education and Economic Development, Al-Rasheed Distribution Co., Baghdad-Iraq 1981, p. 231. Note : T.T.S = Teacher training School; T.T.I = Teacher training Institute; P/G = postgraduate * INSTITUTES of Technology, Agriculture, Lab. Tech., Administration, Industrial Training.

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Table 2.1 Number of Colleges at Iraqi Universities, 1987/1988.

University	Number of Colleges and Institute
Baghdad	15
Basra	9
Mosul	11
Salah Al-Dean	7
AL-Mustanssirya	6
Technology	10
Al-Anbar	4
Al-Qadissiya	3
Tikreet	3
Al-Couffa	7
Technical Institutes	22

Source:

Republic of Iraq, Ministry of Planning, Central Statistical Organization, Annual Abstracts of Statistics, 1988/89.

Table 2.2

Number of students enrolled and graduates, University of Baghdad, 1959/60-1988/89.

Year	Number of Students	Index 1959/60 = 100	Number of Graduates	Index 1959/60 = 100
1959/60	10,591	100	1,196	100
1964/65	21,249	201	2,775	232
1969/70	19,582	185	4,791	401
1974/75	26,181	247	3,567	298
1979/80	32,318	305	6,844	572
1984/85	32,938	311	7,141	597
1986/87	42,784	404	5,904	494
1988/89	55,351	523	n.a.	n.a.

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Source:

Baghdad University, Registration Office, Annual Abstracts of statistic, Al-Zaman Press, 1965, For the year 1959/60 and 1964/65; Baghdad University, Planning Office, Annual Abstracts of year 1969/70, 1974/75, and 1979/80; and year 1986/87 and 1988/89 Compiled from the "student's records", Statistical Department, University of Baghdad.

Table 2.3

Number of Students Enrolled in Iraqi Universities for years 1981/82-1988/1989.

		Year								
University	81/82	82/83	83/84	84/85	85/86	86/87	88/89			
Baghdad	34408	36063	34555	35030	44307	46382	55351			
Basra	10205	9611	9702	10020	11646	20033	14803			
Mosul	14721	14759	15558	16733	21053	11746	21565			
Salah Al-Dean	6367	6119	5866	5821	7634	7490	8091			
Al-Mustanssirya	10814	11162	11686	11241	14886	16879	17587			
Technology	8137	7859	7384	7824	7378	7692	8990			
Technical Inst.	27808	30687	34277	35572	34858	32322	n.a			

Source:

Republic of Iraq, Central Statistical Organization, Annual Abstracts of Statistics, 1981/82 Table 2, P. 4; 1082/83 Table 2, p. 4; 1983/84 Table 2, p. 4; 1984/85 Table 2, p. 4; 1985/86 Table 2, p.30; 1986/87 Table 2, p. 25; and 1988/89, Table 2, p. 26.

Table 2.4								
Number of Graduates f	from	Iraqi	Universities	and	Technical	Institute	for	years
1981/82-1986/87								

University	Year						
	81/82	82/83	83/84	84/85	85/86	86/87	
Baghdad	5644	6400	6588	7106	6661	6085	
Basra	1756	1829	1529	1667	2867	3159	
Mosul	2359	2567	2413	2542	1680	1826	
Salah Al-Dean	1148	1321	855	825	1226	984	
Al-Mustanssirya	1721	1648	1590	1826	2314	1975	
Technology	1443	1514	1442	1431	1403	1359	
Technical Institutes	8253	8786	7954	10410	11951	11669	

Source:

Republic of Iraq, Central Statistical Organization, Annual Abstracts of Statistics, 1981/82 Table 1, P. 4; 82/83 Table 1, p. 4; 1983/84 Table 1, p. 3; 1984/85 Table 1, p. 9; 1985/86 Table 1, p.9; and 1986/87 Table 1, p. 9.

Table 2.5			
Number of the Te	eachers in Baghda	ad university for ye	ears 1964/65 to 1988/89.
	Number	Index	Student/Teacher

Year	Number of Teachers	1ndex 1964/65 = 100	Student/Teacher Ratio
1964/65	556	100	38
1969/70	761	137	26
1976/77	1152	207	n.a.
1979/80	1504	271	21
1988/89	2641	475	21

Source:

For year 1964/65 see General Registration Office, Baghdad University, Abstract of Statistic for year 1964/65, Al-Zaman Press, 1965; for years 1969/70, 1976/77, and 1979/80 see Baghdad University, Planning Office, Annual Abstracts of year 1969/70, 1976/77, 1979/80; and 1988/89 Compiled from the "student's records", Statistical Department, University of Baghdad.

Table 2.6

Number of Teachers and Student/Teacher Ratio in Iraqi Universities, 1988/1989.

University	Number Teachers	Student Enrolled	Student/Teacher ratio
Baghdad	2641	55351	21
Basra	726	14803	20
Mosul	1515	21565	14
Al-Mustanssiriya	667	17587	26
Salah Al-Dean	559	8091	14
Technology	419	8990	21
Al-Anbar	31	355	11
AL-Qadissiaya	46	539	12
Tikreet	38	160	4
Al-Cuoffa	147	2596	18
	1	1	

Source: Column (1) from Republic of Iraq, Ministry of Planning, Central Statistical Organization, Annual Abstracts of Statistic 1989, p. 32; column (2) from Table 2.2; and Column (3) Column 2/column 1.

	l of Institute	Total	14.6	21.5	22.1	16.8	15.5	22.1	23.9	20.0
	lation iical	CUR	11.6	16.4	20.8	16.4	14.6	19-6	19.8	18.2
	Found Techr	CAP	3.0	5.1	1.3	0.4	e.o	2.5	4.1	е е
	γ of	Total	7.9	6.5	5.9	5.0	5.5	6.2	6.1	5.0
	rersit molog	CUR	4.5	5.1	ъ.1 С	6 ° T	5.3	5.2	5.6	4.8
	Univ Tech	CAP	3. <u>4</u>	1.4	0.8	L-0	0.2	1.0	0.5	0.2
	y of Isira	Total	5.5	7.0	6.8	6.3	6.1	7.5	8 6	8°2
	versit Mustar	CUR	4.3	6.3	6.2	6.2	ດ ທ	6.7	8.2	8.1
	Uni'	CAP	1.2	0.7	0.6	0.1	0.2	0.8	1.6	0.4
	.y of ∙Dean	Total	6.2	5.8	7.6	7.8	7.1	9.1	8.4	6.0
	Universit Salah Al-	CUR	5.3	5.3	6.5	7.4	6.8	7.8	7.5	5.3
		CAP	6.0	0.5	1.1	0.4	0.3	1.3	6.0	0.7
	Y OÉ	Total	0°6	12.0	6 - 6	9.3	8.2	10.5	11.1	10.5
	rersit Jasra	CUR	8.0	10.7	9.3	8.8	7.8	6-6	10.5	9.8
	tiau I	CAP	1.0	1.3	0.6	0.5	0.4	0.6	0.6	0.7
	y o£ ∟	Total	10.3	13.4	15.2	13.7	12.6	13.7	16.3	16.2
	rersit Mosul	CUR	0.0	12.2	12.5	12.6	12.1	12.8	15.4	15.7
	Unit	CAP	1.3	1.2	2.7	1.1	0.5	0.9	6-0	0.5
	P of	Total	11.5	22.5	15.6	20.6	21.3	25.3	31.1	27.9
	rersit 3aghda	CUR	9.5	18.7	13.1	18.7	19.7	21.8	22.9	27.3
	a Tau	CAP	2.0	з . 8	2.5	1.9	1.6	3.5	8.2	0.6
	Year		1980	1981	1982	1983	1984	1985	1986	1987

Table 2.7 The Recurrent and Capital Expenditures for The Universities in Iraq for Years 1980-1987

Source:

Ministry of Higher Education and Scientific Research, Statistics Department, Unpublished Report, 1989.

Note : CAP is Capital Expenditures; CUR is Recurrent Expenditures.

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CHAPTER THREE

REVIEW OF THE LITERATURE ON COSTS, BENEFITS, AND RATES OF RETURN OF EDUCATION

3.1 Costs and Benefits of Education

The costs and benefits of education need to be quantified if researchers are to evaluate the "profitability" of education. Psacharopoulos (1973) wrote, " The cornerstone of practically any analysis in the economics of education is the relationship between benefits and costs associated with different levels of schooling".¹

The contribution of education to the economic welfare of an individual and society can be measured in two ways, according to Schultz (1960) and Becker (1964). The two measures are (i) direct benefits, that is the pecuniary value, and (ii) indirect benefits.² Vaizey (1968) stated that the indirect benefits are analogous to 'external economies', which from the standpoint of society "provides its chief justification as a free or unsubsidized public service".³ The benefits, both direct and indirect, have two components, that is, private and social benefits. Similarly, there are both private and social costs in education. The identification and evaluation of private and social costs and benefits provide the basic data used to compute the returns to education.

3.1.1 Cost of Education

Seneca and Taussig (1974) defined costs as "essentially foregone benefits and, therefore, are most fundamentally regarded as opportunity costs. The cost of any economic good or service consists of the foregone

Psacharopoulos, G., <u>Returns to Education: An International</u> <u>Comparison</u>. San Francisco: Jossey- Bass, 1973, P. 1X.

² See Schultz, T. W. "Capital Formation by Education". Journal of Political Economy, 1960, Vol. 68, pp. 571- 583; Also see Becker, G. s., Human Capital : A Theoretical and Empirical Analysis with Special Reference to Education. New York: National Bureau Of Economic Research, 1964.

³ Vaizey, J. "The return to education". in Bowman, M. J., et al. (eds). <u>Readings in the Economics of Education</u>. Paris: UNESCO,1968, P. 593.

benefit from the consumption of some other good or service".⁴ In other words, the cost of an investment is the benefit that otherwise would be gained from the alternative. It is the opportunity that one loses by selecting one investment option over anther. Colberg, Forbush, and Whitaker (1970) distinguish between "Implicit and explicit cost: the alternative earnings of inhered factors are often called 'Implicit cost'. Hence, deduction of implicit as well as explicit costs from gross income gives 'economic profit'. Deduction of explicit costs alone gives accounting profit".

Hansen (1963) stated that the cost of education consists of two variables: (1) total resource costs, and (2) private resource costs.⁶ The concept of total resource costs is similar to the concept of social costs of education. The social costs of education imply total educational costs as incurred by the society as a whole. Private resource costs are incurred mainly by individuals or/and their families who receive the education. Furthermore, there are two other elements - direct and indirect costs.

Therefore, the costs of education include both direct costs (to the school, to the student, to his family) and indirect costs (foregone earnings). To calculate the rate of return, one must have estimates not only of the earnings from education but also of its cost.

3.1.1.1 Private Costs of Education

The private costs of education consist of direct costs and indirect costs (foregone earnings or opportunity costs of students while attending school). The direct costs of education are defined as the costs that are incurred for purpose of receiving that education. These costs are incurred by individual students and/or their parents, and include items such as tuition fees, books and school supplies, accommodation, and transportation. Weisbrod (1960), Schultz (1960), Woodhall (1987) and others, stress that not all monetary outlays represent real opportunity costs, therefore it is incorrect to include costs which they have been incurred anyway as costs of education. For example, university students will spend considerable amounts on clothes, food, and accommodation during their courses, but such

⁴ Seneca, J. J. and Taussig, M. K. Environmental Economics. Englewood cliffs, N. J.: Prestic- Hall Inco., 1974, p. 7.

⁵ Colberg, M. R., Forbush, D. R., and Whitaker, G. R. Business economics: <u>Principles and cases</u>. Homewood, Ill: Ricard D. Irwin, 1970, p. 4.

⁶ Hansen, W. Lee. "Total and Private Rate of Return to Investment in Schooling". Journal of Political Economy, Vol. 71, 1963, P. 139.

maintenance expenditures would have been required even if these individuals had not chosen to pursue their education.⁷ In the same way Woodhall (1987) pointed out that not all public expenditures on education are social costs. For example, maintenance grants to students are transfers rather than opportunity costs, that is, they are income transfers from one group in society, i.e. tax payers, to another, i.e. students. She also pointed out that such payments do not correspond to alternative opportunities which must be forgone as a result of educational provision. This does not mean that the government can ignore such transfer payments when the level and allocation of public expenditure are discussed. However they do not represent opportunity costs of education. Also they do not represent a diversion of resources from the production of other goods and services.⁸ While foregone earnings are classified as indirect costs, the rest of the costs met from out-of-pocket are referred to as direct costs.

Rogers and Ruchlin (1971) said that most people think of the price of education as being the tuition cost, and possibly, the cost of school supplies and transportation. However, these are just part of one component referred to as the direct cost of education.⁹ The disagreement come when one considers the opportunity cost. For example Vaizey (1968) doubted the usefulness of including the opportunity costs as part of either the private or social costs.¹⁰ On other hand, Schultz (1971), Blaug (1965, 1970) and others argued for the inclusion of opportunity costs in calculating the rates of return.¹¹ Blaug argues that earnings forgone should be included in any estimate of the true economic cost of education, particularly if the purpose is to analyse education as an investment. His grounds for

⁸ Woodhall 1987, p. 401.

9 Rogers, D. C., and Ruchline, H. S. Economics and Education: Principles and Application. New York: The Free Press, 1971, p. 40.

¹⁰ Vaizey Thought that "the inclusion of income foregone opens the gate to a flood of approximation which would take the concept of national income a way from its origin as an estimation of the measurable flows of the economy; if income forgone is added to education costs it must also be added to other sectors of the economy (notably housewives, mothers, unpaid sitters-in, voluntary work of all sorts); and doubtful whether any more useful purpose is served by a statistical exercise of this kind, than could be achieved merely by observing the number of people engaged in education". See Vaizey, J. "The Return to Education". In Bowman M. J., et al. (eds). Readings in the Economics of Education. Pairs: UNESCO, 1968, p. 594.

⁷ Weisbrod, B. A. "Education and Investment in Human capital". The Journal of Political Economy, 1962, Vol. 70, no. 5, p. 123; Schultz (1960) stated that "The cost of living of students and none - students may be put aside because they go on whether young people go to school or enter the labor market and are about the same except for minor items, such as books, extra clothes, and some travel in getting to and from school". p. 573 and see Woodhall 1987, p. 401.

including earnings forgone are threefold: (1) it helps to explain why the dropout rate after the minimum school leaving age is everywhere inversely related to income of household;¹² (2) if forgone earnings are ignored there is a tendency to treat education after the age of 15 or 16 as 'free' which is a 'potent source of irrational planing' and leads to a gross misuse of student time within educational systems; and (3) perhaps the most important point is that it contributions to a massive underestimation of investment in education in national income accounts.¹³ He argues that earnings forgone, are no less 'real' than direct financial outlays, since they represent the value of real resources which do have alternative uses. Although the time of teachers and the use of buildings and equipment are measured directly by "what is put in", the time of the students is measured indirectly by "what is done without", the distinction is one of statistical expediency, not of theoretical principle.¹⁴ Coombs and Hallak (1987) point out that the opportunity cost concept is also fundamental to any cost-benefit exercise designed to compare the rate of return on investments at different education levels and on investment in alternative fields, such as industry.¹⁵

Opportunity cost is not the only area of contention. There are also other cost areas, such as human capital depreciation, obsolescence, and maintenance, which are not usually included in costs of education. These two areas of contention are further explored below.

3.1.1.2 Opportunity Costs... Foregone Earnings

Coombs and Hallak (1987) point out that "since any nation (community or individual) has only a limited supply of economic resources to use in any given period, a decision to use some of them for a specific purpose, such

 12 That is families with low incomes cannot easily afford to forgone the earnings of their children.

¹³ Blaug M. 1970 Pp. 49-50

¹⁴ Blaug M. <u>An Introduction</u> .. 1970, p. 50.

¹⁵ Coombs, P. H. and J. Hallak, Cost Analysis in Education: A Tool for Policy and Planning. Published for the World Bank, the Johns Hopkins, University Press, London, 1987, p.1.

¹¹ Blaug M., "The Rate of return on Investment in Education in Great Britain"; The Manchester School of Economics and Social Studies, Vol. 33, 1965. Also see the same author, An Introduction to Economics Education, 1970, p. 49; and see Schultz T. W. "Investment in Human Capital: The Role of Education and of Research. (New York: The Free Press, 1971).

as education, means sacrificing the opportunity to spend these same resources on something else."¹⁶ For example, the resources devoted to education might be have been used to provide health care or agricultural development, or industrial development. The opportunity costs of education include all the real resources which are devoted to the educational system, and when these cannot be measured directly in money terms, an estimate of their value in alternative uses must be made. Earnings forgone by students when they choose to continue their education rather than seek paid employment is the most obvious example. The real economic cost of education is the real resources of time, books, equipment and buildings which are used in the education process, rather than money which buys them. However, the main difference between the opportunity cost of education and money expenditures is the value of students' time. The foregone earnings are that part of earnings which an individual has to be forego in order to receive certain education, adjusted for unemployment and taxes that would have been levied. Schultz (1963) stated that:¹⁷

"Students in secondary schools and beyond, and many of them before they have completed their elementary school, would be earning their keep and more at jobs suitable to their age and experience. Thus there is here an opportunity in attending school that is equal to the earnings that students forego."

When students are deciding to pursue full-time higher education instead of participating in the labour market, it means that there some is lost income for the individuals who are studying, and also lost production for the economy as a whole.

This assumes that the alternative to education is paid employment. Of course in some cases, students would be unemployed if they were not enrolled in higher education. Also, for younger pupils employment may not be a realistic alternative, either because compulsory schooling makes it impossible, or because there are few jobs open to children. Even in these cases, however, the concept of earnings foregone has some relevance.

When measuring the opportunity cost of students' time, the observed earnings of young workers should be adjusted to allow for the probability of unemployment. However, the opportunity cost is not zero even if unemployment rate is high. Some reporters have argued that the existence of unemployment means that the earnings foregone of students' is zero, since a marginal additional worker in the labour market would automatically be unemployed. Ultimately, the same argument is used on the benefit side of the calculation also, since any marginal worker in the labour market

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¹⁶ Coombs and Hallak, 1987, p. 13.

¹⁷ Schultz, T. W. The Economic Value of Education. (New York: Columbia University Press, 1963), p. 27.

will be unemployed, the returns to education are zero. Blaug et al.¹⁸ (1969) argued that this is mistaken. The existence of unemployment will mean that an increased supply of one graduate will marginally lower his/her salary and wage, and increase employment, but that any measurement of the costs and benefits of education should take into account average levels of unemployment when estimating both earnings differentials and earnings foregone. So, in order to give a measure of the true opportunity cost of students' time, earnings foregone are multiplied by the age-specific graduate employment rates.

The forgone earnings of primary-school children in advanced countries are insignificant because of minimum working - age laws. However, in a poor developing country the opportunity cost of attending primary school is substantial, because of the lost agricultural help (and thus, lost agricultural output) provided by children of young ages.

Furthermore, during an economic recession in any country the opportunity cost of schooling declines since employment possibilities are reduced and salaries and wages are depressed. Therefore, investing in education during this period is financially more attractive than investing during a period of "normal" economic activity.

In this thesis the earnings forgone are not adjusted for unemployment probability because the rates of unemployment among secondary school leavers and university graduates are very close (in the 1987 Census of Population in Iraq, the unemployment among secondary school graduates were 3.5 and 3.3% among university graduates), i. e. the effect of unemployment rates on calculated rates of return is insignificant.

Cohn (1972) stated that " Time spent by students in school or in preparation for school is not costless. So long as jobs are available for individuals with no or relatively little education, some income could have been earned had the student chosen to work rather than go to school".²⁰ Opportunity costs of education for individuals are measured by the income that they would be received had they been employed, and for society as a whole, the student's foregone earnings represent the production foregone by society. Foregone earnings are a large element in the total costs of university education. Schultz (1963), Maglen and Layard (1970), and the Robbins Committee (1972) estimated foregone earnings as 59 per cent, 60 per cent and 42 percent of total costs of education respectively.²¹ Foregone earnings may represent about 100 per cent of private costs, because most students receive grants to cover their fees and expenditures on books and

¹⁸ Blaug M., Layard P. R. G. and Woodhall, M. <u>The cases of Graduate</u> Unemployment in India, London, Allen Lane, The Penguin press, 1969.

¹⁹ Republic of Iraq, Ministry of Planning, Central statistical Organization, The 1987 Census of Population in Iraq, 1988, Table 32, pp. (125-129).

transportation.

Foregone earnings occur only in the secondary, college, and higher education age groups, with the amount of foregone earnings generated by the college age group being higher than those at the secondary level. Also Vaizey (1969), Cohn 1972, Sheehan (1973), and others state that for compulsory education there are no foregone earnings as long as the laws forbidding the employment of children cover all children of less than school leaving age: In developed countries this is normally the case (except for part-time employment).²² In Iraq all individuals under the age of eighteen are prohibited by the law from obtaining jobs.

Schultz (1971) observed that the following information is required to calculate foregone earnings:

- (1) the full earnings opportunity of students. That is, the amount the "student" would earn if he were participating in the labour force instead of attending school during the year;
- (2) the earnings the students realize while attending school; and
- (3) the actual foregone earnings are then found by subtracting (2) from (1). $^{\rm 23}$

In calculating foregone earnings, the incidence of unemployment is based on the assumption that the rate is extremely high among young workers.²⁴ In addition, the fact that students usually attend school for only 40 weeks of the year must be considered. Another factor which economists agree must be considered is that many students may work part-time during school; however, whether such part-time earnings should be deducted from estimated foregone earnings is questionable. Cohn (1979) maintains "this phenomenon is probably most serious in the estimation of foregone earnings for students in IHEs.²⁵

²⁰ Cohn, E. The Economics of Education. Toronto: D C Heath, 1972, p. 94.

²¹ See Schultz, T. W. The Economic Value of Education. New York: Columbia University press, 1963, p. 29. Also see Maglen L. and Layard R. How profitable is engineering education? <u>Higher Education Review</u>, 1970, Vol.2, no.2, p.59.

²² Vaizey, J. The Economics of Educational Costing, 1969, p. 75. Also see Cohn E. The Economics of Education. Toronto: D. C. Heath, 1972, p. 94. Sheehan J. The Economics of Education. (London: George Allen and Unwin, 1973), P. 36.

²³ Schultz, T. W. Investment in Human Capital: The Role of Education and of Research. (New York: The Free Press, 1971), P. 108.

²⁴ Rudolph C. Blitz, The Nation's Educational Outlay in Economics of High Education, (ed.) by S. Mushkin (Washington, D. C.: U. S. Department of Health, Education and Welfare, 1963), p. 155.

Foregone earnings have been found to be different for different levels of education, region of employment, and social classes in many countries. Jallade 1977 and Psacharopoulos 1973 findings bear this out.²⁶ Furthermore, minimum wage laws and the level of employment affect the level of foregone earnings. Consideration of the unemployment rate, particularly in less developed countries can be even more important. Okigbo (1966) writing about the experience of Nigeria, stated that in a region of extreme underemployment it would be incorrect to add the earnings foregone by students to the cost of education. He added that for most pupils the alternative to remaining in school is idleness.²⁷ Schultz (1971) thought differently. He said that the value of children in production and household activities is high even at a tender age in poor countries.²⁸

Barsby (1972), on the other hand, argued that in calculating opportunity costs, the "vacuum" effect, that is the number of jobs vacated by students, is not usually taken into account. He added, "To the extent that the vacuum effect operates, opportunity costs for society are reduced". However, the opportunity costs for the individual is not reduced because the individual does not receive any of the benefit accruing to the previously unemployed workers. Barsby 1972 stated that "The vacuum effect generally is assumed to be zero, at least partly because of the difficulties encountered in trying to measure it".²⁹

The other unresolved problem is, the reverse vacuum effect. That is what happens if all the students decide to seek employment instead of attending school? Unless the proportion of students is small compared to the labour force, the effect could be very significant and may result in reduced wages and thus reduced the opportunity costs. However, one could argue that the situation in which all student seek employment at the same time is unrealistic, and should not be a factor in considering foregone earnings.

27 Okigbo, P. N. C. "Criteria for Public Expenditure on Education". In Robinson, E. A. G. and Vaizey J. E. (eds.). The Economics of Education. New York: St. Martin's press, 1969, pp. 479-494.

Cohn, E. The Economics of Education. Cambridge: Ballinger Publishing Co. 1979, p. 72.

Jallade Jean-pierre, Basic Education and Income Inequality in Brazil: The Long Term View. World Bank Staff Working Paper No. 268, Washington, D. C.: The World Bank, 1977. Also see Psacharopoulos, G. 1973. pp.125-128.

²⁸ Schultz, T. W. Investment in Human Capital: The Role of Education and of Research. New York: The Free Press, 1971, P. 103.

²⁹ Barsby, S. L. Heath, 1972, p. 15.
<u>Cost-Benefit Analysis and Manpower</u>. Toronto: D. C.

Bowman (1969) disagreed with the concept of the vacuum effect or its reverse. She observed that those who consider the question of throwing all the students on to the labour market at once fail to point out the effect of throwing all teachers on the labour market at once. Also she stated the concept of the vacuum effect has two methodological - conceptual fallacies: (1) it overlooks the fact that foregone earnings are like all prices in measuring the value of a good or service, and (2) it confuses which measures are proxies for which underlying variable or concept in a particular problem. She went on to say, "In investigating resource allocation, which requires comparison of one alternative with another, 'foregone earnings of students' measures the alternative properly". 30

In this study, the vacuum effect or its reverse is not considered and the suggestion given by Schultz (1971) is, however, applied. 31 Also the foregone earnings are adjusted by ability.

3.1.1.3 Depreciation, Obsolescence, and Maintenance Costs

Human capital has characteristics similar to physical capital in that it is subject to depreciation, obsolescence and maintenance costs. The depreciation of human capital is real. Klevmarken and Quigley (1976) argue that the existence of retirement alone points to this conclusion, but the precise level of age-related depreciation probably varies with an individual's occupation.³² Klevmarken and Quigley (1976) and Stoikov (1975), and others thought that the depreciation of human capital may also be affected by obsolescence of skills and knowledge and/or deterioration of mental and physical capacities.³³ Schultz (1971) had previously argued that advances in knowledge, which become a source of new skills tend to make the skill of older workers obsolete.³⁴

The other source of deterioration of human capital is non-use. Long periods of unemployment could be one cause of the deterioration of skills. Stoikov (1975) reported, "the non-use of human capital for a lengthy period of time may lead to a serious deterioration of skills, knowledge, good working habits, etc."³⁵ Schultz (1971) expressed a similar view when he

³⁰ Bowman, M. J. "Economics of Education". <u>Review of Educational Research</u>, 1969, vol.39, no. 5, p. 645.

³¹ Schultz, T. V., 1971, P. 108.

³² Klevmarken A. and Quigley J. M. "Age, Experience Earnings and Investment in Human Capital". <u>The Journal of Political Economy</u>, 1976, Vol. 84, no. 1, p. 49.

said, "Educational capital deteriorates when it is kept idle. Thus unemployment impairs the skills and associated knowledge that a worker has acquired". ³⁶ But what about the cost of maintenance of human capital?

It is a common practice for people to invest in themselves at work places or through informal programs to maintain their skill and knowledge to be able to adopt to new demands. Klevmarken and Quigley (1976) observed that individuals invest first in length and type of schooling and, after entering the labour market, they make additional investments in training.³⁷ Similarly, Shaffer (1968) argued that the maintenance cost of education needs to be considered in human capital investment analysis because knowledge and training become obsolete overtime if not maintained.³⁸

Conceptually, all the above categories of private costs need to be taken into account in order to evaluate the rate of return to education. However in practice, the values of certain costs are difficult to determine. Therefore, in this study, the directly measurable costs which can be identified in one field survey and those obtainable from relevant documents are included. Unemployment data were needed to adjust forgone earning. Intangible costs, such as depreciation, obsolescence, and maintenance costs of human capital, which are expected to occur during the working lifetime of individuals, are not included. The advice given by Klevmarken and Quigley was taken for this study especially in as far as depreciation of human capital is concerned. They suggest that if one assumes that the depreciation rate is constant, knowledge of the retirement age and the rate of return is sufficient to estimate a gross investment profile constant with any depreciation rate.³⁹

- ³⁵ Stoikov, V., 1975, p. 43.
- ³⁶ Schultz, T. V., 1971, p. 36.
- ³⁷ Klevmarken A. and Quigley J. M. 1976, pp. 48-49

38 Shaffer, H. G. "A Critique of the Concept of Human Capital". In Blaug M. (ed.). <u>The Economics of Education 1</u>, London: Penguin Borks 1968, pp. 45-57.

³⁹ Klevmarken, A. and Quigley J. M. 1976, p. 49.

³³ Klevmarken A. and Quigley J. M. 1976, p. 56. Also see Stoikov, V. The Economics of Recurrent Education and Training. Geneva: International Labour Office, 1975, P. 38.

³⁴ Schultz, T. V. 1971, p. 108.

3.1.1.4 Social Costs of Education

The social costs of education are the total costs of education. They refer to all costs incurred by students and/or their families and society at large, except tuition and other fees which are considered as transfers to society instead of expenditures from the standpoint of society. Norris (1969) stated, "To private outlays is added expenditure by the state on education: Thus in calculations that have been made the social costs consist of educational cost incurred by individuals plus educational cost incurred by the state plus the opportunity costs incurred by individuals". $^{\rm 40}$ Thus the private costs become part of the social costs, but foregone earnings are taken before tax. The proportion of the costs borne by the public alone compared to that part borne by the individual varies from one nation to another. In a country where public supported mass secondary education is practiced, the proportion that is borne by the public alone will be relatively large. The costs of education in Iraq that are borne exclusively by society include salaries for the educational personnel, rental values of the school land and buildings, the rental value of the capital outlays and depreciation.

Social costs (total resource costs) include: "(1) school costs incurred by society, that is, teachers' salaries, supplies, interest and depreciation on capital; (2) opportunity costs incurred by individuals, namely income foregone during school attendance; and (3) incidental school-related costs incurred by individuals for example, books and travel".⁴¹ Therefore, in addition to the private costs which are incurred, the social costs include the following direct costs:⁴²

- (1) the direct salary and the allowances paid to teachers and non-teachers;
- (2) provident funds and pension fund contributions;
- (3) organizational and administrative costs of the educational system, both salary and non-salary;
- (4) teacher-education-costs, both salary and non-salary;
- (5) facilities, services, and maintenance costs of the school system; and
- (6) pupil welfare costs, including expenditure on school meals, resident

40 Leite, M. et al., The Economics of Educational Costing, Vol IIIA: Capital and Returns in Education. Lisbon: Istito Gulbenkian Deciencia. 1969, Chapter VI, pp. 89-90.

⁴¹ Hansen, W. Lee "Total and private Rate of Return to Investment in Schooling". Journal of Political Economy, 1963, Vol. 71, no. 2, p. 130.

⁴² Hallak, J. Some Methodological comments on compiling unit costs and their utilization in educational planning, Paris, UNESCO: IIEP, 1966 (limited circulation)

hostel services and bursaries to pupils.

Also, the opportunity cost of students' time must be added as an indirect cost. Cost of depreciation and/or implicit interest on school buildings must be added. In this study, the interest implicit on the cost of school buildings which are construction by the five years planning, is employed, whereas the depreciation for the buildings purchase is used.

As indicated earlier, the intangible costs are not included in this study. According to the previous discussion, the private and social costs of education are summarized in Table 3.1 (p. 40).

As pointed out in chapter one, ascribing all of the total social costs of education to investment may not seem logical. Social benefits from secondary school are expected to be a great deal more than the direct monetary return. Schultz (1968) argued that only half of the total cost of secondary schooling should be considered as investment. He said that from the social point of view, the other half should be considered as expenditure to meet other political, social and cultural goals. Schultz did not regard this same argument as applicable to private costs, because individuals are assumed to incur the costs of education mostly to maximize their income.⁴³ However most studies assume that total private and social costs of education are investment. Similarly, this study assumed the total private and social costs to be investment in evaluating the "profitability" of various subjects of university education in Iraq.

3.1.2 The Benefits From Education

Seneca and Taussig (1974) define the benefits of any good or service as the "market prices at which consumers show themselves willing to buy them".⁴⁴ Herfindahl and Kneese (1974) mention two methods for estimating benefits. "The first one is to make actual estimates of willingness to pay for the output in the sense of estimating an actual demand function; the second one is to calculate the alternative cost of achieving some projected output".⁴⁵

Analysis of any investment always consists of estimating the benefits

⁴³ Schultz T. W. "Investment in Human Capital". In Blaug, M. (ed.). Economics of Education 1. London: penguin Books, 1968, p. 299.

⁴⁴ Seneca, J. J. and Taussing M. K. Environmental <u>Economics</u>. Engelwood Cliffs, N. J.: Prentice-Hall, Inc., 1974, p. 6.

⁴⁵ Herfindahl, O. C. and Kneese, A. U. <u>Economic Theory of Natural</u> <u>Resources</u>. Columbus: Charies E. Merrill Publishing Co., 1974, p. 246.
Table 3.1 Elements of Social and Private Costs of Education

	<u><u>Glements</u></u>	of Costs
Type of Costs	Social (Total)	Private
Direct Costs		
в .	salaries and allowances paid to teachers and	1. Tuition and other fees
	non-teachers	
. ф	provident funds and pension funds	. Books, equipment and supplies (out-of-pocket
	contributions.	expenditures)
С	Organization and administrative costs of	. extra travel.
	education system both salary and non-salary.	 Board and room.
d.	Facilities, services and maintenance costs	. Scholarship and other subsidies (to be
	of school system.	subtracted from other costs).
.	Pupil welfare costs, including expenditures	. Earning of student during schooling period
	on school meals, resident hostile services	(to be subtracted from other costs)
	and bursaries to pupils.	
τ.	Books, equipment and supplies.	
. 9	Travel (transportation).	
Ъ.	Imputed capital rent.	
.i.	Scholarship and other bursaries.	
Indirect Costs		
, •	Foregone earning (gross of taxes).	. Foregone earnings (net of taxes).

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to be derived from it and the cost of attaining those benefits. Cohn (1972) stated that although it is quite difficult to measure the costs of education, it appears that the benefits - while significant - are entirely unmeasurable. 46 Turvey and Prest (1965) concluded from their study "Cost-benefit analysis: A Survey" that in cost-benefit study, the benefit side poses more problems than the costs side. They made the distinction between the enumeration and the evaluation of the benefits. As far as enumeration goes, when there are many diverse types of benefits from a project and/or many different beneficiaries, it is difficult to list them all and to avoid double counting. On the evaluation of benefits, they listed several difficulties. First, is measurement of surpluses which immediately leads into the measurability of utility of money to the individual; second, it is necessary to go beyond the measurement of benefits on the basis of market prices and make allowances for imperfections, externalities and so on; third, the problem of evaluation is to choose an appropriate discount rate; and fourth, how should one allow in $\frac{47}{47}$ any systematic fashion for uncertainty.

Most of the writers on education have limited their analysis to the direct returns to the individual. They consider the after-tax lifetime earnings differentials of people who received different amounts of education as the private gains from schooling. Analysis is usually limited to formal education and disregards training on the job and vocational education.⁴⁸ In calculating social returns to education most of the authors consider, "as a first approximation" the before-tax lifetime earnings differentials of individuals with varying levels of schooling.

Education not only benefits the student through consumption and investment opportunities, in addition, a large number of external effects expand the range of educational benefits. Weisbrod (1966) determined three types of effects: those that increase production possibilities (such as increased labour skills); those that help to reduce costs (such as reductions in crime and law enforcement needs); and those that enhance

⁴⁶ Cohn, E. The Economics of Education. Lexington: D. C. Heath and Co., 1972, p. 125. <u>Also, many authors believe</u> that no reasonable measure of educational benefits is possible. See, for example H. G. Shaffer, "Investment in Human Capital: Comment". <u>American Economic Review</u>, 1962, pp. 1026-1035; J. Vaizey, <u>The Economics of Education</u>. (London: Faberand Faber, 1962, Ch.3; and P. P. Streeten, The Coefficient of Ignorance", Bulletin of Oxford University Institute of Economics and Statistics, 1963, p. 120.

⁴⁷ Turvey, R. and Prest, A. R. Cost-Benefit Analysis: A Survey. <u>The</u> <u>Economic Journal</u>, 1965, vol. 75, p. 729.

⁴⁸ However see, Mincer, J. "On-The-Job Training: Costs, Return, and Some Implication". <u>The Journal of Political Economy</u>, Supplement, Oct. 1962, pp. 50-79.

earnings and welfare. Therefore, education can be divided mainly into private benefits from education and social benefits from education. Private benefits from education are derived from the greater income and reduced prospect of unemployment. Social benefits from education are derived from the fact that education provides both external and intergenerational benefits. One group of beneficiaries from education is employers. Education affects tax-payers in general. Lack of education leads to employment difficulties, and possibly to crime, and so raises the cost of crime prevention, law enforcement and social unrest. The nation as a whole gains from education through the process of economic growth. Further, education itself brings about a stronger democracy.⁴⁹ Weisbrod (1964)⁵⁰ classified the benefits of public education under two

categories: (1) extra benefits to educated persons (or benefits internal to the student) and (2) benefits of education external to the student. He divided the former into four categories, which are as follows:

(1) the financial option return, which is the value of the opportunity to obtain extra education and the reward accompanying it. For example, the decision to obtain secondary education includes not only additional earnings but also the value of the option to follow university education. Weisbrod (1964) said that the value of the option to pursue additional education depends upon (a) the probability of its being exercised and (b) the expected value, if exercised. 52 According to this concept, Weisbrod

49 Weisbrod, B. A. "Present Values of Lifetime Earnings for Deferent Occupation". The Journal of Political Economy, Dece. 1966, vol. 74, no. 6, pp. 556-573.

⁵⁰ Weisbrod, B. A., External Benefits of Public Education: An Economic Analysis. Princeton, N. J.: Industrial Relations Section, Princetion University, 1964, p. 21.

⁵¹ Hirsch et al (1964) classified the benefits in a different way. These authors $di\overline{vIde}$ the benefits of public education into the following categories.

- (1) direct benefits (e.g. long-run increased earnings. increased
- direct long-run benefits (e.g. increased earnings, increased satisfaction).
 direct shot-run benefits (e.g. increased income of the mother for whom school provides a "baby sitting" service, satisfaction gained by parents on account of the education of their children).
 indirect long-run benefits (tax reduction for non-student families because educated people have higher income and pay more tax, increased earnings of co-workers, informal education in the students future homes, reduced expenditure on maintenance of law and order, improved conditions of living of neighbours, improved supply of skilled personnel, creation of an informed electorate).
 indirect short-run benefits (tax reductions for non-student families resulting from the incomes of students' working mothers).

See Hirsch, W. Z., Segelhorst, E. W., and Marcus, M. J. Spillover of Education Cost and Benefit. Los Angeles: Institute of Government and Public Affairs. University of California, Los Angeles, 1964, p. 263.

(1964) found that the option value of secondary schooling in The United States in 1939 increased the rate of return on investment in secondary school from 14 to 17 per cent.⁵³ Moreover, education provides other financial options to individuals e.g. the widened variety of job opportunities. That is, education may provide opportunities for the recipient to choose among jobs that provide higher pay and/or qualify the individual for advanced on-the-job training that may provide higher pay. It was assumed that the more education a person has, the more on-the-job training he is likely to obtain and more likely he is to get more monetary returns. If this assumption holds, the value of this option is captured in the direct earnings stream.

(2) the non-monetary "opportunity option" involving the broadened individual employment choices which education permits. To some extent educated people may prefer a job which carries relatively less salary but has more non-monetary benefits like enhanced leisure, greater security, etc.

(3) the hedging option. Weisbrod (1964), Cohn (1972), Bowman (1970) and others argue that the hedging option consists of the "increased ability to adjust to changing job opportunities" due, for example, to technological changes. ⁵⁴ That is, education provides opportunities for "hedging" against the vicissitudes of technological change and the obsolescence of skills. Weisbrod (1964) argues that "education may be viewed as a type of private (and social) hedge against technological displacement of skills". ⁵⁵ Those who have more education are likely to adjust to new technology, and are likely to reap the higher pay which new technology has made possible.

The benefit from the 'hedging' option is likely to be reflected in the earnings of the individuals. In other words, part of the direct monetary return of the education is due to the hedging option.

(4) the non - market return. Cohn (1972) stated that the non-market option arises from "the fact that with education an individual can perform a

⁵² Weisbrod, B. A., 1964, pp. 15-39. Also see Weisbrod, B. A. "Education and Investment in Human Capital', The Journal of Political Economy, Oct. 1962, pp. 102-123. Mincer, J. "On-The-Job Training: Cost, Return, and Some Implication". The Journal of Political Economy, Oct. 1962, pp. 50-79 Show (table 1, 2) that the extra education increases the opportunities for additional training on the job.

⁵³ Weisbrod, b. a., 1964, pp. 140-141.

 ⁵⁴ Weisbrod, B. A., 1964, pp. 23-24; see also Cohn E. 1972, p. 130;
 Bowman, M. J. "Education and Economic Growth". in Johns R. L., et al (eds.). Economic Factors Affecting of Education. Gainesvill, Florida: National Education Finance Project, 1970, p.

^{DD} Weisbrod, B. A., 1964, p. 23.

variety of activities that he could not have done without it".⁵⁶ For example, Weisbrod (1964) estimated that the market value of the personally filed income-tax return in the United States in (1965) was \$250 million. This is an example of a saving which is attributed to education. Weisbrod said that if this service were provided through the market, it would be priced and included in national income.⁵⁷ This particular return to society is not included in this study because of difficulties of getting data.

While the above benefits of education directly affect individuals, they are also social benefits. Education has other benefits external to the person receiving education. Some of these external benefits are briefly mentioned below.

Weisbrod (1964), Bowman (1964), Thias and Carnoy (1972), Davis (1970), and others argue that not all education generated benefits accrue to the student; there are other people who profit from his education. 58 These benefits can be separated according to the categories of persons who receive these external benefits. 59

(1) residence-related beneficiaries, include the current and future family of the person receiving education, his/her neighbours, and the local tax-payers. The current family benefits accrue when the children go to school and their mothers can then go to work. The future family benefits accrue when the students become adults and their children receive informal education at home. Benefits from one's education also accrue to one's neighbours if educated people have better social value and behavior-norms. Local tax-payers may benefit if law enforcement costs are reduced.

(2) employment-related beneficiaries include those who have an employment relationship with the person receiving education. These beneficiaries

⁵⁹ Weisbrod, B. A., 1964, pp. 28-35. The indirect benefits of education are also discussed extensively by Blaug M., "The Rate of Return on Investment in Education in Great Britain". The Manchester School of Economics and Social Studies, vol. 33, 1965, pp. 234-241.

⁵⁶ Cohn, E., 1972, p. 130.

⁵⁷ Weisbrod, B. A., 1964, pp. 24-25.

⁵⁸ Weisbrod, B. A., 1964, pp. 28-34; Bowman W. G. Economic Aspects of Education: Three Essays. Princeton, N. J.: Industrial Relations Section, Princeton University, 1964, p. 22; Thias H. H. and Carnoy M. Cost-Benefit Analysis in Education: A Case Study of Kenya. Baltimore, Marryland: the Johns Hopkins Press, 1972, p. 6; Davis, J. Komie, "The Social and Economic Externalities of Education". in Johns R. L. et al (eds.). Economic Factor Affecting the Financing of Education. Ginesville, Florida: National Education Finance Project, 1970, p. 65.

include employers, and his fellow workers. The education of one worker may have favourable external effects on the productivity of others because of the people working with him/her are likely to get some kind of informal education from him. Furthermore, employers are likely to capture extra benefits, because market imperfections may result in a failure of the employer to pay the educated worker for his full productivity (marginal revenue product).

(3) society in general.

This category includes all residual benefits which are not included in the previous two categories. The benefits included in this category are the inter-generational effects of public education and many other advantages which make possible diffusion of innovation, a network of widespread communications, a banking system, etc. For example, the contribution of education to the improvement of income distribution is an external benefit.

Weisbrod (1964) suggested that society in general stands to gain from more education. For example, the more people who are literate and educated, the greater the demand for books, checking accounts, newspapers, etc. As products and services of these types are typically subject to significant economies of scale, increased demand will lead to mass production and distribution of these products and services at lower prices. Also, the more people are engaged in research, the greater the benefits to society in the form of inventions and innovations for which the inventor cannot generally collect all the fruits of his labour.⁶⁰ The direct and external benefits of education identified above are summarized in Table 3.2 (p. 46).

The list of extra private and social benefits of education above is not in any way complete , but it shows that educational benefits go far beyond the direct monetary returns on educational investment. As a rule, all of the benefits must be included in order to evaluate the educational investment, but as Bowen (1964) and Thias and Carnoy (1972) have pointed out, by their nature the indirect benefits are extremely difficult to measure.⁶¹ Therefore, this study was limited to the direct lifetime earnings of workers who have had university education.

⁶⁰ Weisbord B. A., 1964, pp. 33-24

⁶¹ Bowen, W. G. Economic Aspects of Education: Three Essays. Princeton, N. J.: Industrial Relations Section, Princeton University, 1964, pp. 22-23. also see Thias H. H. and Carnoy, M. Cost-Benefit Analysis in Education: A Case Study in Kenya. Baltimore, Maryland: the Jhons Hopkins Press, 1972, p. 6.

Table 3.2 Elements of Social and Private Benefits of Education

<u>Blements of Bene</u>	fits
Type of Benefits Private	Social
(1) Direct Benefits	
a. Increase in earnings (net of taxes)	a. Increase in earnings (gross of taxes, that is
	maximization of total social income.
	a.1 From university participant
	a.2 From other
b. Additional fringe benefits due to increased	b. Increase in other income (distribution
income.	effects).
b.1 Increased satisfaction of students from	b.1 Due to increasing productivity of future
the exposure to new ideas and cultural	generation as children become better
opportunities.	educated (inter-generation effect).
b.2 Satisfaction gained by parents from the	b.2 Due to previously unemployed workers
students' exposure to new ideas and	taking jobs vacated by program participants
culture.	(vacuum effect) - indirect income effect.
	b.3 by reducing tax burden and/or increasing
	services for others from students
	incremental income (tax effect)
	b.4 Due to incremental productivity and
	earnings of workers indirect (income
	effect).
(2) Indirect Benefits	
. T.S	لاعد فيدفعهم الميهم عيدياراتين يغ سيفوافاتافيسة م
c. Informal education in students' future	c. Availability to employer of well trained and

2

c. Informal education in students' future	ບ່	Availability to employer of well trained ar
homes (inter-generation effects).		skill labour force.
d. Increased consumption of goods and services	ч.	Improved living condition of neighbours.
due to extra income.		

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To the extent that the non-monetary benefits classified above are not give any value, the rate of return is underestimated. On the other hand, many authors believe that earnings are influenced by factors other than education. Koulourianos (1967) and others have pointed out that the estimates of educational returns on the basis of ceteris paribus will overestimate the returns.

A category of external economy not easily estimated is the contribution of education to the general advance of human knowledge. It is very difficult to calculate even the pure economic contribution of this factor to our welfare, because it is widely spread and affects in many ways all sectors of the economic system. As one author puts it "nor is it just research in natural science that has important economic consequences.. it would be interesting to know the magnitude of the increase in real income that has stemmed from our improved understanding of how to prevent large scale unemployment".⁶² Moreover, education increases rationality which is a basic condition for an efficient allocation of resources.

All who work on this subject acknowledge the importance of education-generated external benefits and admit that, to the extent that these benefits are not taken into account, social returns to education are undervalued. This underestimation is implicit in any study that relies, of necessity, upon the before-tax earnings differentials as a "first approximation" to social return on education.⁶³

3.1.2.1 Age-Earnings Streams and Educational Levels

In order to calculate a rate of return to education, age - earnings profiles must be established. This is the relationship between education and earnings for various age groups. Woodhall (1987), Taubman (1976), Psacharopoulos (1973,1975), Blaug (1972), and others⁶⁴ state that it is a

⁶⁴ Woodhall, M. "Earnings and Education". In Psacharopoulos, G. (ed.). Economics of Education. 1987, p. 209; Taubman, P. "Earnings, Education Peretics, and Environment". Journal of Human Resources, Vol. XI, No. 4, 1976a, p. 447; Blaug, M. The Correlation Between Education and Earning: What does it signify? Higher Education, Vol.1, No.1, 1972, p. 54; Psacharopoulos, Return to Education: An International Comparison. (San Francisco: Jossey-Bass, 1973), p.2; Psacharopoulos, G. Earning and (Footnote continued)

Bowen William G. "Assessing the Economic Contribution of Education: An Appraisal of Alternative Approach". <u>In</u> <u>OECD</u>, 82, p. 190.

⁶³ Becker G. S. Human Capital: A Theoretical and Empirical Analysis With Special Reference to Education. Columbia University Press, New York, 1964, p. 118.

statistical fact that workers with more education earn higher wages or salaries than those who have completed less education, or have lower educational qualifications. In order to throw light on the relationship between education and economic growth, to evaluate education as an investment in human capital, to examine the relationship between education and the distribution of income, and to measure the private and social rates of return to education, the relationship between education and earnings and age has been widely applied.

However, earnings differentials are not due to education alone but to factors such as innate ability, background of parents, student motivation, and the like. Also there are other factors such as historical and institutional factors and trade union bargaining pare all of which help to determine the pattern of earning differentials. Psacharopoulos (1973) argued that:

"It would be naive to believe that earning differentials are totally dependent on the level of education received. At least part of the earnings differential must be attributed to factors like ability, social class, sex, motivation, origin and the like."

Woodhall M. (1987)⁶⁶ stated that there is considerable disagreement between economists who argue that education is a form of investment in human capital, and that techniques such as cost-benefit analysis should be used as a guide to resource allocation, and those who argue that education merely identifies the most productive workers.

Generally, education and earnings are closely related. Blaug summaries the evidence as follows: $^{67}\,$

"we begin by noting a remarkable fact of life: between any two groups of individuals of the same age and sex, the one with more education will have higher average earnings than the one with less, even if the two groups are employed in the same occupation category in the same industry. The universality of this positive association between education and earnings is one of the most striking findings of modern social science. It is indeed one of the few safe generalization, that one can make about labour markets in all countries, whether capitalist or communist."

Development, 1975, p. 10.

⁶⁵ Psacharopoulos, G. <u>Return to Education: An International Comparison</u>. (San Francisco, Jossey - Bass, 1973), P. 28.

⁶⁶ Woodhall, M. 1987, p. 209.

⁶⁷ Blaug, M. The Correlation between education and earnings: What dos it signify? <u>Higher Education</u>, 1972, Vol. 1, no. 1, p. 54.

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⁶⁴(continued)

Data on earnings can be collected on a time-series basis, which shows the pattern of earnings over time, or on a cross-section basis, which shows how earnings vary with the age, educational level, and other personal characteristics of workers, at a single point in time.

Woodhall (1987)⁶⁸ observed that there are three types of analysis of the relationship between earnings and education:

- (1) Cost-benefit analysis which is used to measure the relationship between the cost of acquiring education and extra lifetime earnings that can be expected as a result of investing in education. This type of analysis relies on cross-section data on earnings.
- (2) Type of analysis to measure the contribution of education to economic growth through improvement in the quality of the labour force. This type of analysis requires time-series data.
- (3) Study of the earnings function. This attempts to explain what determines earnings and variations in earning power, and compares the relative importance of education and other factors, such as sex, race, ability, family background, and occupation in determining wages or salaries.

Data on average annual earnings of workers with different levels of education to construct age-earnings profiles which show the expected lifetime earnings associated with different amount or types of education, are used in all three types of analysis.

Therefore, an estimate of the additional lifetime earnings of educated workers are needed. These data should be collected by comparing the earnings of educated and less educated workers throughout their working lives. The total lifetime earnings differential would then provide an estimate of the higher productivity of educated. These age-earning profiles show that the average earnings of samples of workers are closely correlated with both the age and educational attainment of the workers, even though for any individual person the relationship may be less close. Cross-section data are usually utilized by estimating average age-earning stream for workers of different level of education. Such use is valuable because "the cross-section data show the current earnings of worker of successive ages, and thus an average lifetime age-earning profile".

The age earnings profiles of workers with different levels of education or lengths of schooling or types of education share four general characteristics: $^{70}\,$

⁶⁸ Woodhall, M., 1987, p. 209

⁶⁹ Woodhall, M. Cost-Benefit Analysis in Educational Planning. Paris: UNESCO, 1970, p. 19.

- earnings are highly correlated with education, at every age the highly educated earn more than workers with less education;
- (2) earnings increase with education up to a peak at middle age and then flatten or even decline, up to the age of retirement;
- (3) the earnings profiles of highly educated workers are steeper than those of the less educated; the peak earnings of an educated worker are higher, in relation to initial earnings, than the peak earnings of the less educated; and
- (4) the age at which earnings reach their peak is later for highly-educated workers than for the less educated; in a few cases the earnings of highly qualified workers continue to rise until retirement.

These four characteristics mean that over a lifetime the total earnings of educated workers are considerably higher than the lifetime earnings of these with very little or no education, but they also mean that it is important to look at total life earnings of workers, rather than earnings differentials at one point in time, since these may seriously underestimate the total financial benefits of education. The age-earnings profiles of two groups of workers with different levels of education, for example university graduates and secondary school leavers, show the earnings differential of the graduates throughout their working lifetime, and this provides a measure of extra lifetime income associated with higher education.

As mentioned above in order to measure the benefits of education, time-series statistical data should be used. This would involve collecting data over the whole of the working life, a period of forty years or more. However, this kind of data are not available in most countries, so that it is necessary instead to rely on cross-section data, i.e. snapshot evidence of cross-sections of the society at one point in time. Such cross-section data may be unduly affected by short-term cyclical changes in the economy, ignore future changes in the demand and supply of educated manpower and fail to capture the effects of trends over time, the major one of which in most countries is the incidence of economic growth. In other words cross-section data do not reflect the fact that future earnings are likely to rise as a result of economic growth, so that life-time earnings will be higher than those calculated from cross-section data. Economists (Morris⁷¹ 1973, Ziderman⁷² 1973, Psacharopoulos⁷³ 1973, Freeman⁷⁴ 1977, Blaug⁷⁵ 1965)

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72 Ziderman, A., "Rate of Return on Investment in Education: Recent (Footnote continued)

⁷⁰ Woodhall, M., 1987, p. 210. Also see the same author, 1970, p. 19.

have also discussed this problem and suggested that real earnings may be expected to rise over time and therefore it is necessary to adjust the cross-section educational earnings profiles to approximate to the lifetime earnings patterns of individuals aging over time.

It might be thought that since earnings may be expected to grow in real terms for both qualified and unqualified workers that this will not affect the rate of return calculation. However, each cohort will experience a rise in real income year by year which will not be offset by rising forgone income. The expected rate of return will therefore be higher.

There are two ways of rectifying this. First, future increases in productivity can be compensated for by multiplying the earnings of an individual at a given age by a factor reflecting the productivity change. For example, if the productivity of university graduates is expected to rise at a rate equal to (y) per year, then the earnings at age (t) a sampled by the cross-sectional profile should be multiplied by a factor equal to $(1+y)^{t-\alpha}$ where α is the age of at which the university graduate enters the labour force. The second way, suggested by Psacharopoulos⁷⁶ (1973), to adjust for productivity change is simply to add the expected rate of productivity growth to the estimated rate of return. That is if the estimated rate of return on the basis of the unadjusted age-earnings profile is (r), then the expected rate of return adjusted for productivity change is equal to r+y. Becker⁷⁷ (1974) for the U.S.A., suggested adding the annual expected

Becker^{//} (1974) for the U.S.A., suggested adding the annual expected increase in real income per capita and Ziderman (1973) for the U.K., "conservatively" added 2% per annum to all incomes, as did Blaug, Layard and Woodhall (1969) for India, Freeman (1977)⁷⁸ for U.S.A., added 1.5% to

⁷⁶ Psacharopoulos, G., Rates of Return 1973.

⁷⁷ Becker, G. Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education. (princeton University press), 1974.

⁷² (continued) Résults for Britain", <u>The Journal of Human Resources</u>, Vol. 8, no. 1, 1973, pp. 85-97.

⁷³ Psacharopoulos, G., <u>Rates of Return: An International Comparison</u>. (Elestvier Scientific Pubulishing Company, London, 1973).

⁷⁴ Freeman, R. B., "The Decline in the Economic Rewards to College Education", Review of Economics and Statistica, Vol. LIX, No. 1, 1977, pp.18-29.

⁷⁵ Blaug M., "The Rate of Return on Investment in Education in Great Britain". <u>Manchester School of Economic and Social Studies</u>, Manchester, (September, 1965) pp. 205-251.

adjust the cross-section estimated for potential increase in real income in future by a growth factor 1.5% per annum, Wilson⁷⁹ (1980), for Britain, added 2% per year, to the earnings differentials as a growth factor. The effect of such an adjustment on the final computation is considerable; further, to add a fixed percentage adjustment in this way assumes that income differentials will remain constant over a period of some forty years, which seems very unlikely.⁸⁰ On the other hand, an advantage with using cross-section data is that it is not necessary to correct for the changing effects of inflation over time. Some time-series data has recently become available and Psacharopoulos⁸¹ (1985) found evidence that over time the rate of return to education declined slightly in developing countries but remained relatively stable in developed countries.

Most countries, including Iraq, do not have time-series (at least forty years) data on the earnings of samples of educated and less educated employees. Moreover, estimated average age-education-earnings profiles for different levels of education (on the basis of cross-section data) is not available either. In Iraq, the government employs the majority of the labour force. It was hoped therefore that a government salary scales would provide a fair estimate of age-earning profiles. Woodhall⁸² (1970) stated that "it is much less satisfactory than cost-benefit analysis based on actual earnings data, but it can be useful in providing preliminary estimates of relative profitability of different levels of education.

Where different university programs are concerned, real earnings may increase at different rates, but it can be assumed for simplicity that all earnings rise by the same annual rate though this happens only if supply and demand for graduates from every program of university education move generally in line. However, in our calculations the age-earnings profiles are not adjusted for economic growth because the latter has not been available since 1960s. Therefore, the private and social rates of return to university education in Iraq are probably underestimates. However, even if we use an arbitrary rate of 2% to adjust the age-earnings profiles, the

⁷⁸Freeman, R. B., 1977, pp.28-29.

79 Wilson R. A., "The Rate of Return to Becoming a Qualified Scientist or Engineer in Great Britain, 1966 - 1976", <u>Scottish Journal of Political Economy</u>, Feb 1980, Vol. 27, no. 1, pp. 41-62.

⁸⁰ Hough, J. R., Education and the National Economy, (Croom Helm, 1987).

⁸¹ Psacharopoulos, G., Return to Education: A Further International Update and Implications, The Journal of Human Resources, Vol. 20, No. 4, PP.

⁸² Woodhall, M., <u>Cost Benefit Analysis In Educational Planning</u>, UNESCO, Internal Institute for Education Planning, 1970, p. 35.

ranking of rates of return for different university programs will not change.

It is necessary to mention some views of public sector employment and education in developing countries, including Iraq, and some fators effect on age earnings differentials, will be discussed.

As mentioned in chapter three, to calculate the rate of return to education, the age-earnings stream must be established. This is the relationship between education and earnings by age group. In most developed countries, the basic source of such data is the national "Census of Population" reports which often provides income distributions by age and level of schooling. In Iraq census have ever published data on age-earnings profiles by type or level of education. So that the salaries and wages of secondary school leavers and university graduates employed in the public sector are used in this study in order to calculate the rate of return on investment in university education.

In most developing countries, much of the qualified manpower is employed in the public sector at administered salaries. Even so, economists such as Blaug, (1970), Hinchliffe (1987), and others have argued that the public sector simply responds to earnings structures in the private sector.⁸³ Dore (1976) stated this results in the public service significantly influencing earning structures for the educated work force and, through the emphasis on qualifications in hiring practices and the response of raising qualification requirements in the face of a surplus of school leavers, having undesirable effects on the ways in which schools operate.⁸⁴

Salaries and wages in the public sector are set according to administratively determined pay scales which related directly to educational certificates. This pattern of salary scales still reflects the salaries that were paid to colonial administrators before the country achieved independence.

In Iraq, the government estimates an auxiliary income as a basis for calculating the supplementary professional allowances which are consequently incorporated into the salary structure of all public sector employees who choose no to pursue private practice or part-time employment in private sector. The purpose of this process is to update the salary structure in the public sector and to equalize the earnings of comparable employees in public and private sectors in Iraq.

However, these pay scales not only fail to reflect existing labour

83 See Blaug, M., An Introduction ... 1970, p. 205; and Hinchliffe K., Public Sector Employment and Education. In Economics of Education: Research and Studies. (Pergamon Book Ltd. Oxford, 1987), p. 226.

⁸⁴ Droe R. P., <u>The Diploma Disease: Education</u>, <u>Qualification and</u> <u>Development</u>. Allen and <u>Unwin</u>, London, 1976.

conditions and changes in them but also dominate pay arrangements in the private sector. Moreover, earnings structures appear to reward general education leading to clerk jobs more than technical education which, it is argued, is more relevant to the needs of the developing countries, despite the substantial growth of high-school-leaver unemployment.⁸⁵ It has been on the basis of observations such as these that critics of the rate-of-return method to educational planning for developing countries have partly based their case. According to Balogh and Streeten⁸⁶ (1963), a high observed rate of return would show "that pay scales in the civil service, universities and professions are still governed by the traditional standards of a feudal or colonial aristocracy and by natural or artificial restriction" since earning differentials in no way reflect competitive labour market conditions.

Squire (1981) argued that the public sector dominates the labour market and determines the levels wages, and these levels remain impervious to changing conditions in the labour market such that, for example, excess supply or unemployment does not lead to a fall in wages, the blame for the continuation or growth of school-leaver unemployment is often directly laid at the feet of the public sector where, it is argued, the solution can be found. He gives the following example:⁸⁷

The rapid expansion in educational output has not elicited the appropriate response in public pay scales and, given the slow rate of adjustment in job expectations, the result has been unemployment. Given the public sector both determines the supply of educated workers (through its educational policy) and the demand for such (through its role as employer) the solution to the problem of educated unemployment is within the immediate sphere of policy influence.

Dore⁸⁸ (1976) and Foster⁸⁹ (1977) pointed out that as a result of the public sector's relatively large size in developing countries, the effect

85 International Labour Organization (ILO), Matching Employment Opportunities and Expectations: A Programme of Action for Ceylon. ILO, Geneva, 1971.

⁸⁶Balogh, T. and Streeten, P. The Coefficient of Ignorance. Bulletin of the Oxford University Institute of statistics, Vol. 25, No. 2, p. 102.

⁸⁷ Squire, L., Employment Policy in Developing Countries: A Survey and Evidence. Oxford University Press, New York, 1981 p. 121.

⁸⁸Dore R. P. 1976.

⁸⁹ Foster, P. J., Education and Social Differentiation in Less Developed Countries. Comparative Education Review, Vol. 21, 1977, pp. 211-229.

that this has both throughout the labour market and on the degree of social mobility for those few who are able to obtain higher educational levels is far greater than is the case the more industrialized market economies. Another important aspect of public sector employment practices concerns promotion. Blaug (1973) pointed out that the majority of university graduates in Sri Lanka preferred to work in the public sector because of greater personal freedom and job security. He argued that this was a result of performance rarely being assessed and internal promotion being virtually automatic⁹⁰

While there is a general agreement that education has a positive effect on income, the magnitude of the relationships between education and income have been found to be difficult to isolate because of other factors. Bowen⁹¹ (1964), Prest and Turvey⁹² (1965), Thias and Carnoy⁹³ (1972), Koulourianos⁹⁴ (1967), and others said that groups with differing amounts of education tend to differ in attributes such as natural ability, ambition, social class, family connections, inherited wealth, race, education of parents, on-the-job training, and hours of work, and all of these are likely to increase earnings. Generally two methods are employed

to take out the influences of these other factors. The first was suggested by Denison⁹⁵ (1962, 1967) and was later termed the alpha coefficient by Blaug⁹⁶ (1965). Denison assumed that only 60% to

90 Blaug, M., Education and the Employment Problem in Developing <u>International Labour Organization</u>, Geneva, 1973. Countries.

91 Bowen, W. G., Economic Aspect of Education: Three Essays. Princeton, N. J.: Industrial Relations Section Princeton University, 1964. p. 16.

⁹² Prest, A. R., and Turvey, R., "Cost-Benefit Analysis: A Survey". <u>The Economic Journal</u>, Vol. LXXV, No. 300, 1965, p. 726.

93 ⁹³ Thias, H. H. and Carnoy, M., Cost-Benefit Analysis in Education: A case study of Kenya. Baltimore, Maryland: The Johns Hopkins press, 1972, pp 2-6.

⁹⁴ Koulourianos, D. Th., Educational Planning for Economic Grow Berkeely, Cal.: Center for Research in Management Science, University Growth. Berkeely, Cal.: Ce California, p. 38.

95 See Denison, E. F., The Sources of Economic Growth in the United States and the Alternatives Before U.S. New York: Committee for Economic Development. Also the same author, Why Growth Rates Differ: Post war Experience of Nine Western Countries. Washington, D. C.: The Brookings Institute.

⁹⁶ Blaug, M., "The Rate of Return on Investment in Education in Great Britain". <u>The Manchester School of Economics and Social Studies</u>, Vol. 33, PP. 205-262.

(Footnote continued)

65% of the earnings differentials reflected secondary and higher education, the remainder, about 40%, was due to ability, family background and so on. On the other hand, Psacharopoulos⁹⁷ (1975), after reviewing the studies undertaken in OECD countries, found the average value of alpha to be 77%. In this study, because of the lack of data, and in order to test the sensitivity of the results to a variety of essumptions about the interaction between "ability" and education, three different values of the alpha coefficient (1, 2/3, and 1/2) are used.

The second method, which Psacharopoulos (1973, 29) claims is the better method, involves regression analysis to standardize earnings for factors other than education.

Assuming that the factors other than education influence earnings, the differences in earnings among individual cannot be entirely attributable to the differences in education acquired. In other words, failure to exclude those factors other than education is bound to lead to an overestimate of the rate-of-return on education.

There are other factors that are expected to distort the rate-of-return on education unless they are taken into account. These factors include: (1) conspicuous consumption and wages policies; (2) collective power; (3) unemployment; and (4) the non-marginality of cross-sectional data.

(1) conspicuous consumption and wages policies. These are the forces that act against the normal market system in which workers are paid the value of their marginal product. Bowen⁹⁸ (1964) stated:

The phrase "conspicuous consumption" refers to the possibility that some employers may choose to hire college graduates (and pay them "college graduate" salaries) for jobs which do not really require college training.

Bowen (1964), and Thias and Carnoy (1972) maintained that conspicuous consumption does not seem to be widespread in the world. On the other hand, they indicated that national policies may lead to wage structures and hiring policies that may not have any relation to productivity. To this effect, Bowen⁹⁹ (1964) advised "in countries where the salary structure is rigid because of status overtones calculation of monetary returns to education can be misleading as a guide to educational policy." On the

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⁹⁶(continued)

⁹⁷Psacharopoulos, G. <u>Earnings and Education in OECD Countries</u>. Paris: OECD, 1975, p. 54.

⁹⁸ Bowen V. G., 1964, P. 18.

⁹⁹ Boven V. G., 1964, P. 18.

other hand, Rodriguez and Davis¹⁰⁰ (1974) suggested, "Normally it is impossible for employers to pay workers a wage over a long period of time that exceeds the workers' productivity." In contrast if employers are hiring highly-paid graduates for jobs which do not need their skill, then the returns to education would be overestimated from the society viewpoint, since graduates would be receiving earnings in excess of their product. Blaug, like Bowen, suggests that since this latter questions are unlikely to be so frequent as is sometimes thought, the amounts involved are not likely to be such as would invalidate any rates of return calculations.

(2) Collective power. Collective power by labour unions and other associations may influence the relative earnings. Bowen¹⁰¹ (1964) said that this market imperfection may have to be eliminated to arrive at a competitive condition. Blaug suggests that if trade unions, for example, are able by their bargaining power to raise wage rates for their members above those of non-unionised groups that this would probably not affect calculations of educational return, because they would not be among the more highly-educated groups.

(3) The effect of unemployment on earnings. Perlman¹⁰² (1973, 30), Thias and Carnoy¹⁰³ (1972) and others said that significant unemployment may make wages or salaries invalid as a measure of benefits. They suggested that the rate-of-return on education should be adjusted by employment probabilities. In the present study, because the data of unemployment for both high school leavers and university graduates are very close (3.5% for former and 3.3% for the latter) and there has not been available precise data of unemployment people classified according to the level, kind of education, and occupation, the forgone earnings and flow of lifetime earnings are not adjusted by unemployment rates.

(4) The non-marginality of cross-sectional data. Prest and Turvey (1965), Thias and Carnoy (1972), Hansen 104 (1968), and others stated that

¹⁰³ Thias, H. H. and Carnoy, M., 1972, p. 4.

¹⁰⁴ Hansen, W. Lee, "Rates of Return to Investment in Schooling in the (Footnote continued)

¹⁰⁰ Rodriguez, L. J., and Davis D. D., The Economics of Education. Lincoin, Nebraska: Professional Educators Publications, 1974, p. 28.

¹⁰¹ Boven W. G., 1964, p. 24.

¹⁰² Perlman, R. The Economics of Education: Conceptual Problems and Policy Issues. Toronto: McGraw-Hill, 1973, p. 30.

cost-benefit analysis reflects the situation that exists at the time the data are collected. They said that these cross-sectional data do not accurately reflect both wages and costs in that some are likely to change over time. They suggested that the cross-sectional data have to be extrapolated into the future by using supply and demand as a function of earnings and Gross Domestic Product to overcome the shortcoming of a single time data.

Correspondingly, Jallade¹⁰⁵ (1977), and Hollister¹⁰⁶ (1970) argued that the adjustments by adding the economic growth rate to cross-sectional data on earnings is important to reflect the future income. In a growing economy many of these are likely to rise and actual lifetime incomes will be higher than those calculated from cross-section data.

Thus, differential earnings to university education in this study should multiplied by factor reflecting the rate of economic growth of Iraq. But because the latter has not been available since 1960s, so that the earnings differentials have not adjusted for economics growth. However

Factors that are assumed to be responsible for inaccuracies in the returns to education have been identified. While some factors are likely to increase the rate of return, others tend to decrease the rate of return. The effects of these positive and negative factors on earnings may possibly compensate for each other, so that the rate of return based on the measurable monetary returns and other relevant data may reflect the real return on education investment. Psacharopoulos¹⁰⁷ (1973) reviewing the study made by Hines et al. (1970) observed:

".... one of the things this study demonstrates is that, after all adjustments are made, it is possible that the final rate of return figure will be very similar to the unadjusted one, since many of the adjustments act in opposite directions and therefore cancel out."

According to the details above, in less developed countries, wages and salaries do not reflect marginal productivity because of imperfections in

¹⁰⁵ Jallade, Jean-Pierre, Basic Education and Income Inequality in Brazil: The Long Term View. World Bank Staff Working Paper No. 268, Washington, D. C.: The World Bank, 1977, pp. 25-26.

106 Hollister, R., "Education and Income - A Study of Cross- Section and Cohorts". In Education and Distribution of Income: Some Exploratory Forays. Paris: OECD, pp. 64-65.

¹⁰⁷ Psacharopoulos, G. Returns to Education: An International Comparison. San Francisco: Jossey-Bass, 1973, p. 39.

¹⁰⁴ (continued) United States". In **Blaug**, M. (ed.). <u>Economics of Education 1</u>. London: Penguin Books, 1968, pp. 137-155.

the labour market, other income policies.

The bias in data due to significant market imperfections may be corrected in two ways (1) a correction to actual benefits or costs, and (2) calculation of shadow rates of return by estimating shadow wages and salaries which more closely reflect the real productivity of workers. However, if the government in Iraq pays its employees in the public sector wages and salaries higher than their productivity, ¹⁰⁸ the social rates of return will be overestimated, but this will not change the ranking of returns for different subjects of university education (assuming that the government pays all university graduates higher salaries); whereas the social returns will be underestimated when wages and salaries are less than the productivity. ¹⁰⁹ Also, in this case, the ranking of rate of return will not change.

3.2 Rate Of Return To Investment In Education

In order to take into account time preference in evaluating an investment, it is necessary to discount the costs and benefits at a certain discount rate. This is because costs and benefits are incurred and recouped over a period of time rather than at the moment of decision. Woodhall (1970) stated that: 110

"There are three basic ways of presenting this information in a convenient form, first by means of a benefit-cost ratio, secondly by a calculation of the present net value of project, and thirdly by calculating the internal rate of return of the investment. A benefit-cost ratio, as the name implies, simply measures the ratio of discounted future benefits to discounted costs at a particular rate of interest, and the present net value of project is the value of discounted benefits minus discounted costs. Both these measures of investment yield have been used to carry out cost-benefit analysis of education, but they are less frequently used to evaluate education than third technique, rate of return analysis. The rate of return of any investment project is simply the rate of interest that equates the discounted present value of expected benefits and the present value of the costs of the project".

Income is discounted according to their remoteness from the present and

 $[\]frac{108}{10}$ The government in Iraq pays high wages and salaries in order to attract the people to employ in public sector.

¹⁰⁹ If the salaries and wages were less than the marginal productivity, the employees will shift toward the private sector or migrate to other countries. So that salaries and wages should be adjusted to update the salary structure in the public sector and equalize the salaries and wages of corresponding workers in the public and private sectors.

¹¹⁰ Woodhall, M. Cost-Benefit Analysis in Educational Planning. Paris: UNESCO, 1970, p.23.

the estimated internal rate of return is compared to a chosen time preference rate. If the former is greater than the latter, investment in education is considered profitable. Under the present value rule, the sum of discounted future earnings differentials is computed using a discount rate chosen to approximate the time preference of the individual or of society as the case may be. The present vale of the earning differential stream is computed, then compared to the educational cost. If the present value is greater than the educational cost, the expenditure is economically justified. Also the cost of education, like the earning differentials, must be discounted in order to be comparable. This is important in the case of education where the investment period is relatively long. In principle, the two methods are the same but they give the same results only under certain conditions. These are that (a) the projects are divisible and independent from each other, (b) the capital markets are competitive and net receipts can be reinvested at their internal rates of return up to end of the period. The present value criterion is more popular among economists, although the internal rate of return is also used often. Men Versus Women Rates of Return

3.2.1. Men Versus Women Rates of Return

The rate of return for males has usually been higher than that for females, since the male graduate-nongraduate earnings differential appears to have been higher than the female one. Presumably with the increase in legislation in most countries against sex-discrimination this difference ought to decline in the future. However, while women retain the role of staying at home to look after the family and hence miss out part of their career, this difference in earnings will not disappear entirely. Mincer (1976) concluded his analysis of women's work experience and its effect on earnings as follow:

- (1) The smaller the expected lifetime participation in the labour market, the less are the investment aspects of women's formal education, and the less is the acquisition of job training at work compared to men with comparable education.
- (2) During the period of child bearing and child care, long nonparticipation may cause the skills acquired at school and work to depreciate.
- (3) Women who return to work after their children reach school age have

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¹¹¹ Mincer, J. "Progress in Human Capital Analyses of the distribution of earnings": In: Atkinson A. B. (ed.) The Personal Distribution of Incomes. Allen and Unwin, London, pp. 162-163.

a strong incentive to resume investment in job-related skills.

- (4) This suggests that the investment profile of married women is likely to show negative values (net depreciation) during the child-bearing age, whereas the investment profile of unmarried women, with greater continuity of work experience, is closer to that of men.
- (5) The implication for earnings profiles are clear. Earnings profiles of men are the steepest and concave; those of childless women are less so; and those of mothers are double peaked with least overall growth.

However, one of the effects of education on women's earnings is that higher levels of education enable a woman to recover her former level of earnings after a number of years and again to enjoy the benefits of rising income associated with increased work experience. Women with less education may never overcome the loss of earnings capacity due to interruptions in their working life and loss of work experience.

However, in a few cases it was found that the female rate of return was actually above the rate observed for men 112 . This is because educated women are far more likely to remain in the labour force than women with less education. Therefore, although the female graduate's average earnings are still below the male average earnings because of the extent of part time work, since the rate of return depends upon differentials rather than absolute earnings, in some cases the rate of return for women may actually be higher than for men. Furthermore, because of differences in occupational distribution and because of the acceptance of part-time work and interrupted careers, the absolute level of earnings for women will always be below that of men, but in relative terms the educated women may enjoy a greater advantage over the less educated ones than educated men have over other men, and because of their education they are likely to face less market discrimination than women with less education. Finally, if some allowance is made for the indirect benefits of education (non-market work or psychic income), it is likely to raise the rate of return to women's education.

However in this study the private and social rates of return for women have not been calculated because there are no separate data on age-earning profiles available for women.

As we mentioned in Chapter one the majority of university graduates,

¹¹² For example, Birch and Calvert (1973), Wilson (1983), found that the rate of return to women in teaching was higher than men. See Birch D. T., and J. R. Calvert, How Profitable is Teaching? Higher Education Review, Vol.6, No. 1, pp. 35-45, and Wilson R. A., The Declining Return to Professional States in British Economy (with Special Reference to Scientists and Engineers). Thesis Submitted for Ph.D., Department of Economics, University of Warwick, 1983, pp. 6.58-6.70.

both males and females, work in the public sector and the promotion and salary pattern in Iraq does not distinguish between males and females. Moreover, discrimination against women is low in Iraq and women and men are equal under the law. Also, it was assumed that all graduates males and females enter the labour force immediately after graduation, and continue their lifetime working without interruption, except married women who take one year of maternity leave.¹¹³ However, women employed in the public sector are paid full salaries for this period by the law. It was assumed that people who are employed in the public sector most likely work full-time and that part-time jobs in the public sector are very rare especially among university graduates. Accordingly the private rate of return may be the same (or very close) for men and women. But if it is assumed that the employers do not pay (or pay fractionally salaries) for the maternity leave, the private rate of return for women will be less than for men. The Social rate of return for women may be less than for men

3.2.2. A Selective Review of Studies

The profitability of investment in education depends on the earnings differentials attributed to education, the cost of education, and the time preference discount rate. Subjective definitions, questionable estimates and even entirely arbitrary values for these variables are in most cases responsible for quite divergent results obtained by different authors.

The first attempt to calculate social and private returns to education was done by the Russian economist S. G. Strumilin early 1920's. He used two samples, one of 2,602 lathe operators (from the year 1919) and another of 2,307 white-collar employees. He tried to establish the functional relationship between wages and education. The relationship between skill on one hand, and age, job experience, years of formal education on other hand. He found that the increment of skill is positive with years of schooling. Moreover, Strumilin found for his sample of physical workers that " the increments of wages related to education"¹¹⁴ Also he found that a year of formal education contributed more to manual wages than a year of job experience.

¹¹³ It should mentioned here that maternity leave may happen many times throughout working lifetime.

¹¹⁴ This part on early Soviet economists on education is based entirely on Kahan Arcadius, Russian Scholars and Statement on Education As Investment. In Anderson C. A. and Mary Jean Bowman (eds), Education and Economic Development, Frank Cass & Co. Ltd., 1966, pp.3-10.

In 1930, the Russian economist E. Liustikh, presented in mathematical form the relationship between wages and education, experience, and age. Liustikh used data from a sample of 72,596 workers in the metal and machine-building industries from the 1929 factory Census. He found that the main factor determining wages differentials was education.¹¹⁵

The first statistical analysis estimating the relationship between earnings and education in the west was by J. R. Walsh 1935.¹¹⁶ He attempted to determine whether education expenditure ".. is, strict sense, a capital investment made in profit-seeking, equalizing market, in response to the same motives which lead to the of factories, machinery and the like."¹¹⁷ His main attempt was to estimate the returns and costs of His main attempt was to estimate the returns and costs of individuals with various degrees in education beyond the high school level. such as B.S., LLB., M.A, Ph.D and M.D. He used American data of the late 1920's. Walsh computed means and medians from 16 samples whose size range from 42 to 11,760 observations, and he adjusted for mortality and unemployment rate. In this study, the present value of private earnings differentials always exceeded private costs for college education (using a 4% discount rate). He concluded that investment in college education has a rate of return higher than 4%. In the three cases out of six of education beyond the baccalaureate level, the present value fall behind the corresponding costs, which means that the rate of return to higher education less than 4%. He found that the LL.B degree produced the highest expected return, followed by B.A, Ph.D (Engineers), M.D. and finally M.A. degrees. In this study, the social returns and costs were not estimated.

Glick and Miller (1956), used 1949 U.S. Census data to estimate the private rate of return.¹¹⁸ They showed that individual incomes rose with more education, by computing average income for man 45-54 years of age by their amount of education based on data from 1949. They stated that:¹¹⁹

" a majority of youths in this country who are willing and able to continue their schooling can justifiably expect to receive considerably higher incomes in the long run by completing their education through college instead of entering the labour market after finishing high school".

¹¹⁵ Ibid p. 10.

¹¹⁶ Walsh J. R., "Capital Concept Applied to Man, <u>Quarterly</u> <u>Journal of</u> <u>Economics</u>, Feb. 1935, pp.225-285.

¹¹⁷ Ibid. p. 256.

¹¹⁸ Glick P. C. and H. P. Miller, "Educational Level and Potential Income", American Socological Review, Vol. 21, 1956, pp.207-312.

¹¹⁹ Ibid. p. 308.

Glick and Miller concluded that a college education was worth approximately \$100,000 in terms of monetary return. But this apparent gain was not discounted to its present value at the time of the educational investment decision was made and no adjustment was made to account for unemployment, mortality and income tax.

Houthakker (1959), published the result of a study which attempted to show the relation between income and education, using U.S. data for the year 1949.¹²⁰ He introduced adjustments for income tax and discounting. His findings clearly indicated the sensitivity of marginal earnings to discounting at various rates. For example, the differences in the before-tax life earnings of college and high school graduates at zero discount rate is \$105,829, but with an 8% discount rate, he found that the difference dropped to \$5,095.

In 1960's, many economists analysed the rates of return to education. They believed that investment in human capital was one of most important factors in achieving this desired high economic growth.

Among these economists was G. Becker (1960)¹²¹, who introduced a novel way of assessing the return to investment in education. Instead of applying several discount rates to marginal earnings streams, which was the practice in previous studies, he calculated the actual rate of return made from an investment in college education. This rate is now referred to as the 'internal rate of return'. He found, using 1949 data, that the private (after tax) and social rate of return for college graduates were 11.7% and 11.5% respectively. Also, Becker estimated the rate of return to urban whites college graduates at 9% and the rate of return to non-whites about 2% lower than of whites. The average return to rural graduates is probably also less that of urban graduates. Therefore, the average return to all graduates, according to Becker would be lower than the 9% return to urban white males.

In 1965, **Harberger**, attempted to estimate the social rate of return for secondary and college education in India.¹²² His figures range from 10% for four-year secondary schooling to 16.9% for six-year university

120 H. S. Houthakker, "Education and Income, <u>The Review of Economics and Statistics</u>, Feb. 1959, pp.24-28.

¹²¹ Becker G. S., "Underinvestment in College Education? <u>American Economic</u> <u>Review</u>, Feb. 1960, Vol. 50, pp.346-353.

122 Harberger, A. C, "Investment in men versus investment in Machines: the case of India. In Anderson C. A. and Mary Jean Bowman (eds), Education and Economic Development, Aldine Publishing Co., Chicago, 1965, pp.TI-50.

education. These estimate are compared with adjusted social rates of marginal productivity of India's physical capital which varies from 17.2% to 26.1%. Therefore according to author "the estimates for physical capital were 'designed' to be underestimates, whereas those for investment in education were "designed" to be overestimates".

Lee W. Hansen (1963), calculated the male private and social rates of return to years of education,¹²⁴ using 1949 U.S Census data. These rates of return make the present value of the cost and return streams equal. They were calculated for private and for social money cost and benefits. Hansen's total resource costs or social costs included: (1) School costs incurred by society, that is, teachers' salaries, supplies, interest and depreciation on capital, opportunity costs incurred by individuals, namely foregone earning during school attendance, and incidental school-related cost incurred by individuals, such as books and travel expenses. Private resource costs include the same three components except that in (1) above, tuition and fees paid individuals are substituted for society's costs which are namely defrayed through taxation."¹²⁵

He took care to point out some of possible flaws in the data. For example, that the income profiles were based on all income accruing to an individual, not just earning from salaries and wages; that there is some doubt about the validity of attributing financial benefits to educational increments alone; that all cost elements were considered as investment even though some portion thereof should be counted as consumption; that the basing of all estimates of costs and benefits on cross-section data assumed on possible future shifts in relationship of the cost-earning streams; and other functions such as on-the-job training and work experience which may affect on observed earning differential were ignored.¹²⁶ In this study, it was found that the marginal private rates of return before taxes to elementary, high school, and college education were infinite,¹²⁷ 15.3%, and 11.6%, respectively. The average private rate of return before tax for the same educational levels were also infinite, 25.6%, and 18.2% respectively.

¹²⁴ Hansen, Lee W., "Total and Private Rates of return to Investment in Schooling," Journal of Political Economy, 1963, Vol. 71, pp. 128-141.

¹²⁵ Ibid p. 130.

¹²⁶ Ibid p. 134-135

 127 The reason that the rates of return to elementary education were considered infinite was because the cost of elementary education was free.

¹²³ Ibid. p.29.

While the marginal private returns after tax were infinite, 14.5%, and 10.1%, respectively. The average returns after tax were for the educational levels were infinite, 27.9%, 27.2%, respectively. Hansen calculated social returns and he found that the results were the same either for the average or for marginal, 15% for elementary, 11.4% for high school, and 10.2% for college. Finally, he found that an individual who complete only two years of college could expect about one-third the return of one who completed a four-year college (private rate of return for two year college was 6.2% whereas for four-year college 18.7%).

Blaug was a leader in the analysis of economic return to education. Blaug (1965) published one of the pioneering articles in the field entitled "The Rate of Return on Investment in Education in Great Britain".¹²⁸ He emphasized the importance of these calculations for educational planning and provided the techniques on how best to derive them. In this study, many objections that had been raised against rate of return calculations were met. The first study of calculating the rate of return to education in Europe was done by Blaug in his Appendix of 1965. According to Henderson/Stewart's estimates, an estimate of the private rates of return to secondary ('A' level and college education) were 13% and 14% respectively. Furthermore, the social returns to these two levels of schooling were lower than the private rate of return. Therefore, the average and marginal social rates of return to first degree education were estimated to be 8.% and 6.5%. The marginal social rate of return to 3 extra years of schooling beyond the school leaving age (i.e. 'A' level course for most students) was 12.5%. In this study assumed that an adjustment for ability which attributes only two-thirds of the earnings differential to education for first degree and 0.60 for secondary schooling. Henderson/Stewart estimated that the private rate of return actually received by graduates is well above 20% also adjusting for tax which reduce the earnings differential by 20-25%.

All British studies, like the early estimates of Henderson/Stewart are based upon earnings data collected in sample survey. This raises the problem that the sample may be too small (Henderson/Stewart used survey of 6500 workers in 1963) to be representative, particularly of those with the highest educational qualifications. Moreover, classification of educational levels was very crude, and workers were distinguished only by their terminal education age, and then grouped into three categories.

Hanoch (1967), used a sample of 1/1000 of the 1960 United States Census

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¹²⁸ Blaug M., "The Rate of Return on Investment in Education in Great Britain", The Manchester School of Economics and Social Studies, Vol.33, 1965, pp.205-225.

of Population including more than 57000 males over age 14, to calculate the male private rate of return to education. 129 The special feature of this analysis was an investigation of marginal and average rates of return to education according to race (white and non-white), and region (North and South). It was found that the average rates of return for college education were 12% for whites in the North and 11% in South. On the other hand, the average rates of return for college for non-whites were 9% in the North and 7% in the South. The average rates of return for individuals at the secondary school were 16% for whites in the North and 19% in the South. For non-Whites living in the North, the rate of return for Secondary school was found to be 23%, while for these living in the south it was found to be merely 11%. However rate of return to individuals at the college level was just 10% for whites in both regions. The marginal rates of return for non-white college graduates were not available in this analysis because the data were statistically less reliable. In this study found that the higher the amount of schooling, the lower the marginal rates of return. Hanoch observed "this seems to verify the conjecture that the marginal efficiency of investment in schooling is decreasing". $^{130}\,$

Hines, Luther, and Martin (1970) applied a sample of 1/1000 of the 1960 United States Census of Population to investigate private and social rates of return to investment in education. Their sample included more than 107,000 persons, males and female, aged 14 years and over.¹³¹ Ιt represents social and private returns for U.S. white males and females, as well as those for other races. In this study, private costs estimated to be merely the income forgone. Direct private cost were assumed to be cancelled out by the earnings of students during the education time and vacation periods. Private and social returns were computed by race, sex, and region. Moreover, sensitivity analysis was made for white males by adjusting earnings by economic growth of 2% in earnings, mortality, ability, taxes and interest 6% on property. The unadjusted private rate of return for whole U.S., for male of 12 years schooling over 5-7 and 8 years were found to be 20% and 24% respectively. The private returns for non-white males of the same were estimated to be 27%, 18%. The adjusted private return of 12 years of schooling over 8 years for white males was calculated to be 16%. Hines et al. estimated also the social rates of

¹²⁹ Hanoch G., "An Economic Analysis of Earnings and Schooling", <u>The</u> Journal of Human Resources, Vol. 2, Summer 1967, pp. 310-329.

¹³⁰ Ibid. P. 326.

¹³¹ Hines, F., T. Luther, and R. Martin, "Social and Private rates of return to Investment in Schooling, by Race-Sex Group and Regions". <u>The</u> <u>Journal of Human Resources</u>, Vol. 5, No. 3, 1970, pp.318-340. return. The unadjusted social rates of return for 12 years of schooling over 5-7 and 8 years for white males were found to be 16% and 14% respectively; and 12% and 17% for non-white. While the adjusted private rates of return of 12 years of schooling over 8 for white was found to be 10%. This study showed that the highest private return was calculated for white males in elementary schooling, while the lowest was calculated for other races in higher education.

Blaug, Peston and Ziderman (1967) used 1964/65 data for a sample of 2,800 males workers employed by a large automobile firm in Britain and by four British electrical engineering companies. $^{132}\,$ In this sample, because of the availability of information, workers were distinguished not just by their terminal education, but also by the exact educational qualifications of each person. In addition, this survey was used as the basis for cost-benefit study, a study of utilization of educated manpower in industry. This survey showed on the one hand that there was a clear relationship between age, education and earnings, on other hand the age earning profiles showed the following characteristics: (i) average earnings rise with age and with level of education; (ii) the profiles flatten out, for older workers and in the case of those with lower level qualifications or no qualifications at all average earnings actually decline after age 55; and (iii) the difference between some of the age-earnings profiles widens with age, so that the greatest benefits of education accrue to older workers.

The data adjusted for tax, 2% added for growth in real earnings, net earnings include maintenance grant. In this study the private costs equal to zero other than earnings forgone were estimated. The marginal private rate of return for secondary schooling was calculated to be 15% (+ HNC/'A' level) and for first degree 12% (Ist. degree/ 'A' level), and the average private rate of return were estimated to be 11.5% for both levels. The marginal social rates of return were computed to be 12% for secondary school and 10% for the first degree, while average social rates of return were estimated to be 9.5% for secondary school ('A' level) and 10% for first degree. Blaug et al found that the social rates of return were significantly lower the private rate of return. However, the results in this study for the year 1964/65 were lower than the Blaug / Henderson steward's results (1963/64). They thought that the reason probably of due to the different comparison income profiles used to represent the expected earnings stream of persons qualifications to go on to higher education but who do not take up this option.

¹³² Blaug Mark, Peston Maurice and Ziderman Adrian, The Utilization of Educated Manpower in Industry, (Oliver and Boyd, Edinburgh and London), 1967.

Maglen and Layard (1970), In this study, the data was collected on age, earning and educational qualification of over 10,000 workers (males only) in 68 factories in the electrical engineering for 1966/67. Furthermore, information about many economic variables was collected such as output, levels, nature of product, method of manufacture and so on. Therefor, the study was able to calculate more detailed age-earnings profiles than any previously available in Britain, even though represent the pattern of earnings in only one industry. In this study, the detailed estimates of costs of different qualification were estimated, such as estimating private and social costs, estimating average costs per student in different subjects and courses, estimating costs of part-time schooling, the distribution of costs between teaching and research in university, and the costs of wastage. Maglen and Layard make two different assumptions about the costs and possible benefits associated with wastage: (i) they include the costs of educating graduates and those who drop out without a qualification, and compare these costs with the benefits to successful graduate, assuming that there is no financial return for an incomplete course, and (ii) exclude all the costs of wastage on the assumption that the benefits of an incomplete course are proportional to the costs incurred.

In this study, the proportion of earnings differentials that are attributable to education was estimated to be 1.00, 0.66, and 0.50. The authors conclude that the returns to full-time higher education are quite modest, when the social returns are taken into account. The highest social rate of return to first degree (6.5% adjusted for dropout and ability 0.50 and 10% unadjusted) and the lowest positive rate of return was to secondary schooling ('A' level); the social rates of return to master's degree when compared with first degree were negative; and the social rates of return to doctorate is positive but lower than for a first degree. Therefore, the study concludes that "it seems difficult to sustain the argument of the Manpower Reports that there has been substantial underinvestment in this type of scientific and engineering education".¹³³ One other hand, the rates of return to part-time education are considerably higher than the return to full-time education, for example, the authors estimate the rate of return to a part-time HNC (High National Certificate) is 13.5% (adjusted for dropout and ability) compared with 7.5% for a full-time first degree course; they explanation that " the part-time education may be poor quality and it products may be not common higher salaries, but it is very cheep".¹³⁴ they found also that the private rates of return consistency higher than the social rates of return (expect the rate of return to

¹³³ Maglen Leo and Layard Richard, "How Profitable is Engineering Education?" <u>Higher Education Review</u>, Vol. 2, no. 2, Spring 1970, pp. 51-67. master's degree is negative).

Selby-Smith (1970), this study is based on a very detailed analysis of costs in further education, including estimates of average and marginal cost for different courses in six technical college during 1964/65 academic year and one college over six year period.¹³⁵ These technical college were selected in three regions of England (The Southern, South - Western and East and west Riding Regions). Two colleges were chosen in each area. Age-earning profiles were calculated for 17,500 men collected from a small of firms. The proportion (α) of the additional earnings associated with a higher formal educational qualification which is due to it was assumed to be 0.50, 0.65 or 0.80 to examine the allocation of resources within the sector, to see whether there was any evidence of misallocation. The earnings differentials were adjusted also for tax. Migration effect was ignored, both within Britain and between it and the rest of the world.

The author conclusions that there was strong evidence that the popular view that further education is "education on the cheap" may be not so obviously true as it appears to be at first seeing. There was also a distressing abundance of evidence for the view that output is not maximised given the inputs into further education. He concludes that is technical college to favour more advance academic work, and more expensive courses, even though the benefit-cost ratios are often lower in these courses. This study for example shows that degree-level courses appear less attractive, in cost-benefit terms, than HNC and the author concludes that "it has been frequently argued that the nation's most pressing shortage in skilled labour is graduate engineers and scientists. however, it appeared that there were other levels of work in these fields which had a stronger claim to priority than first degrees".

In 1971 Morris and Ziderman calculated the economic social rates of return to seven different levels of education for men, and a university first degree for women.¹³⁷ Using questionnaires sent to 15,000 qualified men and women in England and Wales, and information on level and type of educational qualification. In this study, alternative estimates were

¹³⁶ Ibid p. 600.

¹³⁷ Morris V. and A Ziderman, "The Economic Return as Investment in Higher Education In England and Wales", <u>Economic Trends</u>, May 1971, pp. xx-xxxi.

¹³⁴ Ibid p. 64.

¹³⁵ Selby-Smith C., "Costs and Benefits in Further Education: Some Evidence from a Pilot Study", <u>Economic Journal</u>, Sept. 1970, pp 583-604.

calculated, based on different assumption about research costs and the effect of ability on earnings. Research costs were excluded, earnings differentials were adjusted for ability (0.66 was adopted) and 2% for economic growth. Morris and Ziderman found that the Higher National Certificate (HNC) courses appear to be highly profitable and postgraduate courses highly unprofitable.

The rates of return were 20%, 3% respectively. The rates of return to postgraduates were negative under certain assumption. They found also that the social return to first degree graduates was around 10%. The rates of return to "A" level and Ordinary National Certificate (ONC) were about 7%. In this study, the rate of return to university education for women was estimated to be lower than for men. This is not surprising, since economic benefits are measured only in terms of earnings differentials, and many women leave the labour force after marriage, or work part-time in low-income occupation. The authors stated that this study does not take account of any of consumption or indirect economic benefits of education. The low rates of return for postgraduate qualifications (the high cost which are not sufficiently offset by the extra earnings) and average high rates of return to HNC and HNC-PQ qualification (the lower earnings being more than compensated by small expenditure cost and earning forgone).

In 1970 Kahanna and Bottomley, estimated the marginal private and social rates of return and benefit/cost ratios to university graduates in nine different programs at Bradford University for the academic year 1966/67.¹³⁸ The data on the costs were obtained from the University of Bradford for year 1966/67. The earnings data were taken from Corn-market survey results for 1967. But the Corn-market figures ceased at age 45. Therefore, the authors chose to extrapolated British earnings from age 45 to 65 on the basis of American data for graduate earnings for year 1949 to obtain the qualified earnings profiles. Data from Blaug, Peston, and Ziderman's figures for earnings of school-leavers with 'A' level qualification in 1964-65 using the change in the index of average earnings (+ 17) to obtain the unqualified profile. In this study, the part-time vacation and industrial training earnings of university students were subtracted from earnings forgone. The data were adjusted for the secular growth in real income (2%), were not adjusted for ability, and excluded research costs which were estimated about 10%. The author found that the marginal social rates of return vary across programs category, but in general are much lower than those estimated by Morris and Ziderman. The marginal private rates of return were calculated with full grant and without grant. The private rates of return (with no grant) were about

¹³⁸ Khanna R. K. and A. Bottomley, "Cost and Return on Graduates of University of Bradford", <u>Accounting and Business Research</u>, 1970, pp. 56-70. one-half the marginal private rates of return with grant, all private rate of return higher than the social rates of return, finally not all the rates of return were higher than the cost to British government of borrowing money at 7%.

Ziderman 1973, calculated average and marginal private rates of return to investment in higher education for males and females (full and part-time).¹³⁹ Three levels of educational gualification were taken Three levels of educational qualification were taken (Higher university degree or equivalent, first degree and qualification below first degree - such as HNC, HND, Teaching Certificate and Nursing awards - and persons with no qualification) from survey concerned with earnings of qualified manpower in England and Wales 1966/67, prepared to DES for first three levels and for person with no qualification from DHSS. The author assumes that 0.66 of the earnings differentials are due to extra education. The private returns on investment in higher education were calculated by comparing systematically the monetary benefits of the higher education with the costs of acquiring it. Then, calculating an internal rate of return on this educational investment, which the person could compare with going, or expected, rates on interest and with his time preference rate. The major conclusion in this study is that at each age earnings are higher the greater the level of educational achievement. In this study, it was found that the investment on first degree and higher degree, offer high rates of return to the individual, under two terms free tuition and maintenance grant, and if the possibility of dropping out is not taken into account. The results of this study show that average returns on investment in first degree for women are higher than for men, and the individual rates of return to first degree and higher education are too close.

Morris 1973 estimated the marginal and average social returns on investment in different qualification (such as 'A' level, first degree, higher degree - M.A. and Ph.D - and vocational education - HNC, HNC-PQ, and ONC) and for alternative programs within university education (such as Arts, Science, Engineering, and Social Science.¹⁴⁰ The data on the earnings of qualified manpower were obtained from a postal survey carried out for the Department of Education and Science by the General Register

¹³⁹ **Ziderman A.,** Does It Pay to Take a Degree? The Profitability of Private Investment in University Education in Britain. In Baxter c, O'Leary P. J. and Westoby, Economics and Education Policy: a reader, (Longman in Association with the Open University Press, 1977.

¹⁴⁰ Morris V., "Investment in Higher Education in England and Wales: A Subject Analysis", In Carolyn Baxtor, P. J. O'leary and Adam Westoby, Economics and Education Policy, a reader, Longman in association with The Open University, 1977, pp. 72-91.

Office in 1968 as a follow-up sub-sample to the economically active persons enumerated in the 1966 10% Sample Census of Population for England and Wales. The data excludes pension income, and the earnings of these ceasing to work during 1966/67, but includes the income of self-employed, and the actual earnings of those recording breaks in employment.

This survey is the most comprehensive and recent source of information on the earnings of qualified manpower in England and Wales. The Data was obtained by questionnaires sent to 15,000 qualified men and women in England and Wales. Total average costs were adjusted for each year of study by income transferred (such as grant), part-time working on vacation, appropriate rates for examination failure, wastage, repetition and length of course. The earnings differentials were adjusted for the ability factor by using one-third, and adjusted for secular growth in real income by adding 2%.

The results of this study show that the returns on investment on part-time vocational courses are substantially greater than on full-time university courses; that the different in returns were greater between qualifications levels than between alternative subjects at the same level give equal earnings; that the returns on investment in first degree for men is higher than for women; and that the effect from the costs on the rates of return was more that the effect from earnings, for example comparative return of graduate and postgraduate; that the returns on investment in postgraduate science and engineering were higher than in arts and social science; that the return on investment in vocational qualification is fairly high for engineering compared with science reflecting lower earning and high cost of science at this level; and finally, that the return on investment in first degrees were higher in arts and social science than science and engineering, reflecting the fact that the higher science and engineering cost were not met by extra earnings. But this pattern was reversed for postgraduates qualification with higher return to science and engineering than to arts program (i.e. at this level the extra earnings offset the higher costs).

Ziderman 1973, concentrated on the direct investment benefits to individuals and society as a whole. In this study the rates of return were estimated for major education qualifications: HNC, HNC-PQ, first degree, postgraduate (M.A. and Ph.D.).¹⁴¹ Using the data from the follow-up Census of Population Survey for England and Wales in the 1966. The earnings stream associated with each educational qualification was adjusted for ability by reducing mean annual earnings differential by one-third, labour

¹⁴¹ Ziderman, A., "Rate of Return on Investment in Education: Recent Results for Britain", <u>The Journal of Human Resources</u>, Vol. 8, no. 1, 1973, pp. 85-97.

force participation, unemployment, and mortality as well as for prequalification earnings, but was not adjusted for the secular growth of incomes. No estimates were provided of consumption benefits, and of externalities which are important in the case of social rate of return. The results show that the private rate of return were substantially above the social rates; reflecting that the effect of taxes in reducing the private net present value is very much less than that of the high costs in reducing social net present value; that the private rates of return to part-time technical (HNC and HNC-PQ) programs were greater than other educational qualifications due to the low earnings forgone; that the private returns on investment in 'A' level were the lowest private rate of return among all educational qualification; that the first degree give higher private rate of return than the postgraduate. The results for social rate of return show the low rates of return are to graduate qualification (the high costs of which are no sufficiently offset by the extra earning), and high returns are to HNC and HNC-PQ qualifications (the low earning being more than compensated for by small expenditure costs and earning forgone). From the result of private and social rate of return, the author discussed that the private rate of return were more than 20% in part-time technical courses and first degree which suggest that there is underinvestment in education, and less than 8% in 'A' level and 11% in ONC qualification which suggest there is overinvestment in these level of education. The high social rates of return to investment in part-time technical programs showed that there was under investment in this type of education. While the social returns to investment in 'A' level, ONC and first degree seem to had been right order magnitude. The low returns shown on social investment at postgraduate level which suggests that this part of the university sector was overexpanded, however, the author point out that the validity of such a conclusion could depend upon the weight to be given to the externalities effect of higher education.

Dodge 1972, published the case study of return to investment in university training in some Canadian qualified.¹⁴² He estimated an earnings determination model for Canadian chartered accountants, engineers and scientists. On the basis of this model, Dodge estimated returns to investment in some fields of higher education, using data from the Survey of Highly Qualified Manpower of 1967 for selected occupations. The conclusion of this Study were that the social monetary return to investment in graduate degree for accountants, engineers and scientists were negative at a discount rate of 5% or greater except the monetary

¹⁴² **Dodge, D.** A. "Returns to Investment in University Training: The Case of Canadian Accountants, Engineering, and Scientists", <u>International and Labour Relations Center</u>, Queen's University, Canada, 1972.

return to a doctorate in engineering was positive at a rate of 5%, but even these were negative if a discount rate of 10% was used; furthermore decline in monetary return to investment was likely because of the rapid increase in the supply of graduates (relative to demand for them, for these reasons it seems that the estimates of returns to graduate training made on basis of 1966 earnings data will be overestimates of the monetary returns in 1970s) and estimated private return were much higher than the social Finally the returns to investment in higher education were return: underestimated because the external and personal non-monetary benefits were not taken into account. However Dodge emphasised the requirement for "much move conceptual and quantitative work on the external benefits of higher education and on the external and personal non-monetary benefits were not taken into account so that the return on investment in higher education was underestimated, however, non-monetary return are so much greater that overall return might be quite similar.

Social monetary returns to investment in higher education within occupations were low; only the doctorate in engineering appears to yield a positive social return at 5% rate of discount, unadjusted for effect of growth 2% or a 7% allowing for a 2% natural growth rate.

Hansen and Weisbrod (1969), Published a book in the field in 1969 entitled " Benefits, Costs, and Finance of public Higher Education".¹⁴³ It was a revision of the original study commissioned in 1967 by the Joint Committee on Higher Education, established by the Legislature of California's State in 1965. This study attempts to identify, classify, and measure the economic and social benefits and costs of higher education. Hansen and Weisbrod conclude that many people other than students benefit financially from the increased income which are received by college educated individuals. But because of the population mobility process, these benefits may accrue to other taxing unit not subsidize the education; that forgone income is a major part of college cost, especially for students from low income families. In order to offset the high cost to students and their families of giving up much of their immediate earning capacity, substantial grants (negative tuition) are provide; that public subsidies for higher education in California tend to go unequally to students from relatively high income families and are received in quite different amounts by people even within given income classes. For example, small group of people receive high substantial subsidies whereas high percentage of student age population does not receive any subsidy; and that the person attending public higher education in California receives considerable benefits. He receives more in the form of direct educational

¹⁴³ Hansen Lee W., Burton A. Weisbrod, "Benefits, Costs, and Public Higher Education", Markham Publishing Co., U.S.A., 1969.
benefits than he and his family pay through the tax system during the period of schooling attendance. Also the tax he pays out of the additional income attributable to his higher education (during entire his working lifetime after graduation) fall considerable short, on a present value basis, of the average subsidy he received.

Freeman (1982) published a report to the O. E. C. D., in which the changing economic value of higher education in the major O.E.C.D. countries was analysed.¹⁴⁴ In this study data on earnings by education or earning in occupation were composed of persons with different educational attainments. It was suggested that the heralded decline in the economic value of higher education in the U.S. was not a unique North American phenomenon, but rather was appearing throughout the developed world. This study also suggested that the decline in the premium to educated people reflected movement along a reasonably well-defined demand for graduates schedule due to the growth of the college and university system of the various countries.

Freeman found a noticeable decline in the earnings of graduates relative to other workers, a reduction in the proportion of graduates in jobs traditionally filled by college-level workers, a noticeable increases in graduate unemployment, and he also found that the observed changes in terms of relatively simple supply-demand model of the graduates market in which the increase in relative supply of graduates exceeding increases in relative demand reduce the economic advantage of college or university training. Finally, the author found that The decline in the university premium is due to trade union or governmental efforts the maintain the earnings of the less educated in a period of slow economic growth.

Dodge and Stager (1972), provided estimates of the economic private and social returns on investment in graduate education in science, engineering and business administration in Canada based on 1966 data.¹⁴⁵ It was demonstrated that the social returns to graduate study were much lower than those to investment in most under-graduate training. Dodge and Stager concluded that the estimates of social return to graduate study in Canada fall well bellow the American returns. Returns to graduates in Canada likewise fall well below those under-graduate degree in science and

¹⁴⁴ Freeman, R. B., "The Changing Economic Value of Higher Education in Developed Economics, A Report to the O.E.C.D. Harvard Institute of Economic Research, Harvard University, Cambridge, Massachueets, Jan. 1982, Discussion Paper Number 874, pp 1-55.

¹⁴⁵ Dodge D. A. and D. A. A. Stager, "Economic Returns to Graduate Study in Science, Engineering and Business," <u>Canadian Journal of Economics</u>, May 1972, Vol. 5, no. 2, pp. 182-198.

engineering in Canada. Also they concluded that unless there were very large unmeasured external benefits appearing from graduate during the 1960s, there was an over - allocation of public and private resources to investment in graduates in science and engineering. But there was no such over-allocation to graduate programs in business. However, they reported three important implications for allocation of public resources in Canada. The first implication of their finding was that resources could be shifted away from graduate education toward under-graduate training. The second implication was that within graduate study, a shift of resources away from science and engineering toward business could be improved resources allocation. Finally, if a real social discount rate of 4% or more was assumed resources could be shifted out of graduate programs in science and engineering regardless whether or not they were shifted into undergraduate education. If a real social discount rate of an 8% was assumed, resources could be shifted into master's programs in business but vice versa if the appropriate rate of social discount was assumed higher than 8%.

Koch (1972), reported private internal rate of return received by individual who invested time and resources in a wide range of undergraduates majors in American colleges and Universities.¹⁴⁶ The private internal rate of return were calculated by using income data consists primarily of cross-sectional observation of lifetime-income stream in various academic fields, whereas cost information was based upon the typical student cost of attending and obtaining a baccalaureate degree at Illinois State University in 1968-69. The income and costs data were applied after substantial adjustments had been made. In this study, it was found that the private returns on investment in agriculture, elementary education, fine arts and history were lower than in accounting, economics, geography-geology, mathematics, and phyichology. It should be noted here that the data information about income and costs more related to 1968-69 whereas the enrolment statistics related to 1970-71. It was suggested that The internal rates of return could be used to predict changes in student enrolment patterns in under-graduate education. The results of this study lend strong support to that hypothesis at Illinois State University. The study showed that the total number of mobile students involved in shifting pattern of undergraduate majors was not a substantial portion of the total students. However, it was clear that marginal change in internal rates of return were associated with student choice of major field of under-graduate education.

¹⁴⁶ Koch James V., "Student Choice of Undergraduate Major Field of Study and Private Internal Rates of Return". Industrial and Labour Relations Review' Vol. 26, No.1, 1972, pp. 680-685.

Bailey and Schotta (1972), reported the results of an examination of evidence on cost and return to graduate education in United States. 147 The basic data of income include salary of all faculty member in the 829 highest paying U.S. Colleges and Universities during academic year 1966. The direct costs which were used to obtain the net earning stream for these faculty staff was the average cost structure for producing Ph.D. degree in all disciplines Berkeley and Los Angeles Campues of the University of California for the same academic year. In this study, it was found that the income foregone while attending graduate school was a large element of cost in producing a graduate degree. It estimates through the use of actual salaries prevailing in occupations open only to holders of the bachelor's degree in California in fiscal year 1966. The rates of return were computed for graduate degree holders who worked for one of the 829 highest paying colleges and universities in U.S., but not for graduate degree holders employed in other sector such as governmental agencies or business organization. It was assumed that graduate education in United States occurred as a pure investment; that constant dollar amounts was used, year by year, in order to eliminate the effect of inflation. this directly gives rates of return expressed in real terms; that there was no relative change in the structure of supply and demand in labour market; that the wages of a degree holder was approximately equal to the rent on his human capital, that average product of human capital was equal to marginal product of human capital; and that the structure of the labour market was imperfectly competitive and was characterized by monopolistic and monopsonistic competition.

The conclusion of this study were that the social and private real rate of return to graduate education were either zero or less than 1 per cent; that there was overinvestment in graduate degree and underinvestment in undergraduate degree, so that need to be a reallocation of educational expenditures by government from graduate to undergraduate for more efficient resource utilization, both socially and privately. This reallocation could decrease the rate of return to investment in undergraduate education and raise the rate of return to investment in graduate education; Finally, in addition to undertaking improvement and technological revisions in human capital production process in graduate school to reduce the number of years spent in graduate school, great attention should be given to pre-selection and immediate quality control measures to reduce the dropout rate in graduate school.

Garms (1971) calculated the private and social benefits and costs of

¹⁴⁷ Bailey D. and C. Schotta, "Private and Social Rate of Return to Education of Academicians", <u>American Economic</u> <u>Review</u>, March 1972, Vol. 62, no. 1, pp. 19-31.

upward Bound Programs for white males and females, and non-white males and females, using the sample consist of 7,236 students who entered upward Bound between June 1966 and August 1968, and control group consists of their older siblings of the same sex as the students.¹⁴⁸ Basic data came from an extensive computerised data file maintained by OEO on all Upward Bound Student. Garms found that the private net present values were positive for all four sex-race classifications at a discount rate 5% and 10% while the social net present values were positive at a discount rates 5% but negative at 10%. Furthermore high rates of college attendance by siblings indicate that the Upward Bound program may function more as a device to identify those rather apt to go to college anyway rather than as a program to help those who would otherwise be very unlikely to go to college.

Yoram (1971), examined the educational and occupational choices of graduates students in the natural and social science.¹⁴⁹ He assumed that the type and length of graduate education were subject to choice. His working hypothesis was that in making these choices, students attempt to maximize the present value of lifetime earnings. The author attempted to test whether his hypothesis was, in fact, consistent with the actual choices of scientists. To pursue the purpose of this study, the wage functions in different scientific fields were estimated with M.A and Ph.D programs in the eight fields. The main source of data was a random sample of 5,686 scientists from the 242,800 reported to the National Register of Scientific and Technical Personnel in 1966. The Scientists in the sample were classified into eight fields: chemistry, physics, earth science, mathematics, biology, agriculture, psychology, and the social science (economics, sociology, and statistics). In order to pursue the purpose of this study, the wages functions in different scientific fields were estimated; thereafter used to computed the rates of return and the lifetime earning streams associated with different types and levels of graduate education. It was found that mathematics and the social sciences were the most profitable, whereas biology and agriculture are the least profitable occupations. But if the expectations of growth in earnings were taken into account, both the amount of education and the ranking of different occupation were affected. For example, psychology and biology improve their ranking, while chemistry becomes less than 12%. Finally, the average and marginal returns on investment in Ph.D program were estimated to be 12%

¹⁴⁸ Garms, W. I. "A Benefit-Cost Analysis of the Upward Bound Program", <u>The</u> journal of Human Resources, 1971, Vol. 6, no.2, pp. 201-220.

¹⁴⁹ Yoram Weiss, "Investment in Graduate Education", American Economic Review, Dec. 1971, Vol. 61, no. 5, pp. 833-852.

and 9% respectively and in M.A were estimated about 15% and 13%.

Blaug (1972), published the article "Correlation Between Education and Earnings: What Does It Signify?¹⁵⁰ The Purpose of this study was to examine three alternative explanations of the basic finding that amounts of education and personal earnings are positively correlated in some 30 countries studied. Blaug arbitrarily named them: (1) the "economic", (2) the "sociological, and (3) the "psychological". They corresponded, roughly speaking, to the three apparently conflicting proposition: (1) that education imparts vocationally useful skills that are in scarce supply; (2) that education disseminates definite social values by recruiting people into the ruling elite of a society; and (3) that education merely selects people in accordance with their abilities and obviously, abler people earn more than less able ones. Thus, employers pay educated people more because they expect them to be more productive than less-educated people and the expectation is borne out. It was concluded that a proper appreciation of the economic explanation in fact assimilates the other two; that the action of competition in labour market that allows three explanations to hold simultaneously; that the less are the pressures to compete, the weaker is the "economic explanation" and the stronger are those of sociologist and psychologist. It was also suggested that the question whether education contributes to economic growth depends on the presence of absence of competitive labour market.

Hinchliffe (1975), attempted to explore the relationship between educational development, earnings differentials and earnings distribution.¹⁵¹ this study did not concentrate on the average wage and salary paid to all workers at one point of time, however, it focused on the whole of the working life for individuals educated to three different levels of education (primary, secondary and higher education) and those with no education at all. Earning data for 10 countries (United States, Canada, Israel, Mexico, Colombia, Philippines, Ghana, Kenya, Nigeria, and India) were applied in order to estimate the lifetime earning differentials. In this study, it was found that the total earnings of higher education graduates in India and Ghana were a much higher portion of overall total earning in relation to their relative size than was the case for similar educational group in the United States. It was concluded that different patterns of educational provision had different consequences for

150 **Blaug** M., "The Correlation Between Education and Earning: What Does It Signify?" <u>Higher Education</u>, Feb. 1972, Vol.1, No. 1, pp.53-76.

¹⁵¹ Hinchliffe Keith, "Education, Individual Earnings and Earnings Distribution", Journal of Development Studies, Jan 1975, Vol. 11, no. 2, pp. 149-161.

the distribution of earnings.

Woodhall (1973), discussed the problems of measuring the rate of return to women's education, and the effects of discrimination on women's earnings and job prospects. 152 In this study, evidence was presented for nine countries and the general results were that the returns to education for men greater than for women, but in few cases the women rate of return were actually higher than the rate of return observed for men. The study, explained that because of differences in occupational distribution and because of the prevalence of part-time work and interrupted the careers, the absolute level of earnings for women would always be less that for men. The author pointed out that women's non-market work have had a positive economic value, psychic income, and the educated women may be enjoy a greater advantage than men. All of these benefits were ignored when the rate of return to education were measured, because of the difficulties to measure them. However, she suggested that some allowance must be made for the value of women's non-market work, for indirect benefits of education and for psychic income. The conclusions of this study were that a large part of the observed differential between male and female earnings was due to the concentration of women in low-income occupation; that the difference between the returns to education for men and women was less than had often been suggested, particularly if some attempt could be found to measure the non-monetary benefits and were taken into account. However, the returns to women's education could be increased, if there were changes in traditional attitudes leading to a more equal occupation distribution and better utilisation of women in the labour market.

Verry (1974), discussed some of the problems of planning for the higher educational system as a whole.¹⁵³ The general conclusion of this study was that cross-section estimation is the most useful and appropriate technique for providing the information needed for improved educational planning at the sectoral level. In this study, it was pointed out that institutional studies were not without value, nevertheless, they could help to improve internal efficiency providing administrator and departmental mangers with greater knowledge of workings of their own institution. It was suggested that the reliability of the findings of such studies might be improved by applying more relevant data on the equality outputs; extend the work on publication-based measures of output; having information on the apply of

¹⁵² Woodhall M., "The Economic Returns to Investment in Women's Education", Higher Education, 1973, Vol. 2, PP. 275-300

¹⁵³ Verry, D. W., "Planning Higher Education at the Sectorial Level: With Special Reference to Higher Education Costs in Britain", in <u>Council of</u> <u>Europe Information</u> <u>Bulletin</u>, 1974. student time; and finally, need the standardisation of data.

Mulvey (1980), estimated private internal rates of return to the two branches of Scotland legal profession, Solicitors and Advocates.¹⁵⁴ Using data had been collected in 1977 for the Royal Commission on Legal Services in Scotland. Earning profiles were adjusted for tax, for real income growth over the life (2%). None of the data were adjusted for probability of labor force participation, probability of survival, dropout or probability of unemployment, because the data required to make such adjustments were unavailable. The conclusions of this paper were, that the estimated rate of return to Solicitors and Advocates in Scotland for 1977 lay, respectively, at the higher and lower ends of the range of estimates for other professions in Britain carried out during the 1960's. That is, the rates of return for a higher professional group (including Solicitors and Advocates) in 1977 were lower than those in the 1960's, because the average earnings of manual workers in Britain rose by some 555% while those of "higher professional workers rose by only 314%; that the rates of return to Solicitors and Advocate higher than rate of return to engineers and scientists which were estimated by Wilson (1977).

Birch and Calvert (1973), attempted to answer these two questions: What are the economic benefits derived from the decision to invest in a teacher's certificate, or to obtain a degree, a postgraduate teaching certificate and then follow a teaching career? Are these benefits greater than the costs involved in becoming a qualified teacher? 155 All the calculations of this study were from the point of view of individual rather than from the nation's standpoint. The authors were concerned only with an economic evaluation. The data of age-earnings profiles were derived from DES Statistics of Education and the New Earning Survey 1970; information on proportions employed was obtained from the 1966 Sample Census; and the survival rates were derived from data in Registrar Generals' Decennial Supplement 1961 and Report 1968. The data were divided by sex and also, for teachers, graduates/non-graduates and primary/secondary. The earnings profiles were adjusted for the probability of survival, for mortality, for labour market participation, and for probability of obtaining a job. In this study, student's grant and vacation earnings were taken into account. The direct private costs was assumed to be equal to zero other than earnings foregone. The conclusion of this study were that in all cases the

¹⁵⁴ Mulvey Charles, "Rate of return to the legal profession in Scotland, Scottish Economic Society, 1980, Vol. 27, no. 3, pp. 250-259.

¹⁵⁵ Birch D. W. and J. R. Calvert, How Profitable is Teaching? <u>Higher</u> <u>Education Review</u>, Autumn 1973, Vol. 6, no. 1, pp. 35-45.

rates of return were positive. Therefore, under the present free tuition and maintenance grants provisions to invest in teaching career was economically a worthwhile one; that the decision to teach was much more profitable for women than for men. But the high rate of return enjoyed by women teacher were more an explanation of the poor state of female labour market than they were evidence of high salaries for women teacher. The average private rates of return for males graduate teachers unadjusted for holiday was slightly less than 12%, and for women was 29%, And the returns after adjusted for holiday were 14.4 and 31% respectively. The private rate of return for female graduates teachers in this study was higher than that identified by Ziderman for all graduate female graduates whereas the private rate of return was less for male graduate teachers generally. Ziderman though that most of the difference between his results and Birch and Calvert's results due to the fact that their sample is for teachers who have lower average earnings ceteris paribus, also Birch and Calvert had ignored the tax adjustments. It should be noted that Wilson 1983, ¹⁵⁶ found that the average rate of return for females higher than for male, for both graduate and non-graduate-teachers. However, Brich and Calvert estimated the rates of return for females and males higher than Wilson's estimated.

Niemi Jr. (1974), calculated the private internal rates of return on educational investment in two Western states, Texas and California, for three groups, white (including Mexicans), Mexicans and Negroes. 157 The purpose of this was to determine the degree of ethnic and racial variation in return to education in the west and to see how this compared to earlier studies concerned with white and non-white differences. Using cross sectional data on mean income and educational achievement by racial-ethnic group and sex were provided by the 1970 Census. The rates of return were calculated for three completed levels of education: high school, college and postgraduate. The earnings data were adjusted for mortality and taxes. It was suggested that "racial and ethnic differences are minor and offsetting and the rationality of increased educational investment would appear to be similar for Mexicans, all whites, and blacks". Furthermore, the results of this study were much lower as compared with those obtained in earlier studies and that racial and ethnic differences in the financial return to educational investment were also insignificant compared to previous results. The author concluded that the results of this study most

¹⁵⁶ Wilson, R. A. The Decling return to professional status in the British economy, thesis submited for Ph.D., University of Warwick, Oct. 1983, pp. 6.58-6.70.

¹⁵⁷ Niemi, W. Albert Jr., "Racial and Ethnic Differences in Returns on Educational Investment in California and Texas", <u>Economic Inquiry</u>, 1974, Vol. 12, no. 4, pp. 398-402.

likely reflected the degree of progress toward equality of opportunity that had been made in the past three decades.

Carnoy and Marenbach (1975), presented the value of both social and private rates of return to primary, high school, and college education by sexes and race in the United States for the four decades from 1939 to 1969.¹⁵⁸ In this study, returns on investment in schooling unadjusted for unschooling factors were estimated in four Census years 1940, 1950, 1960 and 1970. The authors assumed that the private costs were zero at primary level and the private costs were zero other than earnings forgone at the high school and college level. Also they assumed that earnings forgone equal to 75% of a full year's salary of a person of the same race, sex, and age with level of schooling completed below that being taken by the observed individual.

The results of this study were that the average social rates of return to schooling had declined from 13%-14% in 1939 to 9% in 1969, the authors argued that this decline would continue gradually, both because of the continued investment in schooling relative to physical capital, and because of the greater participation of women in labour force; That the social rates to 'white' high school investment declined in the 30-year period, while private rates might rise; that the social rates of return to college either remained stable or would begin to decline in next decade, while the private rates of return to white males might rise; the social rates of return to graduate training rose sharply in 1959-1969: Carnoy and Marenbach argued that the change in the rate of return depend on the demand for the educated labour and on change in the relative number of educated people.

Welch (1973), published the article "Black-White Differences in Returns to Schooling".¹⁵⁹ In this article, the contribution of schooling to earnings were compared between blacks and whites in United States, using two bodies of data. The first was the 1/1000 sample from the 1960 Census and the second was the Survey of Economic Opportunity (SEO). Census income referred to earnings in 1959, and (SEO) refer to 1966 earnings. In this study, rates of return were calculated for blacks and whites educated for the period 1959-1966. The results were shown that returns as a fraction of earnings for blacks educated exceeded returns to whites.

Raymond and Sesnowitz (1975), computed both private and social rates of

¹⁵⁹ Welch Finis, Black-White Differences in Return to Schooling, American Economic review, Vol. 63, no. 5, 1973, pp. 895-907.

¹⁵⁸ Carnoy M. and D. Marenbach, "The Return to Schooling in the United States, 1939-1969", <u>The Journal of Human Resources</u>, Summer 1975, Vol. 10, no.3, pp 312-331.

return to investment in one year, two years, three years, and four years of college education.¹⁶⁰ For these purpose, Census data for 1970 were used to generate age-income distributions by educational categories. Earning data were adjusted for growth and ability differentials. The results of this study showed that the rate of return had not decreased over the 1960s and the returns to two-year program might be much greater than previously thought.

Hoffer (1973), undertook an investigation of the impact of higher education on women's earnings.¹⁶¹ In this study, the internal rate of return to higher education were computed from the viewpoint of high school graduate. Monetary costs and benefits associated with education were considered. The data were derived from the 1967 Survey of Economic Opportunity (SEO). The earnings streams were not adjusted for ability, for economic growth, and for taxes. However, the rates of return to higher education for women were estimated by conservative measures. The results were shown that the rates of return for non-whites were considerably higher than those for whites; that those with 1 to 3 years of college had much smaller returns than those who, completed college; that when labour force behaviour differences between men and women were held constant, the rate of return to all women with 4 years college and some women with 1 to 3 college were greater than the rate of return to white men.

Clotfelter 1976, published a study in which he examined the interstate differences in the levels of public spending for higher education.¹⁶² The author also attempted to evaluate the predictive power of two hypotheses which were implied by models in developing positive theory of public spending. The data applied in this study refer to expenditures by state and local governments on higher education in 1970 in U.S. The first hypothesis of this article were that "states with higher rates of out-migration of graduates will give less support to expenditures related to students, because migration represented the loss of future benefit streams to the state". The second hypothesis emphasizes the importance of the institutional structure of public financing. This method of public

160 Raymond R. and R. Sensnowitz, "Returns to Investments in Higher Education: Some New Evidence", Journal of Human Resources, Spring 1975, Vol. 10, no. 2, pp. 139-154.

¹⁶¹ Hoffer S. N., "Private Rate of Return to Higher Education for Women", <u>Review of Economics and Statistics</u>, Nov. 1973, Vol. 55, no. 4, pp. 482-486.

162 Clotfelter Charles T., Public spending For Higher Education: An Empirical Test of two Hypotheses, <u>Public Finance</u>, Vol.31, No. 2, 1976, pp. 177-194. financing tend to obscure the true cost of government programs and leading to higher level of expenditure. This hypothesis depends upon the use of indirect taxes, because of including such taxes in the gross prices of goods and services. In this method, another proposition was suggested that "a complex tax structure containing many small taxes rather than a few larger ones similarly lessens the apparent burden of government spending". However the first hypothesis (Welfare - maximization was supported by this study, while the second hypothesis (Fiscal Illusion) scant support was provided. However, for another implication of the theory conclusion, that direct taxation discourage public spending relative to indirect taxation.

Greer (1976), published paper of returns to investment in undergraduate education by race and sex in 1960 to 1970.¹⁶³ The purpose of this study is to analyse the changes in the returns accruing to investment in college education according to race (Whites and Non-whites) and sex (Males and Females) over the period from 1960 to 1970 in order to determine whether there had been a determination of discrimination influences upon returns for non-whites and females. Net present values of education for men and women and for whites and non-whites were calculated for 1960 and 1970; thereafter compared. The author concluded that "returns to investment in college education based upon common opportunity costs and constant dollars for non-white and unmarried females increased relative to returns for white unmarried males, respectively, during the decade of the civil right He explained the change in returns to movement from 1960 to 1970". investment in undergraduate schooling for non-whites and females to the extent of earnings for younger persons. Green also explained the increase in earnings of younger persons as a result of increase the employer demand to hire them in order to meet his positive active action goals.

Wolff (1977), studied the United States labour force using 1/1000 of 1960 and 1970 Public Use Sample Stratified by occupation with a sample size of 41,349 and 63,661 respectively.¹⁶⁴ The purpose of this study was to find the relationship between schooling and earnings across and within occupation. He observed that even though the mean schooling between occupations fell somewhat over the period of 1960 to 1970, however, a strong correlation was evident between mean earnings and mean schooling across occupations. Wolff stated that the best paid professionals were

¹⁶³ Greer C. R., "Returns to Investment in Undergraduate Education by Race and Sex in 1960 and 1970", <u>Review of</u> <u>Business and Economic Research</u>, Winter 1976/77, Vol. 12, no. 2, pp. 57-68.

¹⁶⁴ Wolff E. N. "Schooling and Occupational earnings", Review of Income and Wealth, Journal of the International Association for Research in Income and Wealth, Sept. 1977, Vol. 23, no. 3, pp. 259-278.

also the most highly educated. The relationship of earning to schooling seems to be negligible when schooling and earnings were considered within occupation. The author found a variation of five and half years of education in both 1960 and 1970 within occupations. He said that the difference attributable to schooling within occupations is substantial enough to warrant a further analysis of relationship of schooling to earnings. Furthermore, only within approximately one-third of the occupational groups were earnings significantly and positively related to schooling. Wolff stated that the rate of return approach for earning variations within occupation may not be appropriate because the measure may understate the effect of schooling on earnings within certain ranges of schooling and overstate it in other ranges. He reasoned as follows:

"In some occupations there may be a "threshold" level of schooling where earnings jump but at other levels of schooling there may be no incremental effect on earnings. In other occupation earnings may be rise with schooling up to a certain point a level off. In still others the schooling profile may be flat up to a certain point and then rise with schooling".

Wolff concluded that for an occupation that requires school- related skills, education will be productivity-augmenting.

Akin and Garfinkel (1977),¹⁶⁵ attempted to develop several alternative models for estimating the effects of per pupil school expenditure on future earnings and, on the basis of the estimates, they computed a range of rates of return to increasing per pupil school expenditures. Most the data came from the University of Michigan Survey Research Center's Income Dynamics Panel. The survey contained information for the five years 1968 to 1972. The data used were for men only who were between the ages of 30 and 55 in 1972. Also, men with zero earnings and self-employed were excluded from the sample. Final sample size used was 1049, of which 716 were white and 333 were non-white. The results showed that the point estimate for rate of return to increase in per pupil school expenditures was quite respectable for whites and very high for non-whites irrespective of the model applied.

Bartlett (1979)¹⁶⁶, estimated changes in the effects of education and work experience on annual income for males between 1939 and 1969 and attempted to determine whether the supply-demand works equally well. Bartlett concentrated on the benefits of education (i.e. total annual

Akin J. S. and I. Garfinkel, "School Expenditures and the Economic Returns to Schooling", <u>The Journal of Human Resources</u>, Fall 1977, Vol. 12, no. 4, pp. 460-481.

¹⁶⁶ Bartlett S., "Education, Experience, and Wage Inequality: 1939-1969", <u>The Journal of Human Resources</u>, Summer 1978, Vol. 13, no. 3, pp. 349-365.

income or annual salary and wage income). In addition, more systematic efforts were made by the author to ensure that data used for different years were really comparable. The data used in this paper came from the Census. It was found that the benefits of extra year of education decline between 1939 and 1949, but were virtually stable between 1949 and 1969. He explained the decline in the impact of education on wages between 1939 and 1949 by the supply of educated labour rose faster than demand, lowering returns. A similar model was applied to change in the effects of work experience. Finally, the analysis in this study suggested that changes in returns to education and experience from 1939 to 1949 not due to changes in the industrial mix, but were mainly due to changes in the unemployment rate.

Griffiths and Saunders (1979), estimated private and social returns on investment in higher education in the United Kingdom, for males and females for the periods: 1966/67 and 1973/74.¹⁶⁷ The data used in the study came from 1966/67 Survey of Earnings and Qualified Manpower conducted by the Department of Education and Science, while the data for 1973/74 came from a number of Sources, namely Economic Trends, The Department of Employment Gazette, and the National Income Survey. The results showed that there was an increase in both the private and social rates of return to male graduates between 1967 and 1973. The authors explained that the major factor of these changes was the increase in males graduate - nongraduate earnings differentials. However, social rates of return increased by more than private rates. Although it might be argued that "the increase in social rates of return was the result of changes in direct taxation, private rates of return dependent only on net-earnings (i.e. after - tax) differentials are independent of this effect". In this study, it was suggested that the belief that female higher education was an unprofitable investment either for social or for the individual was unfounded, even if net benefits were measured only in terms of earnings. Finally, the results of this study suggested that the general expansion in the higher education between 1967 and 1973 did not produce a fall in investment returns.

Psacharopoulos and Layard (1979), published an article of human capital and earnings with especial reference to British evidence and a critique.¹⁶⁸ The following two questions were attempted to answer for Britain by the

¹⁶⁷ Griffiths G. and A. Saunders, Return on Investment: A Note on Males and Female Higher Education in United Kingdom, 1966-1973", <u>Public Finance</u> Quarterly, Jan. 1979, Vol. 7, no. 1, pp. 110-121.

¹⁶⁸ Psacharopoulos, G. and R. Layard, "Human Capital and Earnings: British Evidence and a Critique", <u>Review of Economic Studies</u>, 1979, Vol. 46, no.3, pp. 485-503.

authors: "What is the private rate of return to schooling and to on-the-job training?" and "How far does human capital explain the inequality of earnings?", using a random sample of about 7,000 employed men in Britain. The authors found that there was a strong relation between schooling and post-schooling training; that the return on investment in training grows with schooling and it is much greater than the return on investment in schooling; that the estimated direct rate of return to schooling was found 10%, as in the U.S.; that the their approach applied to the rate of return to schooling "does not capture all the effect of human capital on earnings, since there are unmeasured differences between people in human capital investment"; that the human capital (meaning schooling and on-the-job training) explains about a half the variance of earnings, as much as in U.S.; finally, that it does not explain more than one-third of annual earning inequality, although Mincer's claim that human capital explains "close to two-thirds" of annual earning inequality.

Ferber and McMahon (1979), published the paper "Women's Expected Earnings and their Investment in Higher Education".¹⁶⁹ Ferber and McMahon proposed to explore for the influence of women's expected earnings, together with other factors, on the extent of their investment and on changes in the fields being chosen, together with several implications. The data applied came from a nation-wide survey of 2,580 students enrolled university education in the fall 1972 and expected to complete their bachelor's degree in 1976, Plus data on earned degree conferred from the U.S. National Center for Educational Statistics and on Earnings by Occupation and Education from the U.S Bureau of the Census. The major findings reported in this study was that earnings women expected at graduation and also 25 years later in male - dominated fields, were high not only in relation to women's earnings in the past, but also in relation to the earnings expected by men. The authors concluded that women's high expectation, high investment in education, particularly in formerly male-dominated fields, increasing labor force participation, and decreasing fertility all tend to reinforce each other so as to create a "benign circle", and all contribute toward reducing the female-male earning gap.

Charnsupharindr (1979), estimated the social rates of return to various types of education in Thailand on the basis of two surveys, Mark Blaug's Survey of the Bangkok metropolitan area in 1971 and the nation-wide survey by National Statistics Office.¹⁷⁰ Furthermore, the total investment for education was estimated for the period 1964 to 1972. The conclusions of

¹⁶⁹ Ferber M. A. and W. W. McMahon, "Women's Expected Earnings and their Investment in Higher education", <u>The Journal of Human Resources</u>, Summer 1979, Vol. 14, no. 3, PP. 405-420.

this study were that there was high variation in the estimated social rates of return to investment in different levels of education and, at higher education levels, in different fields of specialization; that the return to an engineering degree was found the highest; that the return to medical science was found the lowest return among college alternatives which was as low as the return to vocational training; that the rates of return to public upper elementary education and to private general education were estimated to be the highest; that the higher levels of education in general earned the highest returns; that total investment for education for the period from 1964 to 1972 was reported to be 40% of total investment in Thailand; that the distribution of investment among levels of education was not related to relative return. Although the social rate of return to medical education was estimated to be lowest, public investment per student in this field was the highest.

Demetriades and Psacharopoulos (1979), estimated the returns to investment in education in Cyprus, Using data from a random sample of 29,942 wage and salary earned in 530 establishments, which corresponded to 20% of the gain-fully employment labour force or one-third of all wage and salary earners (i.e. excluding working proprietors and unpaid family workers).¹⁷¹ It was found that the returns to investment in first university degree were relatively low for those who studied in Greece and very much higher for those who studied in the United Kingdom, and the United States and Canada. The authors argued that the differences of return attributed to differences in the quality of education in the countries in question and also to the relative supply of graduates from these countries, preferences of employers and occupational differences of graduates. The rate of return to vocational training was estimated to be the lowest and to professional qualifications was estimated to be the highest. Also it was found that in general, rate of return to schooling was much high than expected.

Wilson (1980), estimated rates of return to becoming a qualified scientist or engineer in Great Britain for the period of 1966-1976. 172 The

170 Charnsuphaindr P., "The Rate of Return to Investment in Thailand Education", <u>The Philippine Economic Journal</u>, 1979, Vol. 18, no 3, pp.289-327

171 Demetriades E. I. and G. Psacharopoulos, "Education and Pay Structure in Cyprus", <u>International Labour Review</u>, Jan.- Feb. 1979, vol. 118, no. 1, pp.103-111.

172 Wilson R. A., "The Rate of Return to Becoming a Qualified Scientist or Engineer in Great Britain, 1966 - 1976", Scottish Journal of Political (Footnote continued)

purpose of this study was to obtain a longer term perspective on the individual return to undertaking investment in higher education, focusing on the experience of those qualified in technology and science, and engineering. Particularly, the purpose of the study was to focus upon the question of how rates of return had changed over time. The data came from a survey of the earnings of members of various professional institutes. These were combined with information from the Department of Employment's New Earnings Survey and data from the Census Population. Average private rates of return to an individual were estimated assuming that age earning profiles at a point in time could be applied as a proxy for the expected profiles of earning over his lifetime. The direct costs were assumed to be zero. The psychic costs and benefits of education as a consumer good were ignored. It was found that the rate of return to undertaking degree level courses in scientific disciplines had declined significantly since the mid 1960s; that this decline for those taking engineering and technology was more than those taking pure sciences; that the cause of this decline was most likely to be that supply of qualified manpower had outpaced demand over this period.

McMahon and Wagner (1981), published the paper of expected return to investment in higher education. 173 In this study, the expecting earnings reported by a reasonably large nationwide sample of college students were examined. Furthermore, these student estimates were compared across racial groups and across degree levels and with the actual starting salaries these individuals faced upon graduation as well. The expected earnings data came from the sample of 2,766 freshmen 1971/72, most of whom were expected to complete bachelor's degrees in 1974/75. It was found that the college freshmen appeared to understand the relative differences in earnings across field. For example, those in health, technical, and science fields expect the highest salaries; while those in education, liberal arts, and humanities expect the lowest salaries; that black college students at the B.A. level expected starting and future salaries at least comparable to those of their peers, and those planning graduate study expected even high returns than whites; that most student correctly perceived sources of payoff to advanced degree as emerging less through higher initial salaries than through a more rapid rate growth in earning later in the working life than that achieved by those with less educational level; that greater variation in future salaries than in their expected starting salaries; and

¹⁷²(continued) Economy, Feb 1980, Vol. 27, no. 1, pp. 41-62.

¹⁷³ McMahon W. W. and A. P. Wagner, "Expected Returns to Investment in Higher Education", <u>The Journal of Human Resources</u>, 1981, Vol. 16, no. 2, pp. 274-285.

Finally, the authors suggested that students appraise the potential returns to investment in higher education fairly accurately.

Mount, Bennett and Casper (1982), examined the influence of the relationship between education and wage and salary income for employees in the United States for each Census occupational class and for all occupations combined.¹⁷⁴ In this study linear regression techniques was applied. It was indicated that the higher the level of educational achievement the higher the level of earning associated with it, with greatest positive increase associated with the highest degree category "College Degree or More". Nevertheless, it was found that there may be significant differences in the influence of education on the respective occupational categories. Also it was indicated that relative to other sociological and economic factors included in the analysis, the category, "college Degree or More" was the most significant characteristic in explaining income level variations for U.S.

Raymond and Sesnowitz (1983), published an article of the rate of return to Mexican Americans and Anglos on an investment in college education.¹⁷⁵ Rates of return to an investment in a college schooling were estimated for Mexican Americans and Anglos male college graduates with majors in business accounting, education and liberal arts. The data used came from Pan American University Survey for 1966-1974 and 1975 graduates. The rate of return were calculated for 1967, 1970, and 1973 graduates of Pan American University. The results showed that the returns were quite substantial for all but the Anglo education majors; that the returns to the business and accounting majors substantially exceeded those to the other graduates; that returns on a college education were higher for Anglos than for Mexican Americans; And that there was some tendency appeared for the rates of return to fall over time. Moreover, there were no systematic differences between the returns to the two ethnic groups.

Psacharopoulos (1982a), analysed the structure of earnings in Greece by level of education in 1960, 1964, and 1977. ¹⁷⁶ The data employed in the

^{1/4} Mount, R. I., R. E. Bennett, and C. A. Casper, "The Influence of Educational Differences on Income by Occupation", <u>The American Journal of</u> <u>Economics and Sociology</u>, Jan. 1982, Vol. 41, no. 1, p. 28.

¹⁷⁵ Raymond R. and M. Sesnowitz, "The Rate of Return to Mexicans Americans and Anglos on an Investment in a College Education", <u>Economic Inquiry</u>, July 1983, Vol. 21, no. 3, pp. 400-411.

176 Psacharopoulos G., Earnings and Education in Greece, 1960-1977, European Economic Review, March 1982a, Vol. 17, no. 3, pp. 333-347. (Footnote continued)

study came from a special labour market survey covering nearly 12,000 workers in urban areas. The social and private rates of return were estimated for the period 1960s, 1970s. It was found that the rate of return to schooling as a whole and to investment in higher education in particular, declined extremely between the early of 1960s and the late of 1970s. This fact was attributed to the expansion of higher education enrolment and graduates. The conclusion of this study was that a strong social demand for higher education in the period of 1960-1977 combined with a low returns to this level of education.

Psacharopoulos (1982b), 177 calculated the social and private rates of return in selected countries. The social and private returns on investment in education were computed according to educational level and country type (developing, intermediate and advanced), the social return to university education by subject in selected countries as well. The data used for this study came from a recent Bank Survey of 44 countries at different stages of economic development. The results of this paper showed that the social returns on investment in all levels of education in developing countries were higher than 10%. It was found that social returns were the highest for investment in primary schools; that in general, the returns to investment in schooling decline as the educational level increase; that the returns to investment in education declined as the economic level increased; that returns on education in general arts subjects were often greater than those for technical training, because of the high cost of the latter and unmeasurable social benefits of education; that primary education had a significant impact on poverty and the distribution of income, in addition to being highly profitable.

Wilson (1983), extended his original analysis to consider the costs and benefits to society as a whole.¹⁷⁸ The social and private rates of return to obtaining a degree in science or engineering were estimated. It was found that the rates of return had substantially declined in estimated value over the period under consideration. The author argued that the fall over the period might be attributed to expansion of the higher educational system during this period.

¹⁷⁶(continued)

¹⁷⁷ Psacharopoulos G., "Education as an Investment", <u>Finance and</u> <u>Development</u>, Sept. 1982b, Vol. 19, no. 3, pp. 39-42.

¹⁷⁸ Wilson R. A., "Rates of Return: Some Further Results", Scottish Journal of Political Economy, June 1983, vol. 30, no. 2, pp. 114-127.

Wilson (1985)¹⁷⁹, extended his analysis of rates of return to 1980 and 1983. In this study, the average rates of return to Chemists, Physicists, and Engineers were estimated for years prior to 1966/67 in Great Britain. The data used were derived from the Council of Engineering Institutions and Royal Commission on Doctor and Dentists Remuneration (RCDDR) for Engineers, Royal Institute of Chemistry (RIC) for Chemists, and Institute of Physics and Physical Society For Physicists. It was found that the average private rate of return to the typical professional engineering for 1955/56 was estimated to be 14.5%. It was almost exactly the same as obtained for 1967/68. But the rate of return sharply increased to around 17% in both 1959/60 and 1962/63. For Chemists, the average private rate of return was found to be 20% for 1955/56. This figure declined sharply to 14.5% for 1967/68. The Result for Physicists was 20% for 1956/57 and the figure declined sharply to 15.5%. Finally, it was found that the rate of return to Engineers, Chemists, and Physicists also decline to 9%, 9%, and 10% respectively for year 1979/80,. The author observed that the major cause of the declining estimated rate of return was the fact that the forgone earnings of young people at the start of their training had increased more rapidly than average earnings as a whole. It was suggested that the decline in rate of return to becoming a professional scientist or engineer between 1967 and 1980, identified in author (1980 and 1983), was part of longer term phenomenon which had been going on since at least the mid-1950s.

Hoffman (1984), published an article "Black - White Differences in Returns to Higher Education : Evidence from the 1970s".¹⁸⁰ In this article, an empirical update of the effects of high-school and higher education provided for young black and white males. In order to analyse the changing effects of education on earning, cross-sectional earnings function were estimated for samples of young black and white men in different years, using data from the Panel Study of Income Dynamics. It was found that the earnings differences between college educated employees and those with a high school education had continued to decline for young white males whereas for young black males, the earnings differences had expanded significantly between 1971 and 1977. It was also found clearly that the widely reported rise in the black-white earnings ration had accompanied by higher inequality in the earnings distribution for young black.

¹⁷⁹ Wilson R. A., "A Longer Perspective on Rate of Return", Scottish Journal of Political Economy, June 1985, Vol. 32, no. 2, pp. 191-198.

180 Hoffman, S. D., "Black - White Differences in Returns to Higher Education : Evidence from the 1970s", <u>Economics of Education Review</u>, 1984, Vol. 3, no. 1, pp. 13-21.

Demetriades and Psacharopoulos (1987), published a paper for educational expansion and the returns to education, with special reference to formal education in a developing country like Cyprus.¹⁸¹ The data were obtained from the random sample cover about 30,000 wage and salary earners from establishments in all private sectors of the economy, and some wage and salary earners in the government sector as well. The study concentrated on the two most comparable estimates in 1975 and 1984. It was found that overall returns on investment in education in Cyprus declined over the time under investigation pari passu with increases in the stock of human capital, as forecasted by economic theory. The authors argued that the decline of 1.5% in rate of return to education in Cyprus might take approximately one decade. It was also found that secondary education was the mostly associated with this decline. The higher decline in the returns to secondary schools could be explained by the rapid expansion in number of secondary school graduates over the period under study. But the rate of return to university education declined slightly, and this be explained by the protected nature of employment sought by most university graduates in the civil service, semi government organisations, Bank and Offshore Companies. Finally, it was found that there was negative relationship between human capital stock and return to education. That is roughly speaking, a 10% increase in human capital stock is associated with a 10% decrease in the returns to education, or one percentage.

Beladi, Brunner, and Zuberi (1986), estimated the private and social rate of return to various level of schooling in Michigan.¹⁸² It was noted that the cost of higher education increased significantly during the period of the 1970s. Therefore, this study attempted to analyse the impact of the high cost of education in Michigan on the private and social returns to different levels of schooling. The data used were derived from 1980 Census which were collected in 1979. Furthermore, an annual average of the AAA-rated corporate bond rate for 1979 was used to compare the educational returns. The purpose of this study was to examined whether social returns to higher education would tend to exceed private return, as educational costs rose and inflation led to greater nominal earnings and greater tax rates. However, the results of this study showed that the private returns exceeded the social returns for all educational levels. It was found that the graduate with four years of college education could earn higher incomes

181 Demetriades E. I. and G Psacharopoulos, "Education Expansion and the Return to Education: Evidence from Cyprus", International Labour Review, Sept.- Oct. 1987, Vol. 126, no. 5, pp. 597-602.

182 Beladi H., Brunner L. P., and Zuberi H. A., "The Rate of Return on Investment in Education in Michigan", <u>Atlantic Economic Journal</u>, 1986, Vol. 14, no. 4, pp. 50-64. than student with some graduate education. The highest social returns accrued to students with four years college schooling and the social and private return were the lowest for two years of college. Therefore, it was concluded that funds from community college (one year and two years of schooling) should be reallocated toward four year colleges. In this study, it was concluded that the investment in education in Michigan led to lower returns than investment in general. It was also found that private rates of return were higher for both high school graduates and for college graduates than for those students who completed levels of education not necessarily involving a degree (such as one or two years of college, some graduate study). Furthermore, this study showed that there had been some decline in the rate of return to education, when compared with the returns on alternative investments. However, in 1980, the social rate of return to education was lower than the corporate rate.

Vaillancourt and Henriques (1986), presented evidence on the monetary returns, gross and net of taxes and on the private and social costs of university schooling, for Canadian males from five Canadian regions in 1981. $^{183}\,$ The data applied were presented for Canadian men residing in each of five regions of Canada, and they were regrouped by the Atlantic and the Prairie Provinces to those with university education and those without university education. It was found that both private and social rates of return for three years university graduates were greater than for four years university graduates in all regions under investigation; that the private return on investment in both three and four years of university were found higher than returns associated with other types of investment such as long-term government bonds in Canada which usually yield between 3 and 5 per cent in real terms; that generally, the private rates of return were higher than the social rates of return in all provinces; that the social rate of return on investment in university education were at best equal and often lower than the rate of return on investment in physical capital (It was estimated to be 10% in 1977 in Canada). While the private returns to university education were higher than the physical capital return in three regions (Atlantic, Quebec, and Ontario), less than 10% in Prairies and equal to physical capital return in British Columbia; finally, that the monetary rate of return to university graduates declined comparing with the returns in 1970s. The authors concluded that "it would be appropriate to increase what individuals pay to acquire university schooling (such as tuition) and decrease what society, as a whole, pays out as subsidies to these individuals".

¹⁸³ Vaillancourt F. and I. Henriques, "The Returns to University School in Canadian", <u>Canadian Public Policy</u>, 1986, Vol.12, no. 3, pp. 449-458.

Blaug, Doughery, and Psacharopoulos (1982), attempted to estimated the effect of the raising the school leaving age in 1972 on distribution of earnings and distribution of schooling in Britain.¹⁸⁴ The data applied were derived from the General Household Survey to fit earnings functions for the years 1972 and 1975, and to simulate the effect of raising of the schooling leaving age on individual earning and thus on income distribution in a new steady state. It was concluded that if other things being equal, the effect of raising of schooling leaving age on income distribution earnings with a narrow age group was of the order of 10 to 15 per cent in the degree of inequality; that if the population as a whole were taken, raising of schooling leaving age might actually increase income inequality by increasing the earnings differential between age groups.

Guisinger, Henderson, and Scully (1984), presented estimates of the rate of return to schooling and differences in these rates of return by schooling level and sectors of employment. 185 The data for this study were derived from a Socioeconomic Survey conducted by the Pakistan Institute of Department Economics (PIDE) in Rawalpindi city in 1975. In this study, it was found that the rate of return to investment in education was lower comparing with the rate of return on physical capital and comparing with the rate of return to investment in education in other developing countries, the authors caused the low rate of return to a result of a conscious government policy which drastically compressed the skill - wage structure; that the rate of return had a positive relationship with educational level i.e. rate of return raising with higher education levels; that the worker in formal sector made almost 30% more than their colleagues of like education and experience in the inform sector, however, the shift was uniform for all education levels and hence did not rise to differential in the rate of return to education in two sectors; finally, that education appeared to have little impact on the interpersonal distribution of earnings among earners of similar level of educational attainment. However, the authors argued that if anything, education appeared to moderate the normal dispersion in interpersonal earnings that is due to the innate ability and luck.

Gustman (1973)¹⁸⁶, analysed the impact of variations in the preference

¹⁸⁴ Blaug M., C. Dougherty, and G. Psacharopoulos, "The Distribution of Schooling and distribution of Earnings: Raising the School leaving Age 1972", Manchester School of Economic and Social Studies, March 1982, Vol. 50, no. 1, pp. 24-40.

¹⁸⁵ Guisinger S. E., J. W. Henderson, and G. W. Scully, "Earning, Rates of Return to Education and the Earnings Distribution in Pakistan", <u>Economics</u> of Education Review, 1984, Vol. '3, no. 4, pp. 257-267.

on currently available estimates of rate of return to education. The data used in this article were derived from the subject report of the U.S. Census (1960). It consisted of observations for white males in all 61 occupations for which a complete set of variables was available. In this study, regression analysis was employed to estimate the rate of return to education. It was indicated that "there was substantial difference in the rate of return to education when it was estimated under the assumption of an ineffective capital market facing the student than when it was estimated under the assumption of a perfectly operating capital market". It was also found that estimates appear to be sensitive to the choice of instrumental variables employed (Such including hours as an endogenous variable in the earning function).

Blair, Finn, and Stevenson (1981), published the paper "The returns to the Associate Degree for Technicians".¹⁸⁷ The purpose of this study was to compare the earnings of technicians with various levels of education. Particularly, the earnings of technicians who had an associate degree were compared to earnings of technicians who had other educational background. The data applied were come from the 1972 Postcensal Manpower Survey which was conducted for the National Science Foundation by the U.S. Bureau of the Census. It was found that the cost for students in four-year colleges and university were considerably greater than costs for students at other postsecondary institutions. It was also found that the rates of return to technicians with degree comparing to high school were slightly higher than rates of rates of return to technicians with degree comparing to one year college.

Randll H. King (1980), tried to investigate further the correlation between the business cycle and the rate of return in a more refined analysis¹⁸⁸. The data for this study were obtained from National Longitudinal survey. In this study marginal rate of return were estimated (completion of 12 years of school with respect to completion of 11 years). It was found that completion high school education was not likely to be a profitable investment for whites in the term of expected lifetime earnings.

¹⁸⁶ Gustman A. L., "On Estimating the Rate of Return to Education", <u>Applied</u> <u>Economics</u>, 1973, Vol. 5, no. 2, PP. 89-99.

¹⁸⁷ Blair L. M., M. G., and Stevenson W., "The Returns to the Associate Degree for Technician", <u>The Journal of Human Resources</u>, Vol. 16, No. 3, pp. 449-458.

¹⁸⁸ Randll, King H., Some Further Evidence on the Rate of Return to School and The Business-cycle, <u>The Journal of Human Resources</u>, Vol. 15, no. 2, 1980, pp. 264-272.

While in 1971, it was found that school completion was marginal investment for whites men and an excellent investment for black. It was also found that blacks obtained a rate of return substantially greater than that of the whites in both years. However, it was concluded that the business cycle had a strong effect on computed rates of return to education. It was also concluded that research must control for the business cycle when making rate of return computes.

Gareth Williams and Alan Gordon (1981), provided direct evidence to support some of the assumptions of the human capital model.¹⁸⁹ In this study, the earnings expectations of a sample of English students in their last year of compulsory education were examined in the context of various personal characteristics, their family backgrounds and their intentions regarding postsecondary education. The private rate of return to upper secondary and higher education by different groups of school leavers were calculated. The data used were derived from a sample of 2944 students in their final year of compulsory education attending 110 secondary school in England in spring 1977. The result showed that males expected to earn more than females regardless of their education; that the young people with high intellectual ability expected to earn greater than those with lower intellectual ability independently of their education; that social background exerts very little independent influence; that students from white collar homes expected to earn more than other, but as a result of their continued education, not independently of it. It was also found that the average ex ante perceived rates of return were similar to the ex post actual rates of return estimated in previous studies. It was suggested that somewhat higher perceived rates of return are necessary to encourage working class children to stay on at school and into higher education than is necessary for their meddle counterparts leads to the prediction that when actual rates of return are high as in 1960s, the expected working class participation would rise when the actual rates of return fall, as in 1970s, the expected working class participation would fall. The authors explained that results are not aid in the prediction of the demand for higher education only, but they help to illustrate that the demand is not independent but influenced by changes in the private costs and benefits of a degree level qualification. However, they suffer from the weakness of all rate of return calculations in that they offer no guide as to how actual rates of return will move in the future.

Stephen Nord (1987), examined the influence of college on sex

¹⁸⁹ Williams G. and A. Gordon, "Perceived Earnings Functions And Ex ante Rates of Return to Post Compulsory Education in England", <u>Higher Education</u>, Vol. 10, 1981, pp. 199-227.

discrimination and the male-female wage differential.¹⁹⁰ In this study, the role of college education in reducing sex discrimination and narrowing the male-female wage differential in 1980 for full-time wage and salary workers was analysed. The data used for this study were come from the 1/1000 Census Population and Housing 1980: Public Use Microdata Sample Files. It was widely known that the average females worker earns less than males. However, in this study, it was found that the rates of return to females with college were higher than to males, especially females between 21 and 29 years of age (the rate of return for white females with college education was 43% greater than for white males and 47% higher for black females than black males). The author concluded that schooling extended the wage gap between the sexes.

The authors concluded that extra schooling is not "education on the cheap" as it seems to be at the first seeing. They stated that if it is accepted that the total costs calculated to be underestimates rather than overestimates of the level as usual. Secondly, regardless of imperfection of the benefit-cost ratios, it indicates the possibility of substantial miss-allocation with extra education. It was happen when applied to both the type and level of major courses provided and especially to the latter. For example, it had been frequently argued that nation's most serious shortage in skilled labour graduate engineers and scientists. Other levels of work in these fields were had a stronger claim to priority than first degree, on the basis of the criteria adopted. In the same way, other types of work may had been an more important need at various academic level than engineers and scientists.

Heyneman¹⁹¹ (1984), estimated the private and social rates of return to investment in upper secondary schooling in Malawi, using tracer study data on the destination and earnings of a sample of nearly 1000 secondary school graduates. The short-cut method was used to calculate the returns to education. This study allowed for earnings foregone, assumed unemployment at a constant level, and used an alpha-coefficient of 0.90 to adjust earnings differentials. The author found that private and social rates of return were 50% and 20% respectively. The rates of return were calculated for men only because from the data available in the year (1976), no women chose to enter the labour force. It was found that the results of this study explained the strong private demand for entry into secondary school

¹⁹⁰ Nord S., "An analysis of College on Inequality in Male and Female Wages in the United States: A Human Capital", Rivista international of Science Economic Commercial, 1987, Vol. 34, no. 12, pp. 109-128.

¹⁹¹ Heyneman, S., Educational Investment and Economic Productivity: Evidence from Malawi, International Journal of Educational Development, Vol. 4, No. 1, pp. 9-15.

and supported the case for further expansion of such schooling in Malawi

Marar and Fraser¹⁹² (1986), analysed the Harijan (ex-untouchables or ex-outcasts) education program of the Kerala state government in India. Net present values were calculated for pre-degree and degree levels of education. It was found that the net present value of programs were negative. The causes of this were that about 90% of Harijans were unable to complete their studies successfully and that their preferential inclusion in the limited number of places available entailed restrictions on the admission of Christian and higher-caste Hindu students. However, the author suggested that other less quantifiable benefits may follow in the longer run and may help to reduce the effects of caste origins and untouchability and reduce discrimination and illiteracy.

Hough¹⁹³ (1987), estimated private and social rates of return to investment in college education in Mali, using a simplified method of calculation. He found that private rate of return and social rate of return were 59% and 2% respectively. This very large difference in results followed from a combination of a high unemployment rate (90%) of graduates and high student grants. The writer found that the social rate of return to primary school was very low, about 3%, due to the high cost of examination failures and repetitions.

Psacharopoulos and Steier¹⁹⁴ (1988), examined a number of education - related aspects of Venezuela's labour market in 1975-1984 using a sample of 40,000 workers from the National Household Survey. To calculate the rate of return to investment in education, a Mincerian earnings function was applied. It was found that the returns to schooling had declined by only 2% points in a decade of educational expansion. These results support to the view that the returns to education decline over time. Also, the returns to education were calculated on the basis of earnings of those in the competitive sectors of economy (private sector employees and the self-employed) were of the same order of magnitude as those calculated on the basis of all wage earners in economy.

¹⁹² Marar, R. P., and Fraser S. E., A Cost-Benefit Analysis of the Harijan Education Program of Kerala, India, International Journal of Educational Development, Vol. 6, No. 1, 1986, pp.

¹⁹³ Hough, J. R., Education and the National Economy, (Croom Helm, 1987).

¹⁹⁴ Psacharopoulos, G., and Steier, F. "Education and the Labour Market in Venezuela, 1979-1984", Economics of education Review, Vol. 7, No. 3, 1988, pp. 321-332.

Al-Qudsi¹⁹⁵ (1989), calculated sectorial earnings functions for three groups of workers in Kuwait using data from a 1983 National Survey. Returns to investment in education in Kuwait were estimated by using the Mincer method. It was found that the return to education was relatively low. However, the returns for those in the private sector were considerably higher than for those in the public sector (overall, 8% against 5%). It was found that there was discrimination between Kuwaiti workers and non-Kuwaiti nationals, and the former were paid considerably more than the latter, especially in the public sector. About 90% of public sector workers were nationals but returns were highest, at 9%, for those Kuwaiti nationals who were in the private sector.

For primary, secondary, and higher education in the Philippines, Tan and Paqueo¹⁹⁶ (1989) used a Mincerian function approach to estimate returns to education. Data used for this study came from the 1985 family income and expenditure Survey of the National Census and Statistics Office. It was found that returns to investment in education in the Philippines were lower than the average for developing countries. The average social rate of return was about 13%, and the private rate of return to primary school was higher than for higher levels of education. The private rate of return was estimated to be 18% but dropped to 12% when the earnings foregone of primary school pupils were taken into account. However, the return to primary and secondary education were lower when pupils failed to complete a cycle. It was also found that the private returns exceeded social returns by the largest margin in primary rather than higher education. Finally, the average private rate of return for all education was 8%.

Gomez-Castellanos and Pscharopoulos¹⁹⁷ (1990), used data from the 1987 Household Survey to explore the relationship between education and earnings in Ecuador. Social rates of return were estimated for three different levels of education, using the Mincer method. The results indicated that there was a sharp difference in earnings associated with higher education between men and women (in favor of men) They found that average social returns were 12% for primary and university education and 9% for secondary schooling. It was found that the primary and university education were

¹⁹⁵Al-Qudsi, S. S. "Returns to Education, Sectoral Pay Differentials and Determinants in Kuwaitis", Economics of Education Review, Vol. 8, No. 3, 1989, pp. 263-276.

¹⁹⁶ Tan, J-P, and Paqueo, V. B., The Economic Returns to Education In the Philippines, International of Educational development, Vol. 9, No. 3, 1989, pp. 243-250.

more equity-enhancing on account of pronounced sex discrimination in the case of forms of employment associated with higher education.

Grootaert¹⁹⁸ (1990), computed social and private returns for secondary vocational and technical education (VTE) in the Ivory Coast by using a Mincerian function approach. The writer found that social and private returns for secondary vocational education were 4% and 16% respectively, and for technical education level (the private rate of return was 21% against a social rate of return of 4%). Since all the social returns were below the social opportunity cost of capital, "to justify the investment in VTE thus requires the invocation of non-quantifiable benefits, such as general externalities from having a pool of vocational and technically trained manpower available". Alongside formal VTE, which chiefly led on to becoming an employee, informal apprenticeships led on to informal labour markets and yielded broadly analogous returns.

Hinchliffe¹⁹⁹ (1990), estimated the social rate of return to investment in vocational training in Botswana, using three sets of data: age-education-earnings data, and average earnings of workers with and without training by education level based on an employment census of over 129,000 workers in 1986. The author found that the social returns were 20% for the three years of junior secondary schooling, 35% for the two years of senior secondary, and extremely high earnings increases following vocational training. Returns were estimated to be 51%, 82%, 52%, and 30%, for those with no schooling, those with primary, those with junior secondary, and those with senior secondary. It was found that the vocational training was socially very worthwhile.

Knight and Sabot²⁰⁰ (1990), estimated social returns to education in Kenya and Tanzania. They found that average rates of return to education in Kenya and Tanzania to be about 13%. However, since the expansion in education over time compressed the educational structure of salaries and wages, the marginal return could be well less than average.

197 Gomez Castellanos, B., and Psacharopoulos, G., Earnings and Education in Ecuador : Evidence from the 1987 Household Survey, Economics of Education Review, Vol. 9, No. 3, 1990, pp. 219-227. Grootaert, C., Returns to Formal and Informal Education in Cote d'Ivoire: The Role of the Structure of Labour Market, Economics of Education Review, Vol. 9, No. 4, 1990, pp. 309-319.

¹⁹⁹ Hinchliffe, K., The Returns to vocational training in Botswana-Research Note, Economics of Education Review, Vol. 9, No. 4, 1990, pp. 401-404.

²⁰⁰ Knight, J. B. and Sabot, R. H., Education, Productivity and Inequality, The East African National Experiment (Oxford University Press), 1990.

For primary, secondary, and university education in Chile, Riveros²⁰¹ (1990), estimated private and social internal rates of return over the period 1960-1985, using both the Mincer method and elaborate methods. The former gave an average rate of return to all education of 11%, whereas the latter gave private returns of 28%, 11%, and 10% for primary, secondary, and university education respectively, and social returns 12%, 9%, and 7% respectively. It was found that returns declined over time. Riveros mentioned the ability adjustment problem, but did not take this factor into account in his computation. He stated that a Mincerian method was unsatisfactory since it failed to adjust for the fact that his income-related data excluded the unemployed, who were mainly those with less schooling: therefore an overestimation of rates of return to education was likely.

Tannen²⁰² (1991), estimated the social and private returns to schooling in Brazil in 1980, using the Mincer method and data for working men. Data were derived by fitting earnings function to census microdata. The author found that the average private rate of return was around 12%-13%. The results were considerably lower than previous estimates (in 1970). He mentioned that the adjustment for the probability of unemployment might reduce the results by 1% or 2%; that regional data enabled the computation of geographical variations but these were not considerable; that the incorporation in the Mincer approach of estimates of subsides enabled social rates of return to be calculated but these involved some "guesstimates" relating to public expenditure figures; that social and private returns for vocational training in industrial skills were higher than for an academic curriculum at the primary school level. It was found that the only remarkable discrepancy in returns between private and public employees occurred for individuals who had attended high school; they were paid considerably less in public sector.

Psacharopoulos and Alam²⁰³ (1991), applied a Mincerian function and elaborate method to estimate the returns to investment in education in

²⁰¹ Riveros, L. A. The economic Return to Schooling in Chile. An Analysis of its long-term Fluctuations, Economics of Education Review, Vol. 9, No. 2, 1990, pp. 111-121

²⁰² Tannen, M. B., New Estimates of the Returns to Schooling in Brazil, Economics of Education Review, Vol. 10, No. 2, 1991, pp. 123-135.

²⁰³ Psacharopoulos, G. and Alam, A., Earnings and Education in Venezuela: An Updated from 1987 Household Survey, Economics of Education Review, Vol. 10, No. 1, 1991, pp. 29-36.

Venezuela. This study used data from the 1987 Household Survey. The results of this study were compared to those available for 1975 and 1984. The writers found that average return was 11% (10% for men, 13% for women). It was found that the return for females higher than for males; that returns were higher for workers in urban areas; returns had not fallen remarkably over time, even with the educational expansion in Venezuela; Finally, calculation by using the "elaborate method" found higher figures, up to 16% for the private primary return, with some indication of rates falling over the foregoing decade.

Psacharopoulos²⁰⁴ (1989), presented evidence on the over time behaviour of the rate of return to investment in education in a large number of countries (39 countries). In this study, rates of return to education were estimated for 23 countries by applying the "elaborate method" and for 16 counties by applying a Mincerian function method. The purpose of this paper is to examine whether returns to schooling were declining over time. The evidence presented in this study was that the rates of return largely declined over time following educational expansion. It was found that in the majority of counties rates of return were declining and the tendency was quite smooth; that returns to education continued to be high in developing countries, usually above a conservative measure of the opportunity of capital such as 10%.

Jain²⁰⁵ (1991), re-examined Pscharopoulos's (1985, 1989) cross country data on the returns to education. He pointed out that cross country analysis has its limitations because the variables which influence the returns to schooling differ across countries, and on the other hand, time-series data on the returns to education are not been available. It was found that only weak support for the declining rate-of-return hypothesis, especially when temporary, cyclical, variations local economies were taken into account. This represented an indication that there is an influence of factors other than income on the return to education, which suggested that the behaviour of the returns to education is, to a large extent, an empirical matter. The author pointed out that "point-to-point comparisons are unlikely to give a reliable picture of the trends in the returns to education because of the cyclical variation in the returns.

²⁰⁴ Psacharopoulos, G., Time Trend of the Returns to Education Cross-National Evidence, Economics of Education Review, Vol. 8, No. 3, pp. 225-231.

²⁰⁵ Jain, B., Returns to Education: Further Analysis of Cross Country Data, Economics of Education Review, Vol. 10, No. 3, 1991, pp. 253-258.

CHAPTER FOUR

THE APPLICATION OF COST BENEFIT ANALYSIS IN HIGHER EDUCATION

4.1 Introduction

The discussion in this chapter will be confined to the specific issues of applying cost-benefit analysis to investment in higher education, and particularly to the case of Iraq.

The general objective of cost-benefit analysis is to provide a useful picture of the costs and benefits from investment and to focus attention on the objective of economic efficiency. The "efficiency" objective was defined by Herfindahl and Kneese $(1974)^1$ as:

"maximization of national income ... the positive difference between willingness to pay for output and the cost of providing it."

Senesa and Taussig (1974)² argued that:

"Benefit-cost analysis is the systematic appraisal of all benefits and all costs of a contemplated course of action, or the several alternative courses of action. The benefit cost criterion for whether to undertake a given course of action is that the additional benefits to be derived from taking the action exceed the corresponding additional costs. In even simpler terms, this criterion means that the course of action be undertaken only if the sum of all the expected advantages outweigh the sum of the all expected disadvantages. Stated in this way, the benefit cost criterion is nothing more than a description of rational behaviour."

Cost benefit analysis implies the enumeration and evaluation of all costs and benefits and involves the calculation of net present value, internal rate of return, and the ratio of net benefits to costs.

Interest in cost-benefit analysis has grown vastly because of the increasing role of governmental expenditure in the social and economic activities of nations. Nations pushed by various social welfare goals, fiscal policies, employment targets or a number of other economic and noneconomic objectives are led to make huge expenditures. They want to know

¹ Herfindahl, O. C., and Kneese, A. W. Economic theory of natural resources. Columbia: Charles E. Merrill Publishing Co. 1974, p. 222.

² Seneca J. J. and Taussig, M. K. Environmental Economics. (Englewood Cliffs. N. J.: Prentice-Hall, Inc., 1974), p.12

how far these expenditures or large investment made by them, which absorb vast amounts of resources and are spread over a long range period are really worth taking in terms of their effect on the finances of their present organization, economic growth and social development. And they can know it, among other methods, by calculating one of cost benefit analysis approaches

Cost benefit techniques can be applied to a variety of fields such as water-supply projects, land usage, health, transportation, education , and so on. In this study the application was confined to the field of higher education in Iraq.

Conceptually, the most difficult aspect of dealing with educational investments is the fact that education serves a number of purposes at the same time. Among its many goals, education is said to serve as a means of personal fulfilment, an instrument for social continuity and cohesion, a mechanism for social mobility, a means to promote social equality, and as an 'economic investment' for individuals and society.³

The relative importance of these goals is a matter of subjective judgement. Furthermore, even if these goals could be valued (i.e weighted) "objectively", such valuation will vary considerably from one country to another, and indeed within the same country from one stage of development to the next. And even if one were to consider these goals for one particular country and in the short run only, it is difficult to see how it would be possible to measure the achievement of some of them.

For these reasons most of the cost benefit studies of education have been confined to the last of these goals, namely, education as an "economic" investment for individuals and society. Therefore, such studies can only be claimed to be "social returns to education" in a narrow sense, since most intangibles and externalities as well as the consumption benefits of education are excluded.

Turvey and Prest (1965)⁴ listed some difficulties facing cost-benefit studies in education:

- (1) the danger in using a current cross-section analysis to predict a future time series;
- (2) the question of whether incomes reflect marginal productivity sufficiently well to be used as a measure of social returns;
- (3) the value of extra education includes the value of the option which it contain of obtaining still further education; and

³ Maddison Angus, What is education for? <u>LLoyds Bank Review</u>, no 112, (April 1974), p. 19. Also see, The Social Responsibility of the University in Asian Counties, paper of International Association of Universities, no. 12, (Paris, 1973), especially pp. 53-54.

⁴ **Turvey R. and Prest A. R. "Cost-Benefit Analysis: A survey".** <u>The</u> <u>Economic Journal</u>, LXXV, (December, 1965), pp. 725-26.

(4) income depends on other variables besides age and education. This leads to use of the multivariate analysis.

Blaug (1965)⁵ examined the first and second problems, and Weisbrod⁶ discussed the third problem.

Woodhall (1970) emphasised that cost-benefit analysis "cannot be the sole criterion for educational planning but... what such an analysis should be an important element in decision making ... all planning consists of a choice between alternatives"⁷

Some educators have argued that cost-benefit analysis is not applicable to education. Woodhall (1970) 8 observed that:

"... some educationists have argued that cost-benefit analysis is inapplicable to education, because of the multiplicity of educational objectives and the importance of non-economic benefits."

Woodhall (1970)⁹ still believed that cost-benefit analysis was useful, especially to the developing countries:

"However, once it is recognised that investment in education does produce significant economic benefits, the need to analyse the nature and magnitude of these benefits in relation to costs must also be recognized, even though this concentrates on only part of the total picture. In view of importance which planners in developing countries now attach to the goal of maximizing economic growth, it is extremely important to have some means of assessing the economic impact of education."

However, Woodhall¹⁰ observes that cost-benefit analysis of education has been criticized on the ground that:

"it neglects indirect economic benefits, as well as non-economic benefits, and the use of cross-section data which reflect present and past supply and demand conditions, raises some doubts about the usefulness of cost-benefit analysis as a guide to future policy decisions".

- 7 Woodhall, M. "Cost-Benefit, op. cit., p. (ii).
- ⁸ Woodhall, M. <u>Cost-Benefit</u> op. cit., p. 12.
- 9 Woodhall, M. Cost-Benefit op. cit., p. 12-13.
- ¹⁰ Woodhall, M. <u>Cost-Benefit</u> op. cit., p. 13.

⁵ Blaug, M. "The Rate of Return on Investment in Education in Great Britain". <u>Manchester School</u>, Vol 33, No. 3, 1965.

⁶ Weisbrod, B. A. "Education and Investment in Human Capital". <u>Journal</u> of Political Economy, LXX, No. 5, part 2, 1962.

Woodhall and other economists such as Vaizey (1962), Balogh (1963), Blaug et al. (1969), Merrett (1966), mentioned that the theoretical objections, especially to its use in developing countries, can be summarized as follows:¹¹

- (1) The earnings differentials which were observed to be associated with different amounts and types of education can not be used solely as a measure of the pure benefits of education. Earning differentials reflect other factors such as native ability, motivation, social background, education of parents, on-the-job training, sex, and so on, of workers as well as differences of education.
- (2) Earning differentials do not adequately measure differences in productivity of workers because of imperfections in the labour market, so that the differences in earnings do not provide a measure of direct economic benefits of education.
- (3) The rate of return measures only the direct benefits of education to individuals, ignoring altogether the indirect or external, or neighbourhood benefits, the spillover of education, as they are some time called, which cause the marginal social product of educated labour to exceed marginal private product.
- (4) In calculating the rate of return to education in developing countries to assume full employment of educated workers is not realistic, because many developing countries are experiencing unemployment of graduates and secondary school leavers.
- (5) Age-earnings profiles, drawn from cross-section data which provide the basis for rate of return calculations, reflect present and past demand and supply conditions, whereas it is future demand and supply that concern the planner; therefore, rates of return provide a poor tool for educational planning.

¹¹ Woodhall, 1970., pp 25-26; also see woodhall 1972, p 40; Vaizey, J. The Economics of Education, London, 1962; Balogh & Streeten, P. P. The Co-efficient of ignorance, Bulletin of the Oxford University Institute of Economics and Statistics, (May 1963); reprinted in Blaug M. (ed.), Economics of Education: Selected Readings, Vol. 1, 1968. Harmohdsworth, Middlesex, Penguin Books, pp(383-395) (penguin Modern economics); Merrett S., The rate of return to education: A Critique, Oxford Economic Paper, Oxford, Clarendos press (November 1966); and Blaug M. Layard, P. R. G. and Woodhall, M. The cases of Graduate Unemployment in India, London, Allen Lane, The Penguin press, 1969.

(6) Private rates of return are meaningless, because individuals do not making educational choices as though they were making a purely financial investment decision.

However, cost-benefit analysis may be useful in decision - making in a number of ways. For example:

- (1) it can be used to point to the need for changes in resource allocation in favour of those types of education that offer the highest rate of return. It can provide a directional indicator.
- (2) it may be used to suggest ways of increasing the "profitability" of education by either increasing its benefits or lowering costs.
- (3) it provides a conceptual framework for the examination of the costs of education in relation to the relative earnings of educated manpower.

In the reminder of this chapter, each of the above objections will be discussed individually and, where possible feasible remedies will be suggested particularly as they apply to the case of Iraq.

4.2 Correlation Between 'Ability' And Education

In cost benefit analyses of education it is assumed that education is a major determinant of observed earning differentials between people with different levels of education. But it would be naive to assume that the whole differential is due to education. Wilson (1983) said that "more serious from the point of view of estimating social rates of return is the question of whether without undertaking higher education the more able individual would have obtained an above average income. If this is the case, then only a part of differential between the 'qualified' and 'unqualified' earnings profiles can be attributed to undertaking the course of education, the remainder being due to the individual's inherent ability".¹² Bowen (1964), ¹³ Prest and Turvey (1965), ¹⁴ Thias and Carnoy (1972), ¹⁵ Maglen and Layard (1970), ¹⁶ Blaug (1965), ⁷ Psacharopoulos (1973,

¹² Wilson, R. A. The Declining Return to Professional Status in the British Economy (with special reference to scientists and engineers). Thesis submitted for Ph.D., Department of Economics, University of Warwick, 1983, pp. 2.6-7.

¹³ Bowen, W. G. Economic Aspects of Education: Three Essays. Princeton, N. J.: Industrial Relations Section, Princetion, University, 1964, P. 4.

¹⁴ Prest, A. R. and Turvey, R. Cost Benefit Analysis: A 'Survey'. <u>The</u> <u>Economic Journal</u>, Vol. LXXV, No. 300, (Dece., 1965), P. 726.

1975, and 1987),¹⁸ Woodhall (1970, and 1987),¹⁹ and others argued that part of earning differentials should be attributed to differences in other factors such as natural ability, socio-economic background, race, sex, occupation, education of parents, on-the-job training and the like. The differential may also arise from the varying abilities of the person, from his family background, from his sex and his occupation. However each of these are highly correlated with education; and "what is worse, is the degree to which all of these factors are interconnected, so that the effort to measure one of them frequently picks up the effects of some of the others".²⁰ In other words, the so-called independent variables factors such as individual ability, social background, family status ... etc. are not really independent of each other and it is difficult to infer cause and effect.

Factors that affect earnings are likely to do so through the medium of education or to be associated with level of education. For instance, ability is a factor leading to more education, which in turn would result in higher earnings. With regard to family background, richer people get more education because they can afford it. These factors that explain earning differentials are operative before and after schooling.²¹

¹⁵ Thias, Hans Heinrich, and Martin Carnoy, Cost Benefit Analysis in Education. A case study of Kenya. Baltimore, Maryland: The Johns Hopkins press, 1972, pp.(2-6).

¹⁶ Maglen Leo and Layard Richard, 'How Profitable is Engineering Education? High Education Review, Vol. 2, (spring 1970), P. 57.

¹⁷ Blaug M., "The Rate of Return on Investment in Education in Great Britain". The Manchester School of Economic and Social Studies, Manchester, (September, 1965) pp. 213-218.

18 Psacharopoulos, G. Economics of Education: Research and Studies. (Peramon Book Ltd. Oxford, 1987), P. 219; Also see Psacharopoulos, G. Kates of Return: An International Comparison. (Elestvier Scientific Publishing Company, London, 1973), p. 28; and the same author Earning and Education in OECD Countries. Organisation for Economic Co-operation and Development, paris, 1975 P. 18.

¹⁹ Woodhall, M. Cost-Benefit ..., op. cit., p. 26. And Earning and Education, in Psacharopoulos G. (ed.), Economics of Education: Research and <u>Studies</u>. (Peramon Book Ltd. Oxfod, 1987), pp. (212-213).

20 Blaug, M. An Introduction.... op. cit., p. 33. Woodhall said that "Education tends to be highly correlated with a number of other factors, all of which help to determine earning". See Woodhall, M., <u>Cost-Benefit</u>, op. cit., p. 26.

²¹ Morgan, J. and David M., "Education and Income". <u>Quarterly Journal of</u> (Footnote continued)
It is not whether education has an effect on earnings, but rather "how much of the observed earnings differential between various levels of education is due to the extra education received?" 22 This has been a complicated problem in the economics of education. However, some progress has been made towards isolating the pure effect of education on earnings, and research in the U.S.A., Sweden and Mexico all suggest that, even when some of these factors are held constant, education alone has a strong effect on workers' earnings. The American studies concluded that (1) the length of schooling was the single most powerful factor explaining differences in earnings; (2) there was a strong relationship between length of schooling and earnings when intelligence quotient scores (I.Q'S) were held constant; (3) brothers with different levels of education obtain unequal earnings, i. e. that brothers with more education had correspondingly higher earnings; and (4) factors other than education do have some effect on earnings which are distinct from the effect of education such as ability, family background or simply motivation. But the question arises "how much of the observed earnings differentials of educated workers is attributable to extra education?"²³

In order to determine the part of earnings differentials due solely to education, most studies, and particularly those relating to the U.S.A., are in agreement that "roughly two-thirds of earnings differentials of educated workers can be explained by their education rather than by other factors, such as 'ability'.²⁴ Therefore, the observed income differentials were reduced by applying an adjustment factor. This adjustment, the so-called alpha coefficient, could have a value between zero and one.²⁵

²¹(continued) Economics, LXXII, (August, 1963), PP. (429-437).

Psacharopoulos, G. Economics of Education op. cit., pp.(342-344); Also see the same author, Earning and Education op. cit. pp. 18-61; And furthermore see Woodhall, <u>Cost-Benefit</u>, pp. (26-28).

²³ Woodhall, M., Cost-Benefit ... op. cit., pp. 26-28.

Woodhall, M., Cost-Benefit ... op. cit., pp. 26-28.

²⁵ Simply stated, that alpha coefficient means that if the average annual earning of university graduate is, say £5000 while that of secondary school graduates is £2000, then the net effect of higher education on the observed earning differential is the alpha coefficient (α) multiplied by the observed earning differential α (Ws-Ws-1). In this example when alpha coefficient is assumed equal to 2/3, the effect of higher education is 2/3(£5000-£2000)= £2000, whereas the effect of other factors rather than (Footnote continued) The value of the alpha coefficient is of course fairly arbitrary and still a matter for speculation. $^{26}\,$

The alpha coefficient usually includes adjustments for ability, personal motivation, socio-economic background and the like. It must be noted also that the alpha coefficient is not the same for all age groups or all levels of education. It has been suggested that the effects of natural ability may be stronger at some ages, or for some categories of educated workers, than others. Intuitively, it would seem reasonable to assume that the higher the level of education, the larger is the alpha coefficient, since at the university level, for example, the divisive influence of race, religion, sex, social background, etc. would presumably have largely ceased to operate. So, different values should be attached to the alpha coefficient for different calculations.²⁷ David and Morgan have estimated an alpha factor for U.S.A. which is 60 per cent for gross earning differentials for age groups 18 to 34 years old, but for the age group 35 to 75 is estimated as 88 per cent.²⁸

Accordingly, in as much as the purpose of the present study is to compare the returns to investment in university education, it might be argued that the choice of the alpha coefficient is not of major consequence. However, if these rates of return are intended for comparison purposes with those of other levels of education, or with investments in the national economy at large, then the "correct" alpha coefficient must be applied. Since it is beyond the scope of this study to estimate "correct" alpha coefficient for university education in Iraq, three values for the alpha coefficient will be used (1, 2/3, and 1/2) which will in fact test the sensitivity of the results to a variety of assumptions about the influences of education and other factors upon earnings.

- education is: (1-2/3) (£5000-£2000)= £1000. Becker's original data the alpha-cofficient referred solely to males.
- ²⁶ Woodhall, M., Cost-Benefit ... op. cit., pp. 28.

27 **Blaug**, M., "The Rate of Return on Investment in Education in Great Britain", The Manchester School of Economic and Social Studies, Manchester, Vol. 33, No. 3, 1965, pp. (215-216); reprinted as "The Rate of Return on Investment in Education", in M. Blaug (ed.), Economics of Education, Vol. 1, (Penguin Book Ltd., 1968), P. 226. Blaug also stated that the alpha coefficient "typically varies from 0.60 to 1.00, rising as we move up the educational ladder through secondary to higher education". See Blaug, <u>An</u> Introduction .. Op. cit., p. 201.

²⁸ Morgan J. and David M. Education and Income, <u>Quarterly Journal of</u> Economics, (August 1963), pp. 436-437.

²⁵(continued)

4.3 Correlation Between Earnings And Productivity

Generally, educated people earn higher wages or salaries than those who have completed less schooling and/or have lower educational qualifications. There is a relationship between education and earnings whether in developed or underdeveloped countries, in capitalist or socialist countries.

Woodhall (1987) states that "the basic assumption of the notion that education is a form of investment in human capital is that education raises the productivity of workers and that the higher earnings of the educated reflect the value of their product"²⁹. Obviously, education increases productivity by giving knowledge and skills which make a worker more valuable in the labour market than less educated workers.

In most countries, and especially in developing countries, a high percentage of qualified manpower is employed by government in the public sector at administered salaries where the salary structure is both archaic and rigid. Blaug (1972)³⁰ points out that more often than not, however, the public sector gears its pay scales to relative rates of reward in the private sector. This pattern of salary scales still reflects the salaries that were paid to colonial administrators before the country achieved independence. But when earnings reflect differences in marginal productivity, the extra earnings of educated workers measure their contribution to output. Also, the significant body of classical and neoclassical economic theory depend on the assumption that relative prices of goods and services and the relative salaries and wages of workers reflect their relative scarcity and then, in the case of workers, their productivity.³¹

However, the relationship between earnings and education has two implications, when this assumption is accepted. First, the extra earnings of the educated workers can be used as a measure of contribution of education to the growth of national income, over time. 32 Secondly, the

²⁹ Woodhall, M. Earnings and education. In Psacharopoulos, G. <u>Economics</u> of <u>Education</u> ... op. cit., p. 216.

³⁰ Blaug, M. An Introduction Op. cit., p. 205.

³¹ Psacharopoulos G., 1987, p. 216.

³² This approach was applied by Denison (1962, 1967) who analysed the rate of economic growth in United States and later in various European countries. In the case of United States, he found that between 1930 and 1970 about 23 percent of the rate of growth of national income was due to the increased education of the labour force, which increase their knowledge and skills, and hence raised their productivity. See Denison E. F. The sources of Economic Growth in the United states and the Alternatives Before (Footnote continued)

earnings differentials can be used as a measure of the economic benefits of education in calculations of social rate of return to educational investment. However, this basic assumption that earnings reflect productivity depends on, in turn, the assumption that markets, including the labour market, are basically competitive, so that prices reflect scarcities. There are two assumptions here: (i) if markets are perfectly competitive, then earnings provide a completely satisfactory measure of productivity; and (ii) if there are some imperfections in the degree of competition, earnings will still reflect differences in productivity provided the forces of demand and supply ensure that scarce factors command higher prices than plentiful factors of production.³³ Since highly educated workers are scarcer than those who have lower educational qualifications, this is enough to ensure that they are paid more, in terms of average salaries and wages.

However, in both developed and developing countries it is well recognized that there are imperfections in the labour market due to a number of factors such as rigidities in the labour market, the momentum of custom and tradition in determining wage rates, the power of trade unions and professional associations, obstacles to geographic mobility of labour force and many others³⁴.

Some economists, who oppose the idea of measuring the return to education in terms of extra earnings, point to imperfections in the labour market, particularly in developing countries, and argue that earnings differentials tell us nothing about the relative contributions of these workers to the total output. Since "much of higher earnings (of the better educated) is not a return on education but a monopoly rent"³⁵. Also, they

mmittee for Economic Development, (New York 1962). Also the same Why Growth Rates Differ: Post War Experience in Nine Western Les. (Washington, D. C.: Brookings Institution, 1967). Us. Committee author Countries.

33 Psacharopoulos G., 1987, p. 216.

³⁴ Blaug states that "the shoe is really on other foot: if relative earnings reflect not relative contributions to national output, but family connexions, traditional conventions, the snob-value of a university degree, nepotism, entry restriction in trade unions and professional organization, politically administered pay scales or any other market imperfection one might care to mention, how is it that so large proportion of gross earnings differentials associated with education turn out to be due to education alone?" See Blaug, M. <u>An Introduction</u> ... op. cit. p. 206. 34

³⁵ Balogh, T. and Streeten P. P. "The Coefficient of Ignorance" Bulletin of the Oxford University Institute of Economics and Statistics, Vol. 25, no. 2. (May 1963); reprinted as "The Planning of Education in poor Countries" In M. Blaug (ed.) Economics of Education, Vol. 1 (Penguin Books Ltd., 1968, p 387. (Footnote continued)

(Footnote continued)

^{32 (}continued)

argue that earnings reflect historical, administrative, and other non-economic factors, and therefore can not possibly be used as a measure of productivity. Blaug (1972) explains that "provided labour markets function competitively, earnings are a satisfactory measure of productivity ... but this is precisely the point at which the misgivings begin"³⁶. There have been some attempts to measure the productivity of educated workers in physical terms, rather than in the terms of relative earnings.

Obviously, it would be irrational to deny that the foregoing factors have a distorting effect on relative wages. Nevertheless, to argue that because of these distortions relative wages must be rejected completely as a measure of relative demand for different skills is an extreme view indeed. Carried to its ultimate result, such a notion would involve a rejection of the entire price system of an economy³⁷, also, one of the three basic methods for calculating the national income (namely the aggregation of factor incomes received by persons, businesses, and non-profit - making institution³⁸.

The point of the present objection is not essentially whether imperfections exist in the labour market (they certainly do), but whether these imperfections are sufficiently significant so as to render rate-of-return calculations misleading³⁹. Vaizey (1962) believes also that "the wages-system is, in fact, a system of administered prices, not market prices. Therefore, these measurements are measuring the consequences of a process of market imperfection so serious as to invalidate the results if they are used to estimate return to education"⁴⁰.

The basic assumption of cost-benefit analysis is that relative prices and salary structures reflect, even if imperfectly, the balance between supply and demand for different skills⁴¹. So that the earnings of educated

³⁶ Blaug, M. Correlation between education and Earnings: What does it signify? <u>Higher Education</u>, Vol. 1, No. 1, 1972, p. 73.

³⁷ Woodhall, <u>Cost-Benefit</u> op. cit,. p. 29.

³⁸ Haseeb, K., <u>The National Income of Iraq, 1953-1961</u>, (Oxford University Press, 1964), p. 4.

³⁹ Blaug, M. <u>An Introduction</u> op. cit., p. 207.

⁴⁰ Vaizey, J., <u>The Economics of education</u> op. cit., pp. 45.

41 Woodhall, Cost-Benefit ... op. cit., p. 29. Blaug states that "the general notion that earnings by and large do reflect the push and pull of (Footnote continued)

³⁵⁽continued)

workers reflect their value in the market.

If certain categories of educated people are paid significantly more or less than their economic value, then one may have to construct "shadow prices", which more closely reflect the real productivity of workers, and use these "shadow prices" instead of actual wages and salaries for the rate-of-return calculation.

However, to construct these 'shadow prices', would be a mammoth task.⁴²

"When the price system is irrational, in the sense of failing to reflect relative scarcities, text-books on economic planning tell us to impute 'shadow prices' to resources. In the present context, this implies that we should impute specific scarcity - prices to people with different educational qualifications. This is easier said than done. Short of developing a complex dynamic programming model of the economy ... there would seem to be no way of estimating shadow prices."

One attempt has been made by Psacharopoulos (1970) to construct a price for educated workers in Greece, using a linear programming model. The results were used to calculate shadow rates of return to education 43

Of course, it is not the purpose of the present study to construct shadow prices for educated workers in Iraq and the required data to estimate shadow salaries and wages were not available.

It is essential before concluding this section to illustrate what is meant by income (or earnings). Some cost-benefit studies have used census statistics which are based on the total income of people rather than on their earned income. This can be misleading as such data reflect not only the earnings attributable to a certain type and level of education, but also earnings arising from ownership of other forms of wealth.

In the present study, therefore, the incomes data used exclude all unearned income (i.e. income from inherited financial and physical assets) and are limited to earnings attributed only to the type and level of educational acquired.

⁴¹(continued) market force". Blaug, M. <u>An Introduction</u> op. cit., p. 206.

42 **Blaug**, M. 1972, pp.209-210. Shadow prices for educated labour have also been imputed by constructing a simplified linear programming model for a "two sector" economy (education as one sector versus the rest of the economy as the other sector). See **Psacharopoulos**, G. "Estimation of Shadow Rates of Return to Investment in Education" <u>Journal of Human Resources</u>, Vol. 5 , (Winter 1970), PP. (34-50)

Psacharopoulos, Estimation of Shadow op. cit., pp. 34-50

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4.4 Identification and Valuation of Externalities

In chapter 3, attention was focused on the external benefits (spillover benefits) from education. So that, in this chapter the spillover benefits will be discussed briefly. Because of difficulties of measure the external benefits, most of the writers who have dealt with the subject have felt obliged to discuss the items which have been ignored. In excluding externalities, the benefits of education were underestimated and thereby the rates of return to education were also underestimated. Some economists such as Blaug, ⁴⁴ Bowman, ⁴⁵ and Weisbrod, ⁴⁶ have provided an explicit account of some unmeasurable benefits. Weisbrod, for example, classified external benefits into residence-related (e.g., mothers who are able to go out work when her children are at school); Employment related (e.g., correlative benefits given by employees in a factory); and those which accrue to society in general. The width of the latter category obviously depends on angle of view: international benefits (allowing for migration) are greater than national, and the latter in turn greater than regional.

Because of the difficulties (in some cases, sheer impossibility) involved in quantifying all the external, indirect and intangible aspects of education, most studies of "the return to education are agreed that this is the biggest unsolved riddle of all"⁴⁷.

For these reasons, some writers have rejected cost – benefit analysis 48 , and most rate of return studies emphasize that their estimates of the rate of return are an under – estimate of the real economic returns to society from investing in education. This problem, however, is not limited to the field of education. Indirect or external costs and benefits

⁴⁴ Blaug, M. "The Rate of Return on Investment in Education in Great Britain". <u>The Manchester School</u>, Vol 33, No. 3, 1965, p. 234.

Bowen, W. G. Economic Aspects of Education: Three Essays. Princeton, N.
J.: Industrial Relations Section, Princeton University, 1964, pp. 22-23.

⁴⁶ Weisbrod, B. A. "Education and Investment in Human Capital". Journal of Political Economy, Vol. 70, no. 5, part 2, 1962, pp. 106-23; and External Benefits of Public Education: An Economic Analysis, Princeton University Press, 1964, PP. 28-34.

⁴⁷ Boven, W. G. "Assessing the Economic Contribution of Education". Economics of Education. Edited by Blaug, M., 2 Vols, (penguin Books Ltd. 1971), P. 86.

⁴⁸ Woodhall, M., 1970, Op. Cit. P. 30. Psacharopoulos observes that "the external or indirect benefits of education to society or to individual have provide to be the greatest stumbling block to acceptability of rate of return analysis to many people. See Psacharopoulos G., Return to Education... op. cit., p. 32.

occur in any major public investment, 49 be it an oil refinery in Scotland, a third airport for London, or a dam on the Colorado river. However it has to be admitted that educational investments are much "more likely to generate indirect benefits than any other single activity of comparable scope"⁵⁰.

The benefits that education imparts to an individual can suitably be classified into "consumption" and "investment". Individuals may demand education as a form of consumption, but there is no justification for ignoring or denying that education also adds to future income, and is a form of investment.

Consistently, cost-benefit studies of education have concentrated on investment aspects of education, and on the measurable economic effects of education, and have ignored most of the intangible and indirect impacts, arguing that even though education involves "social costs as well as social benefits ... there is no doubt that on balance the positive benefits are paramount"⁵¹.

Actually some educationalists have gone even further and claimed the net external benefits of education are so massive that they are far more relevant to national planning than direct economic benefits. Blaug⁵², nevertheless, has warned against over exaggeration.

The idea that external or indirect benefits of education to society as a whole are enormous in magnitude and vastly exceed the direct personal benefits to the 'educatees' is one of myths of our times that has gained wide currency in the literature as the one sure basis of an economic case for state education

therefore, we may reject the proposition that the indirect benefits of education are greater than the direct benefits as being extremely unlikely. But the fact that the net externalities of education are nevertheless positive must be continuously kept in mind.

The problem of fully measuring all externalities cannot be resolved at the moment, and it is possible that it will never be solved. For the present most economists have accepted that external benefits are positive, that no techniques yet exist for measuring them, and that social rates of return, calculated from earnings data, represent underestimates of the return to education⁵³.

As far as this study is concerned, the preceding problems do not

49 Vaizey, J., The Economics Educational .. Op. cit., p. 92.

52 Blaug, M. An Introduction ... Op. Cit., p.107 and 114.

A A A

⁵⁰ Bowen W. G., Assessing the Economic ... op. cit., p. 85.

⁵¹ Bowen W.G. Assessing the Economic ..., 1971, P. 86.

represent such a serious threat. The essential purpose of this study is to analyse and compare the returns to investment in various areas of specialization within university education, and there is no reason to believe that the magnitude of externalities generated by one specialization will vary appreciably from another. Blaug (1972) stated that "within the educational budget, there is no general presumption that one level of education systematically generates larger indirect benefits than another"⁵⁴.

4.5 Effect of Unemployment on Ratesof Return

Age-earnings profiles often require a downward adjustment because of the probability of unemployment although most cost-benefit analyses of education have presumed full employment among educated labour.

In some developing countries, however, the problem of unemployment is often very serious⁵⁵ and adjustments need to be made in order to take account of among the different levels and types of educated workers. Perlman (1973) claimed that "the high school worker is more likely to suffer unemployment than college graduate".⁵⁶ He also argued that the higher income of educated workers outweighed the effect of a lower unemployment rate in leading to an adjusted differential lower than the level before unemployment was considered.

Data collected from samples referring to employed persons and pay scales do require an unemployment adjustment. Woodhall (1970) said that "it is perfectly possible to make such an adjustment when measuring social rates of return"⁵⁷. An adjustment factor for unemployment would be applied

⁵³ Woodhall, M. 1970, Op. Cit., P. 31.

54 Blaug, M. An Introduction op. cit., p. 205. On this same issue. Woodhall states that "If the purpose of cost - benefit analysis is to the profitability of two form of education, the problem is less important. For while it is generally accepted that education generates external benefits, it is less obvious that, for example, higher education yields more indirect benefits than primary schooling. Thus, for purposes of comparing the returns to different levels or types of education, the fact that rates of return present under-estimates does not necessarily introduce an important bias. See Woodhall, M. <u>Cost-Benefit</u> op. cit., P.31.

⁵⁵ Woodhall, M. Cost-Benefit op. cit., p. 32.

Derlman R., The Economics of Education. (Mcgraw - Hill Book Company, London, 1973), p. 30.

⁵⁷ Woodhall, M. <u>Cost-Benefit</u> op. cit., p. 32. (Footnote continued) in calculating social costs (foregone earnings) as well as social return. Adjustment should be made when different rates of unemployment of workers with different educational achievement levels are given.

Unfortunately, dependable data on unemployment rates are usually unavailable for most developing countries. Therefore, "some estimates must be made of the average rates of employment for workers of different ages in each educational category"⁵⁸. In Iraq, for example, the Central Bureau of Statistics periodically publishes unemployment figures; these data, however, refer to general categories of skill rather than to various areas of specialization or to specific levels of educational achievement.⁵⁹ In addition, the data are collected from the number of unemployed people who register officially at the employment department and are not necessarily indicative of the total number of unemployed individuals in Iraq.

When precise data on unemployment are available, and when these are of a significant magnitude, it becomes necessary to estimate unemployment rates for the various educational specializations and thereafter weight the earnings by the probability of employment in respective specializations.⁶⁰ Alternatively, this could also be achieved by estimating the average time it takes graduates with different educational qualifications to get their first job (assuming they will remain continuously employed thereafter until retirement), and add this period to arrive at the zero time for discounting the costs and benefits.⁶¹

In Iraq unofficial estimates indicate that the unemployment rate among university graduates is practically zero or very close to zero. Certainly the present demand for university graduates far exceeds the supply and regardless of the efforts to increase the number of university graduates, it is expected that this situation will continue over the next fifteen years. The shortage of university graduates has been so severe that the Iraqi government was motivated in 1975 to offer generous economic incentives for all higher education graduates (and particularly those working abroad) in an effort to attract these graduates back to Iraq. 62

According to the 1987 Census of Population in Iraq, the unemployment

⁵⁹ Republic of Iraq, Ministry of Planning, <u>Annual Abstracts of Statistics</u>, (Baghdad: Central Statistical Organization), p. 351.

⁶⁰ Woodhall, M. Cost-Benefit op. cit., P. 32.

⁶¹ A similar approach was suggested in a study of graduate unemployment in India; see **Blaug**, M., **Layard**, R. and Woodhall, M., <u>The Causes of Graduate</u> <u>Unemployment in India</u>, (Allen Lane, 1969).

⁵⁷⁽continued)

⁵⁸ Woodhall, N. Cost<u>-Benefit</u> op. cit., p. 32.

rate among secondary school graduates, was very low (about 3.5 per cent), whereas the unemployment among university graduates was about 3.3 per cent. ⁶³ However, it must be emphasized that all data and estimates of unemployment rates in Iraq should be viewed with some caution because there has not been available precise data of unemployment people classified according to the level, kind of education, and occupation.

In the current study, age-earning profiles will not be adjusted for unemployment because the rate of unemployment of university graduates is very close to the unemployment rate of secondary graduates.

4.6 Relation Between Present And Future

Cost-benefit analysis of education consistently entails a time-series projection of lifetime earnings from cross- section data based on past investment policies. The current objection amounts to a rejection of the view that it is useful to project past trends and present relationships into the future. This must be investigated at two levels.⁶⁴ First, in calculating the rate of return on education, the present value of the costs of education is needed. Regularly this needs the projection of past costs into the future. However, which costs should be used for this aim, marginal costs or average costs?⁶⁵ Cost-benefit analysis is essentially a form of marginal analysis, and the rates of return which are discussed are marginal rates, so that it would seem incorrect to use average costs of such calculations. Generally, if the additional students enrolled in a school could be absorbed in current scale of operation, marginal costs would be the logical basis for the calculation. However if the additional

⁶² These incentives included such benefits as free air travel to Iraq for the graduates and their families, duty free import of a private car and household furniture, and long-term low interest loans. In some cases these benefits exceeded £ 10,000.

⁰³ Republic of Iraq, Ministry of Planning, Central statistical Organization, The 1987 Census of Population in Iraq, 1988, Table 32, pp. (125-129).

⁶⁴ Woodhall, M. <u>Cost-Benefit</u>, op. cit., p. 32. Also see Blaug, M. <u>An</u> <u>Introduction</u>, <u>op. cit.</u>, pp. (212-213).

⁶⁵ Marginal costs is the additional costs incurred when one additional student is enrolled. i.e., the additional costs attributable to one extra student is called marginal costs, or, sometimes incremental costs. Whereas average costs per student is simply the total costs or expenditure divided by total number of student enrolled in the school or level of education. Also, when the total costs is divided by the total number of graduates, this gives the average cost per graduate. Woodhall M. "Cost Analysis In Education". In **Psacharopoulos, G.** (ed.) <u>Economics of Education</u> op. cit., p. 394.

students enrolled in a school would need a shift in the scale of operation (such as establishing a new school), 66 average costs would perhaps be the best available approximation that might be used although they would probably be somewhat on the high side due to some external economics of scale. 67

It must be emphasized that this problem arises only when calculating social costs and not the private costs. The private costs- at least in the short run - are not affected by whether it is a marginal change or a change in the scale of operation. Actually in countries where students do not pay directly for their education the private costs of education bear no relationship to either the marginal or the average costs of education. In such circumstances the private costs are only the opportunity costs to the student (i. e. the income foregone which he could earn were he not a student) plus such incidental items as the cost of books and similar education needs.

Secondly, the objection is that cost-benefit analysis measures the "profitability" of past levels of investment, in terms of the present relationship between demand and supply for labour. This objection is closely related to the previous one in that a large-scale expansion of the educational system would cause an essential change in the balance between the supply and demand for educated labour. Since the rate of return is marginal concept, it will not provide a good estimate of the profitability of a large - scale expansion of the education system. Therefore Woodhall (1970) pointed out that "the rate of return will serve as an estimate future of profitability only if the present relationship between supply and demand is maintained". ⁶⁸ And "if the educational planner is contemplating non - marginal changes in the educational system, he must not assume that present rates of return will continue in the future, but try to predict the future pattern of earnings differentials, in the light of a massive increase in supply". ⁶⁹ Although it has been argued that sudden and radical changes in the relative earnings pattern of educated labour are unlikely to

⁶⁹ Woodhall, M. Cost-Benefit op. cit., P. 32.

when the state state

⁶⁶ The purpose sometimes is to double or triple the number of students enrolled or graduates in a particular country.... which is so usual a proposition in some developing countries. In Iraq, For example, the number of university graduates was increased to five times by the Ministry of Higher Education in certain specializations between 1975 and 1980.

 $^{^{67}}$ Since future investment in higher education in Iraq is expected to be a very large significant corresponding to past levels, cost projection in the present thesis will be based on average cost per graduate. The method for calculating average costs will be discussed in the following chapter.

⁶⁸ Woodhall, M. Cost-Benefit op. cit., P. 32.

occur in economically and educationally advanced countries, the same cannot be said for developing countries.

What is worse, however, is that projection of historical costs and earnings data into the future makes the implicit assumption that the level of real income will remain constant (economic growth can raise both future earnings and costs), that the quality of education will be remain fixed (changes in the quality of education over time can affect earnings profiles), that no fundamental changes in technology or in the economy at large will occur (whereas technological change in the composition of demand for trained personnel), and in brief, that no future change in the relative price are expected.

Factors that are assumed to be responsible for inaccuracies in the returns to education have been identified. While some factors are likely to increase the rate-of-return, others have a tendency to decrease it. The effect of these positive and negative factors on earnings may possibly balance each other, so that the rate-of-return based on the measurable monetary returns and other relevant data may reflect the real return on educational investment. Psacharopoulos (1973) reviewing the study made by Hines <u>et</u>. <u>al</u>. (1970) observed that "one of the things this study demonstrates is that, after all adjustments are made, it is possible that the final rate of return figure will be very similar to the unadjusted one, since many of the adjustments act in opposite directions and therefore cancel out".

Perhaps the only reasonable answer to these difficulties is that all of these factors only affect earnings well into future and since the process of discounting gives much less weight to future earnings than to present earnings, 71 it is some consolation to conclude that "rate-of-return calculations are less sensitive to inaccuracies in the measurement of benefits in the distant future than to inaccuracies in early years of a person's working life".

4.7 Consumption Benefits of Education

The benefits which an individual obtains from education can conveniently be classified into either "investment", or "consumption" or

⁷⁰ Psacharopoulos, G. Returns to Education, op. cit., p. 39

⁷¹ For example, using an annual discount rate of 10%, the present value of earnings received ten years from now amounts to less than half of the actual earnings, while the present value of earnings attained thirty years from now amounts to less than one-tenth (i. e. the present value of £ 1000 earned ten years from now is £386, and thirty years from now is £57.

⁷² Woodhall, M. Cost-Benefit op. cit., p. 33.

both together. When products or services provide satisfaction in a single period only, they are considered to belong to the consumption category. Whereas they would be called a pure investment goods (or services) when they are expected to yield satisfaction in future periods. Some goods (or services) are both consumption and investment simultaneously. That is, they provide satisfaction now and are expected to yield some satisfaction in the future as well⁷³. Therefore education is both an investment and a consumption good. It is investment because it make possible higher productivity and benefits in future; it is consumption because it provides utilities now⁷⁴.

Generally, expenditures on schooling are considered to be investment in human capital because they increase the economic productivity of people. But these expenditures yield consumption benefits for the educated individuals in the form an enjoyment and self-fulfillment. Therefore, education can be regarded as a "joint cost problem in which essentially the same inputs are transforms simultaneously into two end-products (professional preparation and pleasure)"⁷⁵.

Cost-benefit analysis of education usually measures the benefits only by consideration of earning streams. This does not mean that researchers in this field have ignored other benefits to the individuals which flow from schooling. Nevertheless, it points to the theoretical and practical difficulties of measuring these consumption benefits. The effect of consumption benefits in aggregate are always positive and probably quite large⁷⁶. This is perhaps not true. The suggestion by Schultz that 50% of educational costs are consumption is arbitrary. Schultz (1967) said when he surveyed the earlier literature, that "all these studies omit the

74 Atkinson, G. B. J. The Economics .. op. cit., pp. 35-36.

⁷⁵ Bowen W. G. Assessing the Economic op. cit., p. 89.

⁷⁶Schultz suggests arbitrarily that 50% of the costs may be treated as being for consumption purposes. See Schultz, T. W. The Economic Value of education. (N. Y.: Columba University press, 1963), \overline{p} . 56. Also McMahon 1987 found that "education makes positive contribution to many types of non-market activities involving significant cognitive or education-related affective attributes, activities such as maintaining the health of family members, earning a high rate of return on savings, improving the children's school achievement and preschool IQ, increasing the efficiency of household purchasing, and staying out of jail. See McMahon, W. W. "Consumption and Other Benefits of education". In Psacharopoulos G. (eds.) Economics of Education ... op. cit., p. 129.

⁷³ Cohn, E. The economics of education op. cit. p. 126. Atkinson said that "investment goods are usually those which are used to produce other benefits in the future". And he defined the consumer goods and services as "those which give or aim to give satisfaction to consumers". See Atkinson G. B. J. The Economics of Education. (Hodder and Stoughton, London, 1983, p. 35.

consumption value of education \dots It is a serious omission \dots The available estimates of earnings from education in this respect all underestimate the real value of education"⁷⁷.

There are three ways to include the consumption benefits in calculating rate of return: (1) an arbitrary estimate of the consumption benefits of education; (2) alternatively consumption benefits may be regarded as an additional output which must be added to the benefits derived from total educational investment; and (3) perhaps most logically, the statement can be made that the rate of return based on earnings alone are underestimated, and refer only to the investment component of education. 78

Since it is generally agreed that the consumption benefits of education may often be very large (particularly in higher education), it would seem unacceptable to ignore them. On other hand, since any estimate of these benefits would be methodologically unjustifiable, it would be irresponsible to include them in the rate of return approach. In this study, consumption benefits are ignored because of quantification difficulties and all education costs are treated as being for investment. Accordingly, rates of return of higher education in Iraq, will be underestimated.

⁷⁷ Schultz, T.W. The Rate of Return in Allocating investment Resources to Education. Journal of Human Resources, Vol. 2, 1967, P. 300.

⁷⁸ Schultz, T. W. The Economic ... op. cit. pp. 8, (54-56).

CHAPTER FIVE

ANALYSIS OF THE COSTS OF UNIVERSITY EDUCATION IN IRAQ

This chapter will examine the costs of higher education in Iraq in the fields of Science, Engineering, Medicine, Pharmacy, Dentistry, Nursing, Veterinary Medicine, Agriculture, Administration and Economics, Law and Politics, Arts, Education, Physical Education, Fine Arts, and Alsharia (Islamic religion and Arabic Language). Three separate cost computations will be undertaken, each from a different point of view, namely: (1) institutional or college cost; (2) private cost; and (3) social cost.

5.1 The Institutional Costs

The cost data were compiled from basic financial statements and accounting records of the University of Baghdad and its Colleges, because of a lack of published cost data for other higher education institutions in Iraq. To have compiled the data for all universities in Iraq would have been an extremely arduous task. Therefore, it was decided to undertake a comprehensive and thorough analysis of the costs of the largest university, and use the results obtained as approximations to the average costs of higher education in Iraq.

The University of Baghdad is the largest of the six universities in Iraq, in the terms of total expenditures, number of colleges, number of students enrolled and number of graduates. Tables 5.1, 5.2 (p. 138), 5.3 and 5.4 (p. 139) respectively illustrate this.

All data on institutional costs in this chapter are collected from the financial statements and records of the University of Baghdad covering a six-year period from 1982 to 1987. The calculation of the average institutional cost per student, and per graduate, are adjusted to 1987 prices in order to be consistent with the data on the earnings profiles of university graduates in Iraq, which are available only for the 1987 financial year. The year 1987 will be treated as the base year, and all costs and benefits will be adjusted by the 1987 composite price index (see Table A-37).

Expenditures were derived for each financial year from 1982 through to 1987 using audited financial statements. The expenditures comprise of two

major categories: (i) operating costs and (ii) capital costs. The operating expenditures include the day-to-day outlays on items such as salaries and wages, services (such as maintenance, advertising, printing, insurance etc.), goods and commodities (such as materials, fuel and oil, stationary .. etc.), rent of fixed assets, and so on. The capital expenditures consist of purchases of land, buildings, equipment, motor vehicles, and so on. As such they do not represent an "economic" cost but rather a long-term investment in capital assets. The "economic" cost of such capital assets is the opportunity cost of using them. Opportunity cost may be assessed by imputing a rental value for the land and buildings, or by "charging" interest on the capital cost of such assets. Cohn (1972), stated that "Depreciation charges on the wear and tear of old building and equipment should be added to current educational costs. But if the capital costs are added to current expenditures when incurred, depreciation charges or estimated implicit interest costs need not be added to current costs. Adding both of these items would result in "double counting".¹ Therefore, the total economic costs of education are defined as the operating outlays plus the opportunity cost of capital assets.

5.2 Operating Expenditures

Firstly, the operating expenditures were divided into five main categories, each category comprising a number of expenses items. These categories are: (1) salaries and wages (including allowances, overtime payments, social security contributions for officials and workers; (2) goods and commodities (such as materials, spare parts, employees supplies, water and electricity, educational books, supplies and requirements; (3) services expenses (such as maintenance services for buildings, equipment, motor vehicles, and furniture, advertising, printing and publication, entertainment, research and consultancy services, fairs expenses, hospitality, travelling and delegation, general contacts, insurance, etc.); (4) rent of fixed assets (such as rent of buildings, equipment, motor vehicles etc.); and (5) transferable expenses (such as donation to others, compensations and penalties, debts written off etc.). The actual expenditures on each item which were incurred by each college of Baghdad University and the four services offices (Administration, Registration, Dormitory, and Central Library) are shown in Tables A-1 to A-6 for years 1981/82 to 1986/87 respectively.

First, the data on operating costs were compiled. The second process was to allocate the indirect operating expenditures (for the four services

¹ Cohn E., <u>The Economics of Education</u> (Lexington Books D. C. Heath and Company Lexington, <u>Massachusetts Toronto</u>), 1972, pp.104

offices) to each of fifteen colleges. This will be explained later.

5.3 Capital Expenditure

Educational spending includes investment in capital or fixed assets (such as buildings, equipment, furniture etc.), in addition to outlays on current activities (such as salaries to teachers, maintenance, water and electricity). Capital expenditures must not be counted as current costs, unless part or all of such outlays are consumed during the period. Inclusion of capital expenditures in the current period would have the effect of overestimating current cost. Therefore, schooling costs may not correspond to outlays.²

Capital costs at the University of Baghdad refer entirely to the purchase of land and buildings either through direct market purchases or through construction contracts. These capital outlays are financed from two basic sources: the University of Baghdad Budget and the national five-year Plan. Capital costs also include all equipment, e.g. tools and furniture, and motor vehicles, which are required in the University. However, all capital expenditures - regardless of source of financing, and regardless of whether they are purchased or whether they are constructed have an economic or opportunity cost.

The purchase price of these capital assets does not represent their economic cost. In cost-benefit analysis, the economic cost of such assets is defined as their opportunity cost. In general, the opportunity cost of capital assets may be estimated either by imputing a rental value for the assets (i.e. the estimated cost of leasing such assets in the market), or by "charging" the long-term market borrowing rate on the total accumulated value of the capital assets. In this study, the second approach is used, because of the difficulty of ascertaining a market rental value for special - purpose buildings such as students' dormitories, libraries, laboratories and so on, where there is not an established market. The actual rate of interest used in this thesis, as a surrogate for the opportunity cost of capital, is 7 per cent per annum, which is based on the banks' prime lending rates in Iraq.³ This approach is used to calculate the opportunity cost of the land and buildings. In this calculation, the value of capital assets was based on the historical cost of acquisition in the case of

² Cohn E., <u>The Economics of Education</u> (Lexington Books D.C. Heath and Company Lexington, Massachusetts Toronto), 1972, pp.77

³ The banks' lending rate on secured loans in Iraq has been extremely consistent over the past fifteen years. The actual rate since 1975 has been practically unchanged at around 6 1/2% per annum; but after adding miscellaneous bank charges, the effective rate is close to 7%.

purchased properties and contractual construction cost in the case of constructed. The estimated opportunity cost of capital for the years 1981/1982 - 1986/87 are given in the Tables A-9 to A-24.

To calculate the opportunity cost of land and buildings of the University of Baghdad, the cumulative inventory of all land and buildings for university during each of the six years has been investigated.

However, it must noted, that since laboratory equipment, motor vehicles, furniture, tools, etc. are not "used up" in the year in which they are acquired, the initial cost of these items must be distributed over the estimated life of the assets. The method used in this study for distributing these expenditures is a straight line method for calculating depreciation. In this method, the initial cost of the assets is distributed according to a constant percentage applied each year. The formula for this calculation is:

 $D = R \times C$

Where D is the prorated cost for each year; R is a constant rate; and C is the initial cost.⁴ In the accounting system in Iraq this method is used to calculate the depreciation cost.

A distinction must also be made between direct and indirect costs. Some costs are incurred by the individual colleges, whereas other costs are incurred by the University's administration office, registration office, dormitory office, and central library on behalf of all the colleges. Such costs are called indirect costs and must be allocated to the various colleges of the University of Baghdad. Obviously, some indirect expenditures benefit some colleges more than others. The costs of the administration office, the registration office and the central library are allocated according to the proportion of students enrolled in each college. The total number and the percentage of students enrolled in each college are given in Table A-7. Thus, for example, the total operating cost of the Administration Office in 1982/83 amounted to ID 1,225,883 (see Table A-2). In accordance with the figures given in Table A-7, the college of Science is allocated 7.71 per cent of this amount (i.e. ID 94,516), the college of Medicine is allocated 6.30 per cent (i.e. ID 77,231), and so forth, (see Table A-26).

⁴ Alternatively, the following formula can be used where the life of assets is estimated:

$$D = \frac{C}{T}$$

Where D is the prorated cost for each year; C is the initial cost; and T is the estimated life of asset.

The costs of the Dormitory office are allocated according to the proportion of dormitory students enrolled in each college. The total number and percentage of dormitory students by college and year are shown in Table A-8. Thus, the indirect boarding and living expenses in 1982/83 amounted to ID 3,438,467 of which 5.03 percent (i.e. ID 172,955) is allocated to the College of Science; 3.62 per cent (i.e. ID 124,473) to College of Medicine and so forth (see Table A-26).

5.4 Cost Per Student

After the indirect operating costs and the indirect opportunity costs of using capital assets have been allocated, the total institutional cost of each college is simply the operating costs (direct costs), opportunity cost of capital assets and indirect costs (indirect operating cost and indirect opportunity cost). The average institutional cost per student in a particular year is the total institutional cost of the college in that year divided by the number of students in the college in that year. For example, the total institutional costs of the College of Science in 1981/82 amounted to ID 2,290,684 (see Table A-31) when the total number of students in the college was 2,632 (see Table A-7). So, the average institutional cost per student was ID 870. The total institutional cost and average institutional cost per student for each of fifteen colleges are shown in the Tables A-31 to A-36. These costs are adjusted to 1987 prices (Table A-38), and the results are summarized in Table 5.5 (p. 140).

The implicit assumption made in calculating the average institutional costs per student is that within the same college students share the college costs equally regardless of their particular specialization or For example, the average institutional cost per student in level. Education program was calculated on the basis of the total student enrolment in the College of Education. However this College consists of two broad categories of subject i.e. (i) social subjects (such as Arabic language, English language, History, Geography, Psychology, Sociology, etc.) and (ii) scientific subjects (such as Physics, Chemistry, Botany, Zoology, etc.) The cost of a student who is studying in the department of science is probably higher than the cost per student studying in the social department because the former uses rather more equipment (such as laboratories, materials and so on). Most Colleges of Baghdad University are in similar situation. For this reason, this approach to calculating the average institutional cost per student is not entirely correct. However, because we lack the information to enable us to determine the cost for the various specialism in each college, this approach has been adopted.

5.5 Cost Per Graduate

From an economic point of view, it is useful to think of educational programmes and institutions as production systems. Production has been defined as " any process or procedure designed to transform a set of input elements into a specified set of output elements".⁵ Any production system, therefore, can be divided into three elements: input, process and output. This is illustrated diagrammatically in Figure (5.1).

	PLANT, MACHINERY,	
MATERIALS	TOOLS ETC.	FINAL PRODUCTS
INPUT	PRODUCTION PROCESS	OUTPUT
LABOUR FACTORY OVERHEAD	OPERATIONS QUALITY CONTROLETC	WORK IN PROCESS WASTE



A university can be thought of as corresponding to the above definition of a production system.⁶ Thus, a university, like any production system acquires raw materials of a specified quality (high school graduates) which are directed through a production process (the College curriculum) in order to produce an output (university graduates). The production process consists of a number of consecutive operations (levels or courses) each requiring a certain minimum time. At each stage the units of production are subject to quality control (examinations). If they meet the quality control standards, they are passed to the next level. If they fail to meet the quality control standards, they are either returned to processing (repeaters) or they are rejected as wastage or "sold" as incomplete goods (dropouts). When a unit of production has passed all the operations of the

⁵ Starr M. K., Hall, 1964, p. 3. <u>Production Management; System and</u> Synthesis, Prentice

⁶ There are at least two models that apply to the functioning of a university: the factory model and the service model. In the factory model the inputs are students and the outputs are graduates, in the service model, the inputs are knowledge and the outputs are processed knowledge. See **Eugene C. Bell** " A College of Business Administration as a production system", Academy of Management Journal, Vol. 17, no.2, (June 1974).

production process, it is "sold" as a finished product (university graduate).

It should be clear that at any time, such a production system has unfinished products at various levels of development. It is quite possible that, during any one year, the volume of resources consumed on production may result in a far greater increase in the inventory of the unfinished goods than in final goods, so that it would be incorrect to divide the total expenditures by the number of units of finished goods which are produced during the period. Such a method can only be justified if the production system is completely uniform and the inventory of work in process (unfinished goods) remains constant (i.e. there is no change in the inventory of work in process at the beginning and at the end of any period).

To calculate the cost of a graduate, two methods will be suggested: the net - value added method, and the cost - per - student - year method. In order to discuss these two methods, a simplified college model is proposed. This hypothetical model is shown in Figure 5.2 (p. 137). This model expresses the flow of students over an eight-year period in a recently created college. In order to illustrate this hypothetical model the following assumptions have been made:⁷

- (a) The college programme consists of four consecutive levels and the minimum period of the study for each level is one year.
- (b) New students are admitted only to the first level just before the beginning of an academic year.
- (c) All students are enrolled on a full-time basis.
- (d) Three kinds of student are distinguished at the end of the year. These are: (i) students who meet the college requirement and who pass to the next level,(ii) students who do not meet the college requirements and who need to repeat the same level in the next year (repeaters) or (iii) those who are required to withdraw from the college (dropouts).
- (e) All students are required to withdraw from the college if they fail (i) two consecutive years or (ii) more than two-thirds of subjects in any level of college, or (iii) for breaking the rules of the university and so on. In addition, students might leave the college freely for various reasons. However, all dropouts are assumed to leave the College at the end of an academic year.

In Figure 5.2^8 it is seen that at the beginning of the first year, the

⁷ All these assumptions from item (a) to item (e) are derived from the university education system in Iraq.

⁸ Abu Al-Abbas, A and Dr. AL-Ravi, M., The Dropout in the primary level in Iraq, Educational and Psychological Research Center, University of (Footnote continued)

total student enrolment is 250 students all of whom are in the level (1). By the end of the first year, 210 students are transferred to level (2), 30 students need to repeat level (1) and 10 students are required to withdraw from the college. At the beginning of the second year, therefore, there are 510 students, of whom 210 students are in level (2) having transferred from level 1, and 300 enter level (1), of whom 30 are repeaters and 270 are new admissions. The stream of students can be followed during the whole of the eight-year period of this model⁹

To calculate the costs of the hypothetical college in this model, and for the sake of clarity of presentation, the following simplifying assumptions have been made: $^{10}\,$

- (a) There are no capital costs.
- (b) Total cost is made up entirely of variable cost which is assumed to be a linear function of the total student enrolment.
- (c) The average total cost per student, at any level, is assumed to be ID 250 per year, for all years. The total cost of the college in this model in accordance with the above assumptions is calculated for each year of the eight years. 11 The results are shown in Table 5.6 (p. 141).

5.5.1 The Net-Value-Added Method

In order to satisfy the graduation requirement of this hypothetical college, a student needs to complete successfully the four educational levels, each of which needs a minimum of one year. So, it is impossible for any student to graduate in less than four years, but it is possible that a student might need five or more years to graduate. All graduates must have successfully completed the four educational levels, but not necessarily in consecutive years. Therefore, if we are able to calculate the average cost of a successfully completed level, we should be able to estimate the average cost of a graduate. From the data on the flow of

⁸(continued) Baghdad, Al-Huriha press, 1972, p. 63.

⁹ ⁹ To illustrate the methods of calculation the cost of student and cost of college graduation, all numbers in the figure 5.2 are assumed arbitrary.

 $^{^{10}}$ Although these assumptions on costs are not realistic, the conceptual basis of the discussion to follow is not affected.

 $^{^{11}\,}$ In real situations, of course, the average cost is derived from the total cost, and not vice versa.

students through the hypothetical system given in Figure 5.2, we can make a schedule of students who have completed levels at the beginning and end of each year. It is to be noted that for students in the first level, the number of completed levels (CL) is zero since such students have not completed any level yet; for students in the second, third and fourth levels, CL equals 1, 2 and 3 respectively; whereas for graduating students, CL equals 4. The number of students (inventory) who have completed levels at the beginning and the end of each of the eight years are shown in Table 5.7 (p. 142).¹²

To illustrate, take year 7 as an example. At the beginning of this year the number of students in the successive levels is 775, 618, 450 and 370 respectively. So the inventory of completed levels is :

(775x0) + (618x1) + (450x2) + (370x3) = 2628

Similarly, at the end of year 7, the inventory of completed levels is:

(90x0) + (700x1) + (585x2) + (460x3) + (250x4) = 4250

Thus the net increase in inventory during this year is:

4250 - 2628 = 1622

It must be noted that at the beginning of the following year the number of previous graduates has been eliminated from the inventory calculations. This is of course proper since graduates have completed the "production process".

Once the increase in the inventory of completed levels during each year has been calculated, the average cost per student who has completed each level is simply the total cost divided by the increase in completed levels as shown in Table 5.8 (p. 143). From the data in this table and from Figure 5.2, the average cost per graduate can now be estimated in a number of ways. The simplest approach is to multiply the average cost per completed level for the entireperiod (ID 342.71) by number of completed

12 In some sense this is identical to assigning discreet weights to students at the various educational levels where the weights represent the number of completed levels. Thus the inventory of completed levels may be calculated by the following formula:

Inventory of
$$CL = \sum_{i=1}^{n+1} S_i \times CL_i$$

Where CL = number of Complete levels $CL_i = (i-1)$; S = number of students; i = the educational level of the student; n = levels of required for graduation (i.e. n = 4).

<u>. Et .</u>

±16

levels required for graduation (4). This would result in an average cost per graduate of (ID 1370.86). The accuracy of this Table 5.8 (p. 143) estimate may be easily checked. Total costs incurred by the college during the eight-year period (ID 2,657,750) must equal the cost of all graduates (final products) plus the cost of the increase in the inventory of completed levels (inventory in process or unfinished goods) during this period. When the beginning inventory of completed levels in this hypothetical case (Figure 5.2) is zero, the increase in inventory during this period is equivalent to the inventory at the end of year 8 (or at the beginning of year 9) which is equal to (3615) see Table 5.7 (p. 142). Therefore, the cost of the increase in the inventory of completed level is equal to (3615 x ID 342.7143) = ID 1,238,912. On other hand, the total number of graduates during this period is (1035), and their cost is (1035 x ID 1370.86) = ID 1,418,838. The total cost of the two items in the above is:

ID 1,238,912 + ID 1,418,838 = ID 2,657,750 which corresponds to the estimated total cost figure in Table 5.6 (p. 141).

In calculating the average cost per graduate, it is not necessary, however, to consider the data over the whole eight-year period¹³. Indeed to do so would be a disadvantage as the calculated cost per graduate would be the same for all years, and thus it would not be possible to discover the existence of a trend in these costs. Therefore in using the net - value - added method, it is preferable to estimate the average cost per graduate in any one year on the basis of the sum of the average cost per completed level over the previous four years.¹⁴ These calculations for each year's graduates of the hypothetical college model are shown in the Table 5.9 (p. 144). The net-value-added method makes an implicit, and controversial assumption. This assumption is that the dropouts are a total waste - a useless but unavoidable by-product of higher education. Thus the cost of the finished output of higher education (i.e. the cost of college graduates) must include the cost of dropouts. If it could be proved that the economic value of college dropouts is equal to the economic value of high school graduates having no college training whatever, the resources

¹⁴ This is represented by the following formula:

AC/graduate in year $y = \sum_{v=n+1}^{y} (AC/CL)_{v}$

Where, y = year of graduation; n = number of levels required for graduation

¹³ In actual cases, a college may have been operating for long time. To consider data over its whole operating life would not only be difficult, but also it would often be impossible because of the lack of data expect the more recent years. On the other hand, even if reliable historical statistics are available, it could be misleading to incorporate the early data in calculation of current and recent estimates because of the probable changes in the quality of education over the long run.

spent on dropouts during their college years must be considered as a necessary and integral part of the cost of graduates,¹⁵ in much the same way as heat losses are considered as an inherent cost in the production of electricity, or as the net cost of defective steel bars recycled with iron ore in a steel mill is an inherent cost in the production of steel.

However college dropouts may be economically more productive than high school graduates with no college training.¹⁶ If so, then cost-benefit analysis of higher education may be pursued in two ways. The first possibility is to separate (mathematically) the cost of graduates from the cost of dropouts, and treat the graduates and dropouts as though they were independent products of the educational system each with its own costs and benefits. The second possibility is to consider the cost of graduates inclusive of the cost of dropouts, and then proceed by including the benefits of the dropouts as a completed part of the benefits of the graduates. In other words, graduates and dropouts are to be considered as joint products and their costs are the total costs of the system, whereas the benefits refer to the value of the entire output.

In the example of the production of electricity, if through some amazing advancement in heat transfer technology, it became possible to get back the heat losses in a power plant and sell them to a neighbouring thermal plant, then the benefits derived by the power plant would not be limited to the value of the primary output (electricity), but they would also include the value of the by-product¹⁷ (recuperated heat losses). In the situation of education, however, the benefits relate to human beings, and therefore cannot be transferred from one entity to another by artificial accounting entries. Consequently even if the benefits of graduates and dropouts are known, cost-benefit analysis carried out on this basis can only be meaningful from a total social point of view, for in the private calculus there is no way that the individual graduates could be made to bear the costs, or get the benefits of the dropouts.

College dropouts are a necessary by-product of the educational production system. It is impossible to produce college graduates without concurrently producing a certain proportion of college dropouts. From a

1.5%

¹⁵ Metcalf D., "The rate of return to investing in a doctorate: A case study", <u>Scottish Journal of Political</u> <u>Economy</u>, Vol. 20, no. 1, (February 1973), pp. 48-50.

¹⁶See Becker, <u>Human Capital</u>, 1964, pp 91.

¹⁷ The term by-product is generally used by businessmen and accountants to denote one or more products of relatively small value that are produced simultaneously with a product of greater value. The product with the greater value, commonly called the "main product" is usually produced in greater quantities than by-products. See Matiz A., O. J. Carry and G. W. Frank, <u>Cost Accounting</u>, South-Western Publishing Co., Ohio, 1967, p 443.

production point of view, therefore, college graduates and college dropouts may be considered as joint products each of which accounts for a certain percentage of the total cost of the system.¹⁸ However, if data on the benefits derived from the production of dropouts are not available and therefore cannot be included in the social cost-benefit calculus of higher education, then it would be incorrect to rely on the cost per graduate estimates obtained by the net - value - added - method in its present form as this would mean that dropouts would be included in the cost side of the equation but excluded from the benefit side. In such circumstances, therefore it would seem best to disregard altogether the effect of dropouts on both the costs as well as the benefits of higher education. We would then need an alternative method for estimating the cost per graduate exclusive of the cost of dropouts.

5.5.2 The Cost-Per-Student-Year Method

It is possible to think of the output of the education system as those students who have left the system (graduates and dropouts) and those who are still in the college. It is also possible to think of an ideal college model in which students never fail. In the latter case the student requires four years to graduate (in a four-level college). Also, a student who drops out, say at the end of the third level, must have spent three years in college; whereas a current student beginning his fourth level must have spent exactly three college years, and so forth.

The hypothetical college model of Figure 5.2 may be conceptually idealized on the above lines by assuming - temporarily - that the repeaters are simply another kind of output. Thus, there would be four conceptual college outputs, namely: graduates, repeaters, dropouts, and current students. Based on the same simplifying assumptions made at the beginning of section 5.5 (pp. 117-118), the number of student-years "used up" by each of these conceptually distinct outputs may be calculated for each of the eight years of the hypothetical model. The results (see Table 5.10, p. 145) show that over the entire period, the numbers of student-years used up by repeaters, dropouts, current students, and graduates are: 1391, 1485, 3615 and 4140 respectively.¹⁹ Since it is also assumed that the average

¹⁸ For an economic analysis of the costs of joint products produced in fixed and variable proportions, see Eugene F. Brigham and James L. Pappas, Managerial Economics, (London, Holt, Rinehart and Winston, 1974), pp. 304-309.

¹⁹ it is to be noted that the number of student-years used up by repeater, dropouts, or graduates (i.e. by the conceptual outputs which have left the (Footnote continued)

cost per student-year is ID 250 for all years, then the total costs are: ID 347,750, ID 371,250, ID 903750, and ID 1,035,000 respectively which amount to ID 2,657,750 which is total cost of the college system over the whole eight - year period (see Table 5.6, p. 141).

In this idealized model, the average cost per graduate is equal to the average cost per student-year summed up over the previous four years (in the hypothetical case at hand, it would be: 4 x ID 250 = ID 1000 in view of the assumption of constant cost per student-year. In the actual hypothetical model, the real outputs are graduates, dropouts, and current students. Repeaters are in fact artificial outputs as they are really part of the three real outputs, so that the cost of the repeaters has to be allocated to the 'real' outputs. If we assume that the whole cost of repeaters is allocated to the graduates alone (this assumption is arbitrary), the maximum possible cost per graduate would be:

(ID 347750 + ID 1035000) + 1035 = ID 1336

Acordingly, the average cost per graduate must lie somewhere between a minimum of ID 1000 and a maximum ID 1336.

Allocation of the entire cost of repeaters to the graduates alone is not realistic, as the dropouts and current students have not been repeaters at all. A more practical approach (when no other data are available) is to allocate the cost of repeaters in proportion to the cost of student - years consumed by each of them. Thus the cost of the real outputs in the idealized case is:

ID 371,250 + ID 903,750 + ID 1,035,000 = ID 2,310,000

The part of the cost of repeaters allocated to the graduates would be:

ID 1,035,000 ID 347750 x - = ID 155810; and the total cost of ID 2,310,000

graduates would be the ideal cost plus the allocated cost of repeaters, that is (ID 1,035,000 + ID 155,810 = ID 1190810). therefore the average cost per graduate would be:

ID 1,190,810 ÷ 1035 = ID 1150.54

¹⁹(continued)

system) is the sum of these data for each year over the entire period under consideration; whereas the number of student-years used up by current students is the difference between the data at the beginning and end of the period.

In the same way the total cost of other real outputs, can be calculated. Table 5.11 (p. 146) shows these results.

In accordance with the previous method, the cost of dropouts is allocated to the remaining two outputs (graduates and current students). Therefore, the average cost per graduate (inclusive of the allocation of repeaters and dropouts) is ID 1370.86 (see Table 5.12, p. 146). Calculating the average cost per graduate by this approach, is somewhat arbitrary, but this way may be reasonable when no other data are available. However, if detailed data on individual graduates are available, then it is possible to allocate the cost of repeaters more accurately. For example, the number of graduates in year 8 (see Figure 5.2) is 375, of whom 240 had graduated in four years, 100 in five years, 25 in six years, and 10 in seven years. Therefore the cost of these graduates may be calculated on the basis of the cost of student-years actually consumed by them.

Thus the cost of a graduate who consumed four years is the cost per student-year summed up over the previous four years, whereas the cost of a graduate spending five years to graduate is the cost per-student-year summed up over the previous five years, and so forth. In this hypothetical model, the cost per student-year is assumed to ID 250 for all years, then the total cost of graduates in year 7 is ID 250 times the total number of student-years spent by these graduates, i.e.:

ID 250[(240x4) + (110x5) + (25x6) + (10x7)] = ID 420,000

Then the average cost per graduate is:

ID $420,000 \div 375 = ID 1,120$

The result above is not only less arbitrary than that arrived at in Tables 5.11 and 5.12 (p. 146), i.e. ID 1150.54 and ID 1370.86 respectively, but also provides an indication of the trend in the average cost per graduate over time.

Although both methods rely essentially on the same raw data, the important distinction between them is in the underlying assumption about the treatment of the cost of dropouts. Whichever method is to be employed in educational cost analysis, it is important that this assumption is explicitly stated. The view expressed in this thesis is that there is no logical basis for including the cost of college dropouts in the social cost-benefit calculus of higher education, while simultaneously excluding their benefits, as such an approach would imply that college dropouts with one or more years of college training are "economically" no more valuable than secondary school graduates with no college training at all. However, neither intuition nor the meagre empirical evidence available corroborates such a view. Therefore, to estimate the average cost per graduate in this thesis, the actual calculus will be based on the cost - per - student - year method.

5.6 Cost Per Gra duate - The Actual Calculus

In order to calculate the cost per graduate (based on the cost-per-student-year method) for each of the fifteen colleges of Baghdad University, two essential sets of data are needed: first, the cost - per student - year data, and secondly, the number of years in which the graduates were actually enrolled as students in the respective colleges. The cost - per - student - year data for each college were calculated in the previous section (see p. 115) for the years 1981/82 to 1986/87. However, the data for the number of student-years actually required before graduation by the students of the respective colleges are not readily available, so had to be compiled from individual graduates' personal files at the Registration Office of each college of the university. This data is summarized for the graduates of each college in Tables A-39 to A-53. Thus, for example, there were 669 Engineering graduates in 1982/83 (see Table A-40), of whom 2 were first admitted to the college in 1975/76 (i.e. graduated in eight years), 6 were first admitted in 1976/77 (i.e. graduated in seven years), 29 were admitted in 1977/78 (i.e. graduated in six years), 109 were admitted in 1978/79 (i.e. graduated in five years), and 523 were admitted in 1979/80 (i.e. graduated in four years).

Accordingly, the total cost of each year's graduates was calculated for each college as shown in Tables A-54 to A-68. The average institutional cost per graduate for each of years 1981/82 to 1986/87 as well as the weighted average cost per graduate for these years is summarized in Table A-69. In Table A-69, some differences can be seen in the average cost per graduate of various the colleges. The average cost of the Veterinary Medicine program graduate is (ID 8,505) which is about 2 times the average cost of both the Science program graduates (ID 4,492), the Engineering program graduates (ID 4,280), and the Pharmacy program graduates (4,366); more than 2.5 times the Law and Politics graduates (3,332), Physical Education (ID 3,234) and Fine Arts Graduates (ID 3,404); about 4.8 times the average cost of Administration and Economics program graduates (1770); more than 3 times the average cost of the programs of: Arts (ID 2,548), Education (ID 2,422), and Alsharia (ID 2,492). In fact it is even higher than that of the Medicine program graduates (ID 8,434) despite the fact that the latter undergo a six-year program compared with a five-year program in the College of Veterinary Medicine. Generally, it is seen that the trend in the cost of all colleges is declining.

In concluding this section, it should be recalled that the average cost

of the graduates of the respective colleges arrived at in Table A-69 refer to the institutional costs of producing these graduates. In other words, these costs represent the average cost per graduate from the point of view of respective colleges, and not from the point of view of the individual graduate himself or from the point of view of society at large. These results, indeed have no direct bearing at all on the private cost of higher education. Furthermore, the institutional costs calculated in this section must be adjusted by deducting all direct and indirect taxes and all transfer payments before they can be incorporated into social costs of higher education.

5.7 The Private Cost

The private cost of higher education, generally consists of three cost elements incurred by the individual student himself (or by his family), namely: (1) tuition and other college fees; (2) opportunity costs or income foregone (3) incidental college - related costs such the cost of books and supplies.²⁰ However, Sheehan states: " Of course public policy plays an important part in determining such outlays, and in certain circumstances with full provision of tuition, books, transport, etc. to pupils the direct cost could be zero."²¹ The private cost of higher education in Iraq is equivalent to the opportunity costs incurred by the students because there are no tuition costs. Also, most books and related educational materials are supplied (or loaned) by the university to students free of charge. In other words, the private cost of higher education in Iraq is tantamount to the stream of income foregone by the college student which he could have earned as a high school graduate had he not chosen to pursue a college education.

It must be emphasized that the opportunity cost to the individual college graduate is not only the foregone earning stream during his college years, but rather it is the foregone earning (equal to that of a high school graduate) over his entire life. For in choosing to pursue a college education, an individual is, in effect, losing the life-time earning stream of a high school graduate in return for a life-time income stream of a college graduate beginning some years later. Therefore, in estimating the private costs and benefits of higher education, the problem can be viewed

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²⁰ Hansen, W. Lee "Total and Private Rate of Return to Investment in Schooling", Journal of Political Economy, Vol.71, No.2, 1963; reprinted as "Rate of Return to Investment in Schooling in United State" in M. Blaug, Economics of Education, Vol.1, (Penguin Book Ltd.), 1968, P.141.

²¹ Sheehan J., <u>The Economic of Education</u> (George Allen and Unwin Ltd., Printed in Great Britain), 1973, P.35.

as a choice between two mutually exclusive alternatives where the total benefits of one alternative are merely the opportunity costs of the other.

In the vast majority of the literature on this topic, however, the opportunity cost of undertaking higher education is defined as the foregone earnings of the college student during his college years. Thus, for example, Hansen states: "...at age eighteen the opportunity cost for the person undertaking four years of college is the income that the high-school graduate would obtain from ages eighteen to twenty-one".²² However such a conceptually erroneous definition of the opportunity cost of college education, is "rectified" in the subsequent rate of return analysis in which the income streams of college graduates are taken not on the basis of their actual income, but rather on the basis of the income differentials between college and high school graduates of the same age.²³

5.8 The Foregone Earning Data

In educational cost-benefit analysis, the data on foregone earnings are usually obtained directly from the age-earnings profiles. In most advanced countries, the basic sources of such data are the national "Census of Population" reports which often provide income distributions by age and level of schooling. However, as is often the case in empirical studies, the available data are not quite in the form ideally suited for the research. Thus, in most age-earnings profiles used in such studies, the earnings refer to total income and therefore reflect not only the earnings attributed to educational achievement, but also receipts from other assets such as physical capital and inherited wealth. This can have a distorting effect on the true rate of return to educational investments. This issue can be especially problematic in developing countries where the type and level of educational achievement is influenced – at least to some extentby the social or economic background of the individual.

Also, in most census reports the income patterns of individuals with various educational attainments are usually reported according to age. However, for the purposes of appraising educational investments, it would seem more relevant to compare the earnings of individuals according to number of years since completion of the last educational level rather than according to age. In most countries – and certainly in Iraq – the former criterion is far more instrumental in influencing salary scales. However,

²² Hansen W. Lee, "Total and Private Rate of Return to Investment in Schooling", Journal of Political Economy, Vol. 71, No. 2, 1963, pp. 130-131

²³ Blaug Mark, An Introduction to The Economics of Education, (The Penguin press, 1970), p.46.

the correlation between these two criteria is probably very high (due to age restrictions in high school and college admission policies), and therefore the use of the age criterion should not cause an appreciable bias. Indeed in many such studies, the number of years since completing the various educational levels is derived from the respective age-earning profiles by assuming an average age of completion for each level of schooling.²⁴

In Iraq none of annual census reports has ever published data on age-earnings profiles for any type or level of education. However in 1972 the Central Statistical Organization of the Iraqi Ministry of Planning conducted a national survey which covered the vast majority of government and public sector employees in Iraq.²⁵ The survey included a total of 595,200 employees in the public sector of whom 40,069 were college graduates (with a bachelor's degree only) and 76,797 were high school graduates.²⁶ Based on this survey, a data bank was instituted. The data include a comprehensive list of employees' characteristics and particulars from which a series of tables have been constructed and published in two volumes.²⁷ Unfortunately, none of the published data include age - earnings profiles for any type or level of education, but the staff of the Central Statistical Organization (CSO) Computer Center have prepared earnings profiles using the data for the survey of public employees. Because these data were obtained in 1972, they have been adjusted for salary increases between 1974 – 1987.²⁸

The adjusted earning profiles are shown in Tables B-1 to B-7.

 26 The following statistics on the labour forces in Iraq in 1972 were derived from this survey :

Total labour force	2,858,000
Total unemployed	181,400
Employed labour force	2,676,600
Agricultural employment	1,486,200
Non-Agricultural employment	1,190,400
Public sector employment	595,200

The above data on the Iraqi labour force (except the last) were estimated by the United Nations manpower expert, Nils Storm. See Republic of Iraq, Statistical Abstracts, 1973, op. cit., p.358.

²⁴ For example, Hansen states: "In order to make the task of estimating the rates of return more manageable, the age-income profiles were assumed to commence at the 'average' age of completion of each level of schooling". In a footnote Hansen add : "this is an oversimplification, but it did not seem worthwhile to deal with this in a more detailed fashion". See Hansen, op. cit., p. 127.

 $^{^{25}}$ All members of the armed forces as well as all cabinet Ministers and members of the Revolutionary Command Council were excluded from the survey.

5.9 The Earnings Profiles

There is no data published on the incomes of private sector workers according to the educational level and age, and so the salaries of secondary school graduates and college graduates working in the public sector are used in this thesis. The annual gross salaries of secondary school graduates employed in the public sector in Iraq and covering a forty- year period since graduation are shown in Table B-1, while Tables B-2 to B-7 represent the annual gross salaries of graduates of the colleges. These are grouped into six categories (according to the amount of a graduates' salary), because some of colleges are similar in number of programme levels, and average salary (before auxiliary income). These groups are: (1) Science and Nursing; (2) Medicine; (3) Engineering; (4) Pharmacy, Dentistry, and Veterinary Medicine; (5) Agriculture; and (6) Administration and Economics, Law and Politics, Arts, Education, Physical Education, Fine Arts and Alsharia²⁹ It is to be noted that these earnings profiles are not generated according to age,³⁰ but rather according to the number of years since high school or college graduation, as the case may $\frac{31}{1000}$ Thus, in Table B-1, for example, it is seen that there were 1708 ²⁷ Republic of Iraq, Ministry of Planning, Survey of Public employees, in Arabic, (Baghdad, 1973), Vols. I and II.

²⁸ Three increases were effected in the salaries and wages of the officials and workers in the public sector in Iraq. The first was on February 8, 1974, the eleventh anniversary of February 8, 1963 Revolution. Salaries were raised by ID 120 per year, according to the republic of Iraq Revolutionary Command Council Resolution No. 95 on February 7, 1974; the second was in 1979, on eleventh anniversary of the July 17-30, 1968 Revolution, effecting certain increases of ID 210 per year. It was according to the Republic of Iraq Revolutionary Command Council Resolution No. 1044 on August 11, 1979. The last increase was in 1980, on the twelfth anniversary of the July 17-30, 1968 Revolution bringing an increase ID 240 per year to all those working in the public sector according to the Iraq Revolutionary Command council resolution No. 1118 on July 14, 1980. The summary of all increases through the period 1974 - 1980 were ID 570 per year.

 29 Gross salaries are for the 1972 financial year; they are calculated on basis of twelve times the gross (public sector) salaries during the month of 1972; the latter adjusted for pay increases through the period 1974 – 1980 (see footnote 28, p. 129).

 30 In order to transform these results to age-earning profiles, the "average" age of completion of each type of education must be added to the data in the first of these tables; refer to footnote 24 on p. 128.

³¹ In creating these earnings profiles for high school and college graduates, any employees whose date of first employment in the public sector preceded the date of their graduation were excluded from the sample. This condition was introduced in order to eliminate the upward bias on average earnings that would result from including graduates whose earnings (Footnote continued)

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employees who had graduated from high school within one year. The total gross annual salaries of these employees amounted to ID 686,844, and accordingly, the average gross salary was ID 402.1. The latter average earnings figure is adjusted for the government increase (ID 570) to become ID 972.1 32 (see Table B-1).

All of the earnings data in these tables refer to employment-related earnings in the public sector. They exclude all income from private capital as well as all auxiliary income derived from private professional practice or from part-time employment in the private sector. The grounds for excluding income derived from private capital were explained earlier (see chapter 4 section 3 and page 117). However, there are no grounds for excluding auxiliary income derived from private sector employment or from private practice, as such income is directly related to the type and level of the educational attainment of the individual. Indeed in the case of the graduates of some colleges, their auxiliary income from private practice can be as high as their income from public sector employment. Auxiliary income will be discussed and estimated in the next chapter.

However, the auxiliary income of high school graduates, from the private sector is assumed to be nil, for on the one hand their educational qualifications are not sufficiently specialized as to yield them any income from "professional" private practice, while on the other hand, the private sector demand for part-time employment of high school graduates is negligible. In any case, the law in Iraq prohibits high school graduates who are employed in the public sector from taking any part-time employment in the private sector.

Therefore, the private cost of any type of higher education in Iraq is tantamount to the life-time stream of income foregone by the college graduate which he could have earned as a high school graduate if he had not chosen to pursue a college education. Thus, the earning profiles of secondary school graduates (Table B-1) form the basis for calculating the private (i.e. opportunity) cost of university education in Iraq.

Earnings profiles represent gross earnings (i.e. earnings before deduction of income tax). They must be adjusted to net earnings in order to reflect the net opportunity cost to college graduates. 33

³¹(continued)

(continued) reflect not only their educational attainment but also previous practical experience and training prior to graduation. Because of this condition, the size of secondary school graduates sample in Table B-1 is 65,675 whereas the size of sample in the national survey is 76,797 (see p. 128)

³² See footnote no. 28, p. 129.

³³ In order to calculate the private returns to higher education, the net opportunity costs must be used; whereas to calculate the social returns to (Footnote continued)

In Iraq, all earnings, including those of employees who were working in public sector, were taxable according to income tax law no. 44, 1968, but at the end of 1974 this law was cancelled by the government. Accordingly, all public sector employees salaries became tax free. therefore, the private costs of higher education in Iraq are equivalent to the gross earnings of high school graduates. It is these data that comprise the private costs of higher education in Iraq.

5.10 The Social Cost

Social costs, differ from private and institutional costs in two essential ways: in scope and in evaluation. The scope of social costs includes all costs incurred by the individual , by the State, and every member of society. Thus the social costs of higher education consist of educational costs incurred by students (both direct costs and indirect costs i.e. opportunity costs), educational costs incurred by the university (institutional costs) and the costs incurred by the rest of the community (spillover or third-party costs). In the case of higher education, however, it is generally agreed that the relative importance of the third-party costs is small and may therefore be ignored. The second difference relates to the question of who should evaluate resources and on what basis. $^{35}\,$ If it is assumed that the price system does reflect the relative scarcities of resources, then this issue ceases to be relevant, at least to a large extent, since individuals and firms "seeking to maximize private gains by making the best allocation of resources according to private valuations will also be allocating to social valuation". However, in view of some imperfections in the labour market, which was discussed in chapter 4 (pp. 98-101), 37 the social opportunity costs of resources are, in the present thesis, assumed to be equal to their private opportunity cost- after adjustments for taxes and transfer payment are

³³(continued)

(continued) higher education, the gross opportunity costs must be used. In the social rate of return, all costs and benefits must be taken on a before-tax basis, since taxes are neither social costs nor social benefits; they are only transfer payments from one sector of the community to another.

 34 In fact the gross earnings profiles of high school graduates arrived at in Table B-1 require adjustments for factors such as mortality rates, unemployment rates, and the "ability" or alpha coefficient. These factors will be discussed in the following chapter.

³⁵ Lispey, R. G. and Peter O. S, Economics, (2nd), (ed.), New York: Harpar and Row, 1969, p. 219.

³⁶ Ibid. p. 220.

the sole
made. This assumption has been made in nearly all educational cost-benefit analyses. Indeed to reject such an assumption would entail a rejection of all conventional economic analysis based on the market price system.

Accepting this assumption does not imply that the social cost of resources is necessarily identical to the market price. For "hidden" in the market price are all the direct and indirect taxes; and whereas from the individual's or firm's point of view taxes do represent real costs, from the point of view of society at large taxes are merely transfer payments from one section of the community to another.³⁸ Though such transfer payments do alter the distribution of income in society,³⁹ they do not in themselves constitute social costs nor social benefits-in the sense that they neither increase nor decrease the aggregate wealth of society.

In evaluating the social costs of higher education in this thesis, therefore, the procedure to consider the total private and institutional costs i.e., the total resource costs-taken on a before tax basis. 40

With regard to the private costs, the earning streams of high school graduates were originally obtained on a before tax basis (see Table B-1), and therefore they can be incorporated into the social costs without any adjustment. The institutional costs calculated in this chapter, however, include a variety of taxes and transfer payments. To "transform" the institutional costs into social costs, all taxes and transfer payments have to be deducted. Clearly, it would be a near impossible task to try to extricate all the direct and indirect taxes from the complex web of the constituent elements of the institutional cost. In the present study, therefore, these deductions will be limited to the following four major items: (1) customs duty on equipment and laboratory equipment; (2) customs duty on vehicles; (3) taxes on the capital cost of building; and (4) the "pure" subsidy component of payments to students for boarding and living allowances.

³⁷ Such as the momentum of custom and traditional in determining wage rates, the power of trade unions and professional associations, obstacles to geographical mobility of the labour force, and many others.

³⁸ Alfered W. Stonier and Douglas C. Hague, <u>A Textbook of Economic Theory</u>, (London: Langman Group, 1972), pp.440-441.

³⁹ For a brief discussion on whether transfer payments constitute a force for increasing the equality of income distribution, see Lipsey and Steiner op.cit., pp. 462-463.

⁴⁰ Blaug, An introduction ..., op.cit., pp. 175-176.

5.10.1 Customs Duty on Equipment

Customs duty is a tax on imported goods and as such it is a transfer item which must be eliminated from the calculation of social cost. Although customs duty varies according to the type of imported good, for the purposes of this study it was estimated at 25% of the invoice price (i.e. at 20% of book value of all laboratory equipment and other equipment). This figure was arrived at on the basis of the actual customs paid as a percentage of total cost of equipment imported by all the colleges at the University of Baghdad and by the University itself, over the six-year period from 1981/82 to 1986/87.⁴¹ The customs duty on equipment which was imported by the University of Baghdad for use in the services offices (Administration Office, Dormitory Office, and Library Central) was allocated in the same way as that used to allocate the indirect costs.⁴² The customs duty on this item is calculated for each college as set out in Tables A-70 to A-75.

5.10.2 Customs duty on Vehicles

This is a tax on imported vehicles and it represents a transfer item which must be deducted in order to arrive at social costs. Customs duty on vehicles also varies according to the type, model and producer country. For the purpose of this thesis, it was estimated as 100% of the purchase price (equivalent to 50% of the book value - including customs duty). In order to calculate customs duty on vehicles, the same basis in 5.10.1 above is applied. the results are shown in Table A-77.

5.10.3 The Tax Component of the Capital Cost of Building

The value of buildings at the University of Baghdad was evaluated on

⁴¹ The total cost of equipment imported each year by college of science, for example, during the period from 1981/82 to 1986/87 was ID 506,657; ID 205,603; ID 62,122; ID 48,052; ID 153,041; and ID 20,910 respectively (these import whether are financed by Budget of Baghdad University or by Five-Year Plan budget). The customs duty are calculated on basis 20% of initial cost (ID 101,331, ID 41,121, ID 12,424, ID 30608, and ID 4,182 respectively. See Tables A-70 to A-75.

 $^{^{42}}$ To allocate the customs duty an equipment of the services office, the number of students is used as a basis to allocate the customs on equipment of Administration Office and Library Central (see Table A-7), whereas the number of dormitory students is used to allocate the customs on equipment of Dormitory Office (see Table A-8)

the basis of the actual cost (historical cost) of purchase or construction. An important portion of construction costs in Iraq, however, represents taxes and particularly customs duty on imported construction materials. Although no data are available on the magnitude of the "tax component" in such costs, it is estimated that, on average, taxes account for 5% of the capital cost of buildings. ⁴³ Accordingly, the estimated cost of buildings excludes the "tax component" from the social cost. The results are shown in Table A-76.

5.10.4 The "Pure" Subsidy Component of the S tudents' Boarding And Living Allowances.

In the system of higher education in Iraq, the university supplies out-of-town students with an allowance for room and board. These subsidies cover the costs of accommodation and expenditures on food. From the viewpoint of the university as an institution, all such payments - whether pecuniary or otherwise - represent costs. From the social point of view, however, these subsidies resemble grants paid by the university to certain students and as such, it can argued, they constitute transfer payments which must not be included the social cost of higher education.

These subsidies are not entirely transfers of resources from one section of community to another, but at least partially they constitute social costs. To illustrate what is really happening, let us say a student living at home costs his family ID200 per year, of which say 40% goes for food consumption while the remaining 60% represents the cost of accommodation. If such a student were to be offered free accommodation and board at the university, how would this affect his family's household expenditures? It would seem that in so far as expenditures on accommodation are a fixed cost, the family would continue to bear this cost even when the student is being provided with free accommodation at college.⁴⁴ On other hand, the family's household budget would be relieved of the student's food consumption expenditures which are - almost entirely - a variable cost. Thus from a social point of view, the pure subsidy portion of the allowance provided by the university to the student is equivalent to the income "saved" by the student or his family, i.e., the 40% cost of food; the remaining 60% must be considered a social cost for it

43 This figure was estimated by Dr. Abbas Al-khafaji, Professor of Civil Engineering at the University of Mosul.

⁴⁴ For it is hardly likely that the student's family would be willing, or indeed able, to shift its scale of operation - such as moving to a smaller house - during the period in which the student is away at university.

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represents not alternative, but rather a net additional input of resources.

In Table A-78, the pure subsidy component of the students' boarding and living allowances was estimated on this basis as 55% of such allowances. Although this percentage cannot be more than a rough approximation, it is neither arbitrary nor altogether intuitive, for it is based on the results of the 1972 survey of the Household Budget and Living Conditions in Iraq-the only officially conducted survey on household expenditures in Iraq to date.⁴⁵ The institutional costs can now be converted to their equivalent social costs by deducting all taxes and transfer payment from them, as set forth in the Table A-86 to A-91. These costs will be referred to as the social institutional costs of higher education which include the private costs as well. The social costs per student (see Table A-92) as derived to each year, and are adjusted for 1987 prices.

Finally, the social institutional costs per graduate for all fifteen colleges are calculated based on the cost-per- student-year method following the procedure outlined earlier in this chapter. The results are set forth in Tables A-93 to A-107, and are summarized in Table A-108. A comparison between the institutional cost per graduate and social institutional cost per graduate for each college at the University of Baghdad is provided in Table 5.13 (p. 147).

Finally, the total social cost per graduate is simply can be obtained by adding the private costs (earnings foregone) per graduate to social institutional costs per graduate. The results are summarized in Table 5.14 (p. 148). It shows that total social costs per graduate for Medicine is the highest among university subjects while the Administration and Economics subject is the lowest. The total social costs of Medicine graduate is more than 100 per cent higher than the social costs of graduate of Law and politics, Arts, Education, Physical Education, Fine Arts; about 100 per cent higher than Alsharia; about 74 percent higher than the social cost of the Science and Engineering graduates; about 150 per cent higher than the social cost of Administration and Economics graduates; more than 55 per cent higher than the social costs of The Pharmacy graduates; more than 45 per cent higher than Agriculture graduates; and about 9 per cent, 18 per cent and 32 per cent higher than the social costs of Veterinary Medicine, Dentistry, and Nursing Graduates respectively.

5.11 Summary

The total costs of higher education differ according to the frame of

⁴⁵ The results of this survey show the mean household expenditure on food accounted for 47.5% of total household budget among urban families (63.6% among rural families; and 53.0% among urban and rural families). See **Republic of Iraq, Statistical Abstracts**, 1973, op. cit., p. 558 and Table 384.

reference from which they are viewed. Where tuition is entirely free, and where other education-related expenses are negligible, the costs of higher education to the private individual amount simply to the stream of net (after tax) earnings foregone. In Iraq, this is equivalent to the gross earnings streams of high school graduates because no income tax is levied on employees' salaries.

The institutional costs of higher education are the costs incurred by colleges in providing the educational services. These costs comprise the operating expenses and opportunity costs of capital assets used in the educational production process.

The social costs of higher education are the costs incurred by society at large. They include the private and institutional costs as well as costs incurred by the rest of society. Social costs, however, must be taken on a before tax basis, since from a social point of view, taxes are merely transfer payments.

Similarly, the cost per graduate will differ according to the above view points. Two methods are suggested for calculating the institutional cost per graduate: the net- value-added method and the cost-per-studentyear method. In the former approach, the cost of dropouts is assumed to be an inherent cost of "producing" graduates, whereas in the latter approach dropouts and graduates are treated as joint products each of which accounts for a proportion of the total institutional cost. If the benefits of dropouts are not known, the appropriate methodology for calculating the cost per graduate – in the cost-benefit context – is the cost- per- student -year method. It is this approach which is used in this thesis.





Source: Dr. Abu Al-Abbas, A and Dr. AL-Rawi, M., The Dropout in the primary level in Iraq, Educational and Psycholoical Research Center, University of Baghdad, Al-Huriha press, 1972, p. 63.

Note: Where A is New Admission; P is Passed to next level; D Dropouts; R is Repraters (Failures); G is Graduates; and Y is Year.

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Table 5.1 Schedule of expenditures of Iraqi Universities, 1986/87, (In thousands ID).

University	Expenditures (to nearest 1000 ID)	Percentage %
Baghdad	27,904	38
Mosul	16,200	22
Basrah	10,482	14
Al-Moustansirai	8,471	11
Salah Al-Dean	6,066	8
Technologai	4,993	7
Total	74,116	100

Source: Republic of Iraq, Central Statistical Organization, Annual Abstracts of Statistics, Unpublished report 1986/87.

Table 5.2 Schedule of Number of Colleges at Iraqi Universities, 1986/87

University	Number	of	Colleges
Baghdad		15	
Mosul		11	
Basrah		8	
Al-Moustansirai		8	
Salah Al-Dean		6	
Technologai		9	
Technical Institutes Foundation		22	Institutes
Al-Anbar*		4	
AL-Qadissiya*		3	
Tikreet*		3	
Al-Cuofah*		7	

Source: Republic of Iraq, Central Statistical Organization, Annual Abstracts of Statistics, 1986/87.

* These Universities were established in 1987.

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Table 5.3 Schedule of number of students enrolled in Iraqi Universities, 1986/87.

University	Number of students Enrolled	Percentage %
Baghdad	42,784	40
Mosul	20,033	19
Basrah	11,746	11
Al-Moustansirai	16,879	16
Salah Al-Dean	7,495	7
Technologai	7,692	7
Total	106,629	100

Source: Republic of Iraq, Central Statistical Organization, Annual Abstracts of Statistics, 1986/87.

Table 5.4 Schedule of number of Graduates from Iraqi Universities, 1986/87.

University	Number of Graduates	Percentage %
Baghdad	5,904	39
Mosul	3,159	21
Basrah	1,828	12
Al-Moustansirai	1,975	13
Salah Al-Dean	984	6
Technologai	1,359	9
Total	15,207	100

Source: Republic of Iraq, Central Statistical Organization, Annual Abstracts of Statistics, 1986/87.

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Table 5.5 Average institutional cost per student by college and year, University of Baghdad, 1981/82-1986/87, (In 1987 prices).

	Year						
Subject	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Science	886	730	671	724	766	876	
Engineering	1004	983	786	664	866	1123	
Medicine	1231	957	961	985	1120	1369	
Pharmacy	917	709	693	735	803	978	
Dentistry	1478	1189	1136	1336	1509	1588	
Nursing	1114	1331	1542	1549	2537	1612	
Vet. Medicine	1453	1275	1418	1738	1734	2186	
Agriculture	1307	975	1103	1569	1148	1452	
Admin.& Econ.	545	300	296	337	340	390	
Law & Politics	992	817	758	841	851	1073	
Arts	658	514	466	532	534	436	
Education	554	412	421	475	501	536	
Physical Educ.	787	591	588	682	677	848	
Fine Arts	810	707	536	561	489	686	
Alsharia	591	462	457	530	471	649	

Source: Table A-38

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	Average cost per student	Total number	Total cost of the college
Year	(In ID)	of students	(In ID)
1	250	250	62,500
2	250	510	127,500
3	250	800	200,000
4	250	1,085	271,250
5	250	1,395	348,750
6	250	1,823	455,750
7	250	2,213	553,250
8	250	2,555	638,750
			anto
Total		10,631	2,657,750

Table 5.6 Total cost of hypothetical college model of Figure 5.2

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Average Cost per Completed Level in Hypothetical College Model of Fig. 5.2 Table 5.8

	Total cost (In ID)	Δ CL	Average Cost Per Completed Level
Year	(1)	(2)	(in ID) (3)
1	62,500	210	297.62
2	127,500	405	314.82
3	200,000	555	360.36
4	271,250	740	366.55
5	348,750	1049	332.46
6	455,750	1309	348.17
7	553 , 250	1622	341.09
8	638,750	1865	342.49
Total	2,657,750	7755	342.7143

Source: Col. (1) from Table 5.6; Col. (2) from Table 5.7; Col. (3) from Col. (1)/Col. (2).

Average	Cost	per	Graduate	in	the	нуро	thet	ical	Coll	ege	Model	L
of Fig.	5.2.											
			A	ver	age	Cost	Per	Gradı	uate			

Table 5.9

	Average Cost Per Graduate					
Year	Year (4)	Year (5)	Year (6)	Year (7)	Year (8)	
1	297.62					
2	314.82	314.82				
3	360.36	360.36	360.36			
4	366.55	366.55	366.55	366.55		
5		332.46	332.46	332.46	332.46	
6			348.17	348.17	348.17	
7				341.09	341.09	
8					342.49	
Total	1339.35	1374.19	1407.54	1388.27	1264.21	

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Table 5.11	L									
Allocation	ı of	the	Cost	of	Repeater	to	the	Real	Outputs	in
the Hypoth	netic	al C	ollege	e of	Fig. 5.2	•				

	Outputs						
Description	Repeaters	Dropout	Students Current	Graduates			
Idealized Cost Allocated Cost	347,750 (347,750)	371,250 55,888	903,750 136,052	1,035,000 155,810			
Total Cost	0	427,138	1,039,802	1,190,810			

Table 5.12

Allocation of the cost of dropouts to graduates and current students in the hypothetical college model of Figure 5.2.

	Outputs			
Description	Dropout	Students Current	Graduates	
Total Cost - including the				
Allocation Cost of Repeaters	427,138	1,039,802	1,190,810	
Allocated Cost	(427,138)	199,111	228,027	
Total Cost	0	1,238,910	1,418,837	

Average Cost per Graduate

Average Cost per Graduate

1370.86

1150.54

Table 5.13 Comparison between the Institutional Cost per Graduate and Social Institutional Cost per Graduate, by College, University of Baghdad, (ID in 1987 Price).

Subject	Institutional cost per Graduate*	Social Institutional Cost per Graduate**
		· · · · · · · · · · · · · · · · · · ·
Science	4,492	3,780
Engineering	4,280	4,006
Medicine	8,434	7,867
Pharmacy	4,366	3,900
Dentistry	7,261	6,752
Nursing	7,074	6,645
Veterinary Med.	8,505	7,820
Agriculture	6,064	5,642
Admin. & Econ.	1,770	1,486
Law and Politics	3,332	2,809
Arts	2,548	2,223
Education	2,422	2,004
Physical Educ.	3,234	2,807
fine Arts	3,404	3,022
Alsharia	2,492	2,032

Source: * From Table A-69. ** From Table A-108.

Table 5.14

Total Social Costs per Graduate by Subjects, University of Baghdad, 1986/87 (In ID).

Subject	Private Costs Foregone Earnings	Institutional Costs per Graduate	Total Social Costs Per Graduate
1	4,129	3,780	7,909
2	4,129	4,006	8,135
3	6,341	7,867	14,208
4	5,231	3,900	9,131
5	5,231	6,752	11,983
6	5,231	6,645	10,774
7	4,129	7,820	13,051
8	4,129	5,642	9,771
9	4,129	1,486	5,615
10	4,129	2,809	6,938
11	4,129	2,223	6,352
12	4,129	2,004	6,133
13	4,129	2,807	6,936
14	4,129	3,022	7,151
15	4,129	2,032	6,161

Source private costs (foregone earnings) from table b-1; social institutional costs from Tables A-108.

CHAPTER SIX

ANALYSIS OF THE BENEFITS OF UNIVERSITY EDUCATION IN IRAQ

The benefits of higher education will be analysed in this Chapter. The benefits to the individual, to the society as a whole and to the institution will be discussed separately.

6.1 The Private Benefits

It was noted in the previous Chapter that one of the main private costs of higher education to the college graduate is the discounting foregone life-time income stream of a high school graduate. In losing the opportunity to earn this income stream, however, a prospective college student is exchanging the present value of this opportunity for the present value of opportunity of earning the life-time income stream of a college graduate commencing some years later.¹ In principle, such an exchange is identical to an exchange of f X today for f X (1 + i) in a year's time, where i is the interest rate.

6.2 The Earnings Profiles

The data on the income streams of college graduates in Iraq were created from the Survey of Public Employees referred to in the previous chapter. The annual gross salaries² of graduates of the various Colleges grouped into six categories, (see page 129) are shown in Tables B-2 to B-7. It is to be noted that the salary data in these tables are generated according to the number of years since college graduation³ and cover a forty three year period. The size of the samples used in creating these

 $^{^1}$ Of course, this is oversimplified as no adjustments are made for differentials in mortality and unemployment rates among college and high school graduates.

 $^{^2}$ For the 1972/73 financial year, adjusted for the increase in the salaries of public sector employees of ID 570 introduced by the government in 1974, 1979 and 1980 (see footnote 28, p. 129).

data for each category of graduates are as follows:

College	size of sample
	1106
Science	1186
Medicine	1180
Engineering	2985
Agriculture	823
Arts	10081
Dentistry	566

As the income streams of college graduates in Tables B-2 to B-7 refer to income derived from employment in the public sector in Iraq, they suffer from two difficulties. First, the salary data become unreliable after the age of 49, because of various factors such as the size of the sample,⁴ the effect of retirement, and the inclusion in the sample of part-time employees and consultants.⁵ For these years (i.e. age 50 and over), it was therefore necessary to estimate the annual salaries of college graduates. These estimates were obtained by linear regressions of the respective data for the first twenty-six years since graduation (see Tables C-1 to C-15 column 2).⁶

The second difficulty with these data is that they exclude all auxiliary income derived from professional practice or from part-time

³ In generating these earning profiles for high school and college graduates, any employee whose date of first employment in the public sector preceded the date of his graduation was excluded from the sample. This condition was introduced in order to eliminate the upward bias on average earnings that would result from including graduates whose earnings reflect not only their educational attainment but also previous practical experience and training prior to graduates sample in Table B-1 is 65,675 whereas the size of the sample in the national survey is 76,797 (see page 128).

⁴ In our sample, For example, the number of graduates of the Agriculture program for the last 14 years was only six, whereas 10 year of whom (year no 29, 30, and years 33 to 40) the number was nil (see Table B-6). The situation is similar, though less harsh, with graduates of other program. This may be due to mortality and retirement, but in the main cause may be due to the fairly recent origins of higher education in Iraq.

⁵ Through the official retirement age in Iraq is sixty years, any employee who has completed 30 years of service in the public sector may choose to retire regardless of age.

 $^{^6}$ There are of course no grounds to assume that these earnings increase linearly. However, minor errors in estimates of earning well into future have an insignificant effect on the rate of return because of discounting;

employment in the private sector. As discussed in the previous chapter, such income is directly related to the type and level of educational attainment of the graduate. To exclude this income from the cost-benefit calculus would introduce a downward bias to the earnings of university graduates and would not reflect the real returns to their educational investment. Therefore, the auxiliary income of university graduates had to be estimated and incorporated in the private benefits. The estimates used for this purpose are based upon the findings of a number of governmental agencies in Iraq which have estimated the auxiliary income either as a percentage of their nominal salaries' or as an absolute amount of public sector employees with various educational specialism and attainments. Thus the auxiliary income of the graduates of the colleges of Science, Arts, Education, Physical Education, The Academy of Fine Arts, and Alsharia, have been estimated at a fixed amount of ID 240 yearly. The auxiliary income of graduates of the colleges of Engineering, Medicine, Pharmacy, Dentistry, Nursing, Veterinary Medicine, Agriculture, Administration and Economics, and Law and Politics have been respectively estimated as 100%, 120%, 60%, 80%, 50%, 75%, 50%, 25%, and 35% of their nominal salary.

All of these estimates were used by the government as a basis for calculating the supplementary professional allowances which were consequently incorporated into the salary structure of all public sector employees who choose not to pursue private practice or part-time employment in the private sector. These supplementary allowances were introduced by the government in an attempt to update the salary structure in the public sector and to equalize the earnings of comparable employees in the public and private sectors in Iraq. The resulting auxiliary income profiles of the graduates of each college are shown in column (5) of Tables C-1 to C-30; in column (6) of each table the gross earnings are calculated. It is the data in this last column (i.e. gross earnings) that make up the private benefits of higher education in Iraq. It should be recalled that in the previous chapter we said that the income of public sector employees in Iraq is not taxed.

 $^{^{7}}$ Nominal salary is the gross salary exclusive of the cost living allowance.

⁸ For example, for engineering graduates, see Republic of Iraq Revolutionary Command Council Resolution No. 1325 (12th May 1976); For medical, pharmacy, dentistry and nursing graduates, see Republic of Iraq Revolutionary Command Council No. 1119 (14th July 1980); For science, arts, education, physical education, academy of fine arts, and Alsharia graduates, see Republic of Iraq Revolutionary Command Council No. 82 (23th Jan. 1976); for Agriculture graduates, see Republic of Iraq Revolutionary Command Council No. 391 (5th February 1974).

6.3 The Social Benefits

The social benefits of investment in higher education consist of the total benefits derived from such investments, either directly or indirectly, by each and every member in the society. However, because of salaries and wages of employees in public and private sector in Iraq untaxed, all such benefits, the social and private benefits were taken as a gross. Thus in calculating the social benefits of higher education, the earnings streams of the various college graduates must be based on their gross earnings. The gross earnings profiles of the graduates of the respective colleges in Iraq are shown in column (6) of Tables C-1 to C-30. Similarly the institutional benefits must also be taken on a before tax basis. The institutional benefits which will be discussed later in this chapter were calculated exclusive of any tax, and so they can be incorporated directly into the social benefits without any adjustments.

The social benefits of investments in higher education are not limited to institutional and private benefits, but also include a variety of spillover benefits associated with, and resulting from, a system of higher education. Since higher education serves both economic and non-economic objectives at the same time, the mere listing of the spillover benefits is a demanding task. To attempt to quantify these benefits however, would be as impractical and controversial as trying to quantify the benefits of industrialization or urbanization.⁹ Indeed all educational cost benefit studies have been guilty of excluding from the analysis both the economic and the non-economic spillover benefits,¹⁰ and consequently the social rates of return derived in these studies have been consistently underestimated. This thesis is no exception in this respect.

However, some spillover benefits of a system of higher education, can be quantified with little or no controversy. And though it may be argued that such estimates should not be included in the actual rate of return calculus (on the grounds that the resulting social rate of return would not be useful for comparative or ranking purposes), an independent appraisal of their magnitude in monetary terms will at least serve as an aid to decision makers in the planning of higher educational investments within the framework of a national economic plan.

⁹ Blaug M., <u>An introduction to the economics of education</u>, op. cit. p. 108.

 $^{^{10}}$ Such criticism is not unique to cost - benefit analysis; it is equally applicable to "all the other competing approaches to educational planning, such as the manpower requirements approach or the 'social demand' approach. We simply do not know how to quantify external effects and all economists, whatever approach they have used, have been guilty of ignoring these benefits". Ibid., p. 204.

Thus, for example, some of the common by-products of a typical college of agriculture are the various farm and dairy products which are produced on experimental farms. Such by-products are normally sold by the educational institution at current market prices and so there is no doubt that the revenue thus derived constitutes a benefit for the institution. Indeed such revenue was one of the constituent elements of the institutional benefits at the University of Baghdad will be discussed in next section.

Let us now assume that these same by-products are not sold for the benefit of the educational institution, but rather they are distributed free of charge to the community at large. How does such an assumption alter these benefits? Clearly the magnitude of the benefits has not changed; all that has occurred is a transfer of these benefits from one entity (the educational institution) to another (the community at large), and hence, the overall social benefits are not affected at all.

In many areas of higher education there are a number of benefits (particularly in the form of services) which are provided free to the community and are therefore not directly reflected in the benefits of the educational institution. Typical examples of such services are free medical and dental care, free technical and consulting work, and the free availability of libraries, museums, art galleries, etc. for the general public. Almost invariably, such free services provided by institutions of higher education have been ignored or, at best, referred to parenthetically in the literature. Such an omission obviously distorts the true contribution of higher education investments by undervaluing (often appreciably) the full impact of their social benefits.

In this thesis an attempt will be made to quantify some of the free economic spillover benefits which derive from the routine day-to-day operation of the College of Medicine at the University of Baghdad. Although the valuation of these benefits will not be incorporated in the calculation of the social rates of return, it is hoped that they will at least provide an indication of the relative importance of the spillover benefits and encourage further in-depth research to ascertain and to evaluate such benefits in every area of higher education.

There remain a number of factors which affect both the costs and benefits of higher educational investments in Iraq for which no adjustment or estimates have been made. For example, the private benefits (i.e., the net earning streams) of college graduates have not been adjusted for the "ability" fraction, the so-called alpha coefficient. Unfortunately, in most countries and especially in developing countries- there are no data from which the alpha coefficient can be estimated. The only possibility is to calculate the rate of return "on the basis of several alpha coefficients, In order to check whether the results are sensitive to ability adjustment".¹¹ In the next chapter the private and social rate of return will be calculated using three values for the alpha coefficient (1, 2/3, 1/2). Although this approach begs the question of the ability adjustment, it is at least intellectually fairer "than assuming that all the earning differentials associated with different amounts of education are entirely attributable to education".

Ideally, the earnings profiles of college graduates should also be adjusted for the probability of failure or delay in completing the college requirements for graduation, and consequently, in the commencement of graduate employment and earnings. On other hand, differences in unemployment rates between college and high school graduates should be accounted for. However, because of the lack of data on these questions in Iraq, the appropriate adjustment cannot be made. But in the context of the present study, this may not be a serious omission as these two adjustments would tend to cancel each other out. While the probability of failure or delay in completing the college requirements would increase the cost of higher education, the presumed lower unemployment rates among college graduates relative to high school graduates in Iraq would decrease the opportunity cost of higher education. Ignoring these two adjustments, therefore, may not have a serious effect on the overall rate of returns of this study.

Finally, the consumption benefits of higher education are conspicuously missing from the cost-benefit balance sheet. Though the fact that higher education yields consumption benefits is not questioned, there is at present no accepted methodology for quantifying these benefits. Nevertheless, recognition of the consumption benefits of higher education is important in the development of national social and economic plans and particularly as this has a bearing on the supply of educated labour in the field of manpower planning. This is especially true in the case of developing countries where the policy objectives of manpower planning are influenced not only by considerations of economic efficiency, but also – and perhaps often more importantly- by considerations of social equality and political ideology. Such objectives, however, are in different dimensions and the science of economics is simply incapable of dealing with them collectively.

When objectives are in different dimensions, every addition of values implies a set of weights and it is precisely these weights which constitute the problem of decision making.... The point of calculating the social rate of return is simply that it provides summary of the measurable economic effects of education. If it is decided that other effects are more important, the only question is: how much more important? This would be a difficult question to answer even if we know all about the financial profitability of education to the country as a

11 Blaug M., An IntroductionP.201.

12 Blaug M., An Introduction....P.54

whole. It is an impossible question to answer, however, if we do not.¹³

6.4 The Institutional Benefits

Generally, tuition fees paid by the students are the main source of revenue of universities. Universities also derive revenue from miscellaneous sources such as consulting services to industry, rents for their fixed assets (such as equipment, buildings, and other facilities), sale of goods produced in laboratories and on experimental farms, and receipts from various facilities and activities such as museums, sporting events, etc. However, all these sources of revenue account for but a fraction of the total revenue of a university. The income of most universities today (and especially that of state universities) is derived almost entirely from governmental grants and subsidies. Grants and subsidies, however, are essentially transfer payments and must not therefore be viewed as benefits in cost-benefit studies.

As mentioned in chapters 2 and 5, the case of the University of Baghdad (as for all Universities in Iraq), since tuition is entirely free, its operations finance by government throughout two ways (i) the annual budget and (ii) the Economic Development Plan Budget. Moreover, the University achieves other revenue from miscellaneous sources such as consulting services to industry, rents for its assets (such as Equipment, Building and so on), sale goods products by Laboratories .. etc. However, the latter source are very limited and of magnitude of such revenue is very small when compared with other two sources. Thus for example, the total institutional revenue of College of Science in 1986/87 amounted ID 116,425 compared with total institutional cost (which is financed by the budgets) of ID 2,620,306. Therefore the revenue accounts for only 4.4 per cent of total institutional costs. Table 6.1 (p. 157) shows a comparison between the total institutional revenue and total institutional costs of Colleges of Baghdad University in 1986/87.

The total institutional revenue of Baghdad University as a whole in 1986/87 amounted to ID 1,572,640 compared to a total institutional cost of ID 31,700,079. Institutional income represented 5 per cent of total institutional cost. Table 6.2 (p. 158) gives a comparison between the institutional income and total cost at the University of Baghdad over the period 1981-82 to 1986-87.

The major single source of revenue at the University of Baghdad is from the sale of services and goods produced in laboratories and on the experimental farms, rentals from fixed assets (such as equipment, houses rented to the staff of the University, the student cafeteria, and so on),

¹³ Blaug M., An Introduction....P.202

sale of fixed assets, compensation and penalties, ... etc. Thus for example, the revenue from the sale of vegetables and animal products at the College of Agriculture and College of Veterinary Medicine in 1986/87 amounted to ID 97,858 and ID 11,737 respectively. Revenue from fixed assets rental was ID 40,114 at the Agriculture College in 1986/87, ID 29,096 of which represented house rental, the remaining ID 10,018 represented cafeteria rental. At the Veterinary Medicine college, fixed assets rentals amounted to ID 12,283, ID 8,983 being for house rentals and ID 3,300 from cafeteria rentals.

Benefits-like costs- could be classified into direct and indirect benefits. Direct benefits achieve by the faculties them selves, whereas the indirect benefits achieved by the Services Office (Administration Office, Dormitory Office, Registration office and Central Library). The latter are allocated to various Colleges of Baghdad University. The benefits of the Administration Office, the Registration Office, and the Central Library are allocated according to the proportion of students enrolled in each college as a percentage of the total students enrolled in Baghdad University (see Table A-7). The benefits of the Dormitory Office are allocated according to the proportion of dormitory students enrolled in each college as a percentage of total number of dormitory students (see Table A-8). Our results of revenue allocation are shown in Tables B-12 to B-26 items b, c, and d.

Having allocated the total institutional revenue to various colleges, the revenue per student and the revenue per graduate were calculated following identical procedure used in the previous chapter for calculating the cost per student and cost per graduate. The results are shown in Tables B-12 to B-26 (for revenue per student), in Tables B-28 to B-42 (for revenue per graduate), and in Table B-43 (weighted average revenue per graduate).

In the following chapter the private and social rate of return on investment on university education in Iraq will be calculated, using the private and social costs which have been estimated in chapter 5, and the private and social benefits which have estimated in current chapter. However, the above difficulties and limitations, and particularly the omission of the "economic" external benefits and "non-economic" consumption benefits from the rate of return calculus must be kept in mind. Decision makers must be at least aware of the existence of the external (spillover) and consumption benefits of higher education even though the full magnitude and the proper weighting of such benefits must at remain present an open question.

	Total	Total	Revenue as
	Revenue	Cost	% of Cost
College	(1)	(2)	(3)
Science	116,425	2,620,306	4.4
Engineering	130,348	4,273,732	3.0
Medicine	137,422	2,718,262	5.0
Pharmacy	56,087	873,308	6.4
Dentistry	62,893	1,333,282	4.7
Nursing	19,050	530,052	3.6
Veterinary Medicine	86,248	1,998,249	4.3
Agriculture	268,412	3,543,445	7.6
Administration and Economics.	114,127	1,983,511	5.8
Law and Politics	82,394	1,197,231	6.9
Arts	145,685	3,285,214	4.4
Education	216,302	4,010,694	5.4
Physical Education	56,561	1,316,001	4.3
Fine Arts	43,266	1,243,148	3.5
Alsharia	37,420	773,644	4.8
Total	1,572,640	31,700,079	5.0

Table 6.1 Institutional Revenue and cost, Colleges of Baghdad University, 1986/87.

Source:

Column (1) from Tables B-12 to B-26; Column (2) from Tables A-31 to A-36, Column (3) from Column (1)/Column (2).

	Total	Total	Revenue as
	Revenue	Cost	% of cost
Year	(1)	(2)	(3)
1981/82	394,260	28,134,812	1.4
1982/83	525,531	26,322,697	2.0
1983/84	494,997	26,294,851	1.9
1984/85	528,608	29,226,500	1.8
1985/86	850,628	33,138,835	2.6
1986/87	1572,640	31,700,079	5.0

Table 6.2 Institutional cost and revenue, University of Baghdad, 1981/1982-1986/1987.

Source:

Column (1) from Tables B-12 to B-26; Column (2) from Tables A-31 to A-36; Column (3) from Column (1) \div Column (2).

CHAPTER SEVEN

PRIVATE AND SOCIAL RATE OF RETURN TO UNIVERSITY EDUCATION IN IRAQ

In Chapters 5 and 6, we have estimated the costs and benefits of various university programs in Iraq. The purpose of this chapter is to estimate the rate of return on investment in various university subjects in Iraq, from both the private and social point of view. The institutional rate of return will not be calculated, however, as such a rate is meaningless for institutions that do not function as real economic entities and whose revenue is derived, almost entirely, from governmental grants and subsidies. The private rate of return to investment in university education will be estimated for individuals who commenced their programs at the age of eighteen (i.e. immediately after secondary school graduation) and for those who started their studies at later ages. The social rate of return will be estimated for different university programs.

In section (7.1) the private internal rate of return (PIRR) on investment in different university subjects at age eighteen will be estimated. The social internal rate of return (SIRR) to the same programs will be calculated in section (7.2). The (PIRR) to investment in different university programs for persons who started their programs at other ages, will be estimated in section 7.3.

7.1 The Private Internal Rate of Return

The private internal rate of return to an individual's investment in an increment of education, encapsulates the relationship between the extra life-time earnings received by the student as a result of this education and the costs (including income foregone during the period of his education) incurred by the individual. To estimate the private internal rate of return to investment in education, the earnings and the costs (earnings forgone) are taken as a gross because all salaries and wages in Iraq are untaxed. Consider a person aged 18 with secondary school achievement, who decides to get a job immediately after graduation. His expected life-time income might be represented by the curve OABD in Figure 7.1 (see page 182).¹ The earnings of the individual up to the time he graduates from secondary school are equal to zero, but his earnings begin

from age 18 until he retires at age 60. On other hand, if he had continued his studies and gone to university, his expected life-time earnings profile might be represented by the curve OEFG in Figure 7.1 (p. 182). There is no income until the age of graduation (i.e. until age 21). On graduation, expected earnings rise to a very much higher level, and continue to be higher until retirement at age of 60. The net monetary benefits of university education are equal to the area OEFG minus the area OABD. This can be looked at a different way. Since the OECD is common for both profiles, therefore two areas are obtained: DCFG represents the earnings differential of those with university education and ABCE, represents the cost of the investment in terms of earnings foregone i.e. the opportunity cost of education. In Iraq, all the tuition costs of higher education are entirely free, and most of books and related educational materials are supplied (or loaned) by the University to students free of charge,² thus opportunity costs are the only costs that the student incurs.

The calculation of the private rate of return for each university program involves a comparison of costs and benefits of education through the life-time cost-earnings stream. The internal rate of return is the rate that equates the present value of costs stream with the present value of earnings stream. In other words the internal rate of return is that rate of discount which when used to discount future net benefits will equate them to zero. The internal rate of return is then found by solving the following formula:

$$\sum_{t=1}^{n} \frac{E_{t} - C_{t}}{(1 + r)^{t}} = 0$$

Where E_t is differential earnings in year t;

- Ct is costs in year t (earnings foregone) measured by the alternative income profile i.e. the earnings of secondary school; n is the length of working life; and
- r is the internal rate of return.

The costs occur in the early years when he/she remains at school (i.e. from age 18 to age of graduation) and the benefits are the future earnings differential due to that education (i.e. from age of graduation to age of retirement). Therefore, by deducting the earnings profiles of secondary

¹ In this Figure we compare secondary school graduates with Engineering college graduates.

² See chapter 5 p 116.

school leavers from the earning profiles of university graduates we obtain the earnings differential and can use it in our calculations.

In calculating the rate of return to university education it is assumed that graduates find jobs in the first year after graduation. The private net marginal earnings streams of the graduates of the respective Colleges in the University of Baghdad are calculated in column (8) of Tables C-1 to C-15. The marginal earnings streams which are shown in these tables are calculated from differences between the private earnings (life-time earnings of university graduate, given in column 6) and private costs (given in column 7) for each year after secondary school graduation. It should be noted that in Iraq the incomes of all those who work in public sector are untaxed. So, gross earnings are taken in this study. The cash flows of university graduates over a period begin with secondary school graduation and end at age of retirement plus an end of service award which is equal to the salary of the last six months before the date of retirement. That is, both costs and benefits stream begin at age of 18 (immediately after secondary school graduation). The age of retirement is assumed to be 60 years which is the normal age for retirement in Iraq. In any case, because of discounting, a slight error in the mean retirement age should have a negligible effect on the overall results.

As mentioned in chapter six, the extra earnings differentials of university graduates in Iraq have been reduced by an adjustment factor (alpha coefficient) in order to arrive at a net differential earnings attributable to education. In calculating the internal rate of return, three values of the alpha coefficient (1, 2/3, and 1/2) are used to adjust earnings differentials.

The private internal rates of return, given in Table 7.1 (p. 171), were calculated for graduates of the respective colleges on the basis of an alpha coefficient equal to one. The private internal rates of return calculated using the two other values for the alpha coefficient are given in the Table 7.2 (p. 172).

To summarise, the ability adjustment assumes that the foregone earnings of a graduate are not the earnings stream of a secondary school graduate, but rather the earnings stream of a potential graduate who has chosen not to pursue higher education.

The alpha coefficient is normally only applied when the earnings differentials are positive. However, for all years prior to university graduation, the earnings differentials are consistently negative, since the earnings of students attending university are assumed to be zero. However, if the alpha coefficient is used on the net earnings profiles after university graduation while at the same time ignoring its effect during the period spent in university education, this would be inconsistent. The notion of the ability adjustment does not suddenly arise upon completion of a certain educational level. It affects the earnings differentials during the early years of the educational investment, when "errors" in the data are only slightly discounted.

Therefore, the real opportunity costs (the real earnings foregone) of university graduates through attendance must be estimated in order to be consistent with the assumed value of the alpha coefficient. Because there is no generally accepted method for doing this, these estimates were reached by linear regression of the ability-adjusted cost streams (real opportunity cost) of the graduates of various programs for the years between university graduation and retirement. Thus, having adjusted the positive post-university earnings differentials for the assumed alpha coefficient in the usual way, the real opportunity costs stream of graduates of various university programs are calculated ³ (see Tables C-1 to C-15). From these data, the opportunity cost of college graduates for the years spent in university education (before college graduation) are estimated by linear regression. The formula for this calculation is:

y = a + bx

Where y is the opportunity cost; a and b are the estimated parameters; and x is the year. Using these estimates, the private internal rates of return, are calculated for each assumed value of the alpha coefficient. Table 7.2 (p. 172) shows the comparative results.

Table 7.2 shows that the private rates of return to Engineering, Medicine, Dentistry, Veterinary Medicine, and Pharmacy education in Iraq are considerably greater than the private return to education in Science, Economics and Administration, Law and Politics, Arts, Education, Physical Education, Fine Arts, and Alsharia regardless of the value of the alpha coefficient. Also the private rates of return of the latter group, are lower than the private return to education in Nursing and Agriculture. However, it may be misleading to compare the internal rates of return to the various specializations on the basis of the same alpha coefficient.

Differences in "ability" vary considerably between students from the various university programs in Iraq, where policies relating to university admissions have traditionally relied heavily, indeed almost exclusively, on the average grade attainment by students in the secondary school baccalaureate examinations.⁴ Accordingly, admission to engineering, medicine, pharmacy, dentistry, and veterinary medicine is limited to

Real opportunity cost streams are calculated by subtracting the adjusted earnings differentials for the assumed alpha coefficient (see Tables C-1 to C-15, Column 9), from after-tax earnings (see Tables C-1 to C-15, Column 6).

⁴ The secondary school baccalaureate examinations are similar to the "0" level examination in U.K.

secondary school graduates with higher average grades, whereas admission to the remaining colleges requires only marginally more than the minimum passing grades 5

The average attainment grades of secondary school graduates in the baccalaureate examination cannot be used on their own as proxies for the ability factor, although it seems reasonable to propose that they might serve as crude evidence of it. This is especially true in the present study because the earnings profiles were generated by excluding all earnings derived from inherited wealth and capital.⁶ Thus the alpha coefficient in most cases is influenced by inherent ability such as personal motivation and natural intelligence, rather than by external factors such as the social, and family background of the graduates.

Accordingly, one might reason that the higher the average grade achieved in the baccalaureate examinations, the lower the alpha coefficient would be and vice versa. In accordance with current and past policies on university admissions in Iraq, one might expect the alpha coefficient to be relatively low for engineering, medicine, pharmacy, dentistry, and veterinary medicine graduates, while relatively high (perhaps close to one) for science, economics and administration, law and politics, arts education, physical education, fine arts, and Alsharia, whereas nursing and agriculture graduates lie somewhere between the two values of alpha coefficient. It is quite possible that no ability adjustment is required at all for the second group of graduates (science, economics and administration ... etc.) as their observed earnings differential might very well be attributable entirely to education.

Therefore, from a planning point of view, it is probably more sensible to compare the private rates of return on the basis of different values of the alpha coefficient for each university specialization even if such a value is based upon intuition and subjective judgment. This is not to say that hypothesis and guesswork are recommended, but rather it is to reject the hypothesis that the same ability adjustment is equally appropriate to all college graduates regardless of specialization-a hypothesis which, at least in relation to the Iraqi system of higher education, seems to be clearly unjustified.

It would be useful to compare the private internal rates of return on the basis of various sets of alpha coefficients to check whether the results are sensitive to such assumptions. In Table 7.3 (p. 173) the private internal rates of return of the graduates of the various colleges are compared on the basis of one such combination of alpha coefficients.

The results for rates of return on investment in university education

⁵ The minimum passing grade in Iraq is 50 per cent.

⁶ See Chapter 5, p. 130.

in Iraq, can be compared with rates of return to physical capital. Because the latter have not been estimated in Iraq, two rates of return are chosen arbitrarily. These are 7% and 12% respectively. They provide the worth of the investment to two classes of decision-makers: 7% was considered an appropriate rate for those persons who are satisfied with a return which, indicates the worth of the investment in education when compared with a 'risk free' rate (this rate is available from investment in savings accounts in the Iraqi banks) and 12% is chosen to give some measure of the worth of the investment in education when that investment is viewed as leading to some degree of risk, or if the investor has to borrow money to finance his education.

The results show in Table 7.1 (p. 171) that Engineering, Medicine, Pharmacy, Dentistry, Veterinary medicine, Nursing, and Agriculture programs are favourable if the results are compared to rates of 7%. Whereas Science, Education, Economics and Administration, Law and Politics, Arts, Physical Education, Fine Arts and Alsharia achieved rates of return less than 7%. Finally, If the results are compared to the rate of 12%, Engineering, Medicine, Pharmacy, Dentistry, and Veterinary Medicine would pass the test.

The results show that Engineering graduates achieve the highest rate of return among other university programs, and that Administration and Economics is the lowest.

7.2. The Social Internal Rates of Return

The calculations of the social internal rates of return upon educational investments should be based on all the costs incurred, and all the benefits realized from such investments by society as a whole.

The procedure for calculating the rate of return is similar to that employed for calculating private internal rates of return. The difference between private and social rates of return lies in what is included, both on the benefits side and on the costs side. In private returns calculations, the costs consist of all the costs incurred by the student himself or by his family such as tuition and other schooling fees; opportunity cost (earnings foregone); and incidental school-related costs incurred by an individual. In social return calculations, to private costs is added expenditure by the state on education. Therefore, social costs incurred by the state (institutional costs); and the earnings foregone incurred by individuals themselves. In our thesis the private costs are assumed to be equal to the earnings forgone only. Therefore the social costs of the earnings foregone plus the annual per student costs of education paid by the government which are different for each university program. In private returns calculations, the benefits from education are direct benefits to an individual or his family, whereas the social benefits from investment in education consist of the total benefits derived from such investments, either directly or indirectly, by each and every member in the society. But the indirect benefits (external benefits) and costs are in practice extremely difficult to measure, so that we have ignored them. Therefore, the calculations for social returns to investment in education are only social in a narrow sense of the term as only direct returns and earnings foregone to the immediate beneficiaries are included. External (spillover) benefits or indirect benefits, except those going to immediate beneficiaries, are excluded.

Generally, the net value of externalities and spillover in educational investments is invariably positive, so that the social internal rates of return calculated in this section express the minimum values of the "true" social returns.

In previous Chapters the measures which change private and institutional costs and benefits to their social equivalents were discussed. Tables C-16 to C-30 column 8 show the gross earnings differentials for the graduates of respective colleges of Baghdad University. In these tables column 9 and column 11, the marginal earnings streams are adjusted for an alpha coefficient of two-thirds and one-half respectively, following the procedure which was used in calculating the private internal rates of return (see pp. 159 to 164).

To transform the institutional costs and benefits to their social equivalents, all data must be taken exclusive of taxes and transfer payments. The transformation of institutional cost per graduate to social cost was discussed in chapter 5, pages 131 to 135. The weighted average of the social institutional costs per graduate for the years 1981/82-1986/87 (all adjusted to 1987 prices) are taken in calculating the social internal rates of return of respective colleges of Baghdad University (see Table A-108). This, it was felt, would be a more accurate reflection of the average institutional cost than the same data for any one particular year because the data in this study are taken for the period of 1981/87.

The institutional benefits per graduate were also calculated as a weighted average for the years 1981/82-1986/87 (see Table B-27). But as the institutional benefits were initially calculated exclusive of any taxes, no adjustments were necessary to transform them to social benefits.

⁷ If the 1986/87 data rather than the weighted average data are used, the social institutional cost per graduate of Science, Medicine, Pharmacy, Dentistry, Veterinary Medicine, Agriculture, Administration and Economics, Arts, Education, Fine Arts, and Alsharia would decrease by 15%, 20%, 5%, 11%, 2%, 11%, 19%, 22%, 11%, 24%, and 4% respectively, while for Nursing, Law and Politics, and would increase by 7% and 10% respectively. Engineering and Physical Education are Approximately the same.

The private net monetary earnings profiles are given as a (forty three-year) stream of annual cash flows beginning with secondary school However, the institutional costs and benefits per graduate graduation. amount to a single lump-sum figure. This cost or benefit figure obviously is not incurred wholly at the same time, but rather it accrues progressively during the years spent in college. However, to make the calculations more meaningful, the benefits were assumed to be concentrated at the midpoint of the graduate's college program. Therefore, with respect to medicine (which consists of a six-year program), pharmacy, dentistry, and veterinary medicine colleges (five-year programs), the social institutional benefits per graduate are assumed occur at the end of the third year; while in the remaining colleges - which consist of a four-year program - these benefits are assumed to be concentrated at the end of the second year (see Tables C-16 to C-30). The social institutional costs per graduate are divided by length of the program to find the total social costs for each year of study. The latter is added to the earnings foregone for each year of the period of study. $^{8}\,$

Following the same procedures, and making the same assumptions, as those used in calculating the private internal rates of return (see previous section), the social internal rates of return on investments in the fifteen areas of higher education in Iraq investigated in this study were calculated. The results are summarized in the Table 7.4 (p. 174).

From Table 7.5 (p. 175), it can be seen that the social internal rates of return to investment in Engineering, Medicine, Pharmacy and Dentistry education are significantly higher than the social returns to educational investments in Science, Agriculture, Economics and Administration, Law and Politics, Arts, Physical Education, Academy of Fine Arts, Alsharia, regardless of the value of the alpha coefficient. However the rate of return in the latter group is less than the social returns to education in Veterinary Medicine, Nursing, and Education only when the same value of the alpha coefficient is used.

As stated in the previous section, it is the view of this study that the ability adjustment should vary from one higher educational specialization to another. According to this belief, a set of subjective estimates for the alpha coefficient was suggested. In Table 7.6 (p. 176) the social internal rates of return of the graduates of various college are compared on the basis of several sets of alpha coefficients.

The same set of subjective estimates is used to compare the social internal rates of return and complementary private internal rates of return. The results are summarized in Table 7.7 (p. 177).

⁸ See Tables C-16 to C-30 Col.7 from ages 18 to age 21 for 4-year programs, from age 18 to age 22 for 5-year programs, and for 6-year program age 18 to age 23.

Our results show that the private internal rates of return to investment in higher education in Iraq are higher than the corresponding social internal rates of return. The difference between private and social rates of return is due to the heavy subsidy paid to the educational sector by the state.⁹ The relationships between private and social rates of return by higher educational specialization are shown in Table 7.8 (p. 178) and Figures 7.2 (p. 183), 7.3 (p. 184), and 7.4 (p. 185).

It must be emphasized again that not only are the above estimates based on a subjective judgment of the ability factor, but they also ignore any indirect or 'spillover' benefits (external benefits) of education, and the non-monetary 'consumption' benefits of education which in all probability, vary from one area of specialization to another. For these reasons some writers have rejected cost-benefit analysis because it can provide no more than a narrow economic evaluation of education. They argue that this cannot be the sole criterion for educational planning. However the 'investment approach to educational planning' rests on the belief that such an analysis should be an important element in decision-making.

As mentioned in Chapter 3 and Chapter 4, although any indirect economic benefits of education may outweigh the direct, monetary benefits, the techniques for measuring indirect benefits are as yet very crude. Some of the indirect benefits may be easy to specify but difficult to measure. Although we believe that the external benefits of education are positive, no techniques as yet, exist for measuring them, and so the social rate of return, calculated from direct earnings, represents an underestimate of the returns to education. This is important if we wish to compare the yield of education with other forms of social investment, although even here it is helpful to have first an estimate of the direct economic benefits of education compared with, say health expenditures. If the purpose of cost-benefit-analysis is to compare the profitability of two levels or types of education, the problem may be less important. For while it is generally accepted that education generates external, indirect, and intangible benefits, it is less obvious that higher education yields more indirect benefits than secondary school or medical education less than arts. Although planners cannot afford to ignore the existence of unmeasured (and sometimes unmeasurable) externalities in higher education, it does not follow that knowledge of the relative magnitudes of the measurable factors is not useful for economic and education planning.

The results in Table 7.4 (p. 174) show that the only engineering education among the university programs could achieve a rate of return of

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⁹ The difference between private and social returns is clearer in developing countries than in advanced countries, because they subsidize their educational sector more heavily (see George Psacharopoulos, Return to Education: An international company, London, 1973).
more than 12%. Medicine, Pharmacy, Dentistry, and Veterinary Medicine could achieve more than 7%. However, all four-year programs (except the Engineering program) could not achieve 7%. Finally, the results show that the social rate of return for engineering programs is the highest, whereas for Fine Arts it is lowest.

7.3 Estimates of the Private Internal Rate of Return According to Commencement Age

In section 7.1, the private returns to investment in university of education in Iraq for individuals who commenced their programs at the age of 18 years (i.e. immediately after secondary school graduation) were discussed for various university education programs. In this section we examine the private returns to investment in various university programs for those who started their studies at a later age. For this purpose the ages of 18, 20, 22, 24, 26, and 28 as examples will be taken. The private costs, marginal earnings, and private internal rate of return will be discussed in this section.

7.3.1 Private Cost

As mentioned in chapter five, foregone earnings represent the major private cost of university education in Iraq. Table 7.9 (p. 179) shows the private costs for fifteen programs commencing at ages of 18, 20, 22, 24, 26, and 28 respectively. In this analysis, it is found that the private costs (foregone earnings) for four-year programs ranged from 4,129 ID for individuals who commenced their programs at age 18 to 5,319 ID for individuals who commenced at age 28. The private costs for five years subjects ranged from 5,231 ID for persons who started his studies at age 18 to 6,724 for a person who started at age 28. Finally, the foregone earnings for a six years course in medicine ranged from 6,341 for one who commenced his course at age 18 to 8,174 ID for one at age 28.

The conclusion of this analysis is that for older investors in university education in Iraq, foregone earnings are definitely greater than for young or entrants. In other words, there is a positive relationship between commencement age and foregone earnings.

7.3.2 Earnings Differentials

According to chapter six, the private benefits to investment in

university education in Iraq were assumed to include only those benefits of education that can be translated into monetary terms; government salary scales were used because the government employs the majority of the labour force on the one hand, and the lack in the earnings data in Iraq on the other. It was also assumed that graduates start to earn immediately after their graduation.

In this analysis, it was found that medicine graduates receive the highest total marginal earnings among the university education programs at any commencement age under consideration. While the arts graduates achieve the lowest marginal earnings at all the commencement age (see Table 7.10 p. 180).

The conclusion of this analysis is that medicine graduates receive the highest total marginal earnings at all commencement ages.¹⁰ It was also found that marginal earnings were negative for science, arts and administration and economics graduates when commenced their studies at age 26 or later, and law and politics graduates achieve negative marginal earnings when started their studies at age 28 or over. That is, the total earnings forgone are higher than the total earnings lifetime for graduates who commenced in these subjects at age 26, 28 or later respectively. It should be noted that the ranking of marginal earnings are the same for all commencement ages.

The conclusion of this study is that the relationship between the commencement age and marginal earnings due to university education is negative, that is the older graduates receive marginal earnings less than the young ones.

7.3.3 Internal Rate of Return

The private internal rates of return (PIRR) to investment in different university subjects have also been calculated for individuals who commenced their programs at different ages, using the same procedures which were used in previous sections.

The results are summarized in Table 7.11 (p. 181). Table 7.11 shows the IRR for all programs at commencement ages of 18, 20, 22, 24, 26 and 28. In order to examine these rates, the same rates of return which were used to compare the results in last two sections of this chapter will be applied. The university programs are classified into four groups according

¹⁰ For example at the commencement age of 18 the marginal earnings of medical program was 1.21 times, 1.46 times, 1.53 times, 1.78 times, 3.54 times, 3.88 times, 5.45 times, 7 times, 7.20 times and 8 times the marginal earnings of Engineering, Dentistry, veterinary Medicine, Nursing, Agriculture, Law, Science, Economics and Administration and Arts respectively.

to the IRsR to investment in University education: (1) programs which could not earn 7% at any commencement age; (2) programs which realise higher than 7% at some commencement age; (3) programs obtaining over than 12%; and (4) programs which achieve higher 12% and less. First group consist of Science, Education, Economics and Administration, Law and Politics, Arts, Fine Arts, Physical Education and Alsharia programs. The second group includes Nursing and Agriculture programs. Each of them achieved a return higher than 7% for persons who entered such programs at any age between 18 and 20. The third group includes Engineering, Medicine. These programs obtain a return greater than 12% for individuals who commenced the programs at any age under determination. Finally, the fourth group includes Pharmacy, Dentistry, and Veterinary Medicine. Pharmacy program obtains higher than 12% if the persons commenced their study at any age between 18 and 20, thereafter rates of return are less than 12% but more than 7%. Dentistry and Veterinary programs achieve higher than 12% when persons entered such programs at any age between 18 and 22, thereafter rates of return are higher than 7% but less than 12% (see Table 7.11 p. 181).

In this section, it was found that the rate of return on investment in some subjects was affected highly by commencement age. This was especially true for Science, Agriculture, Administration and Economics, Arts and Law and Politics. While the other subjects were affected only marginally. For example, the decline in the rate of return to Arts becomes 138% of the rate achieved at age 18, for the persons who commenced his study at age 28, while the decline in the rate of return to Engineering become 33% of the rate achieved at age 18 for persons who commenced at age 28. This is due to the differences in total lifetime earnings differentials of university subjects.

 $^{^{11}}$ It should be mentioned that Medicine program achieve less than 12% when the persons commenced at age 28 and over.

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Private Rates of Return by Subject Group, in Iraq, 1986/87, (Assuming no Ability Adjustment).

	Private Internal
Subject Group	Rate of Return
	*
Science	6.9
Engineering	21.3
Medicine	16.0
Pharmacy	13.1
Dentistry	14.8
Nursing	9.3
Veterinary Medicine	14.4
Agriculture	8.9
Economics & Administration	5.6
Law & Politics	6.8
Arts	6.1**
Education	6.9*
Physical Education	6.1**
Fine Arts	6.1**
Alsharia	6.1**

Source: Tables C-1 to C-15.

- <u>Note</u>: * The private rates of return of Science graduates and Education graduates are the same because the earnings and foregone earnings are for both graduates are equal.
 - ** The private rates of return of Arts Graduate, Physical Education Graduate, Fine of Arts Graduate, and Alsharia Graduate are the same because costs and earnings for all these graduates are the same.

Comparative Private Internal Rates of Return to University Education in Iraq, 1986/87, Under Subjective Estimates of the Alpha Coefficient.

	Private Internal Rates of Return				
Subject Group	α = 1	$\alpha = 2/3$	$\alpha = 1/2$		
Science	6.9*	4.5*	3.0*		
Engineering	21.3	14.2	11.0		
Medicine	16.0	11.8	9.5		
Pharmacy	13.1	9.7	7.6		
Dentistry	14.8	10.7	8.6		
Veterinary medicine	14.4	10.4	8.3		
Nursing	9.3	7.0	5.6		
Agriculture	8.9	6.5	5.1		
Economics & Administration	5.6	4.0	3.0		
Law & Politics	6.8	5.0	3.9		
Arts	6.1**	3.8**	2.5**		
Education	6.9*	4.4*	3.0*		
Physical education	6.1**	3.8**	2.5**		
Fine Arts	6.1**	3.8**	2.5**		
Alsharia	6.1**	3.8**	2.5**		

Source: Tables C-1 to C-15.

- <u>Note</u>: * The private rates of return of Science graduates and Education graduates are the same because the earnings and foregone earnings are for both graduates are equal.
 - ** The private rates of return of Arts Graduate, Physical Education Graduate, Fine of Arts Graduate, and Alsharia Graduate are the same because costs and earnings for all these graduates are the same.

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Comparative Private Internal Rates of Return to University Education in Iraq, 1986/87, Under Subjective Estimates of the Alpha Coefficient.

	Alhpa	Private	
Subject group	Coefficient	IRR %	Rank
Science	1	6.9	7
Engineering	1/2	11.0	1
Medicine	1/2	9.5	2
Pharmacy	1/2	7.6	5
Dentistry	1/2	8.6	3
Nursing	2/3	7.0	6
Veterinary Medicine	1/2	8.3	4
Agriculture	2/3	6.5	9
Economics & Administration	1	5.6	11
Law & Politics	1	6.8	8
Arts	1	6.1	10
Education	1	6.9	7
Physical Education	1	6.1	10
Fine Arts	1	6.1	10
Alsharia	1	6.1	10

Source: Tables C-1 to C-15.

Social Rates of Return to University Education in Iraq, 1986/87, (Assuming no Ability Adjustment).

	Social Internal
Subject Group	Rate of Return
Science	3.6
Engineering	13.7
Medicine	9.8
Pharmacy	9.2
Dentistry	8.7
Veterinary Medicine	7.9
Nursing	4.4
Agriculture	4.5
Economics & Administration	4.3
Law & Politics	4.5
Arts	3.9
Education	4.8
Physical Education	3.5
Fine Arts	3.4
Alsharia	4.1

Source: Tables C-16 to C-30.

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Comparative Social Internal Rates of Return to University Education in Iraq, 1986/87, Under Various Estimates of the Alpha Coefficient.

	Social Internal Rates of Return %			
Subject Group	$\alpha = 1$	$\alpha = 2/3$	$\alpha = 1/2$	
Science	3.6	1.7	0.5*	
Engineering	13.7	9.5	7.3	
Medicine	9.8	7.1	5.4	
Pharmacy	9.2	6.5	4.9	
Dentistry	8.7	6.1	4.5	
Veterinary Medicine	7.9	5.5	4.0	
Nursing	4.4	2.7	1.5	
Agriculture	4.5	2.7	1.5	
Economics & Administration	4.3	2.9	1.8	
Law & Politics	4.5	2.9	1.8	
Arts	3.9	2.0	0.8*	
Education	4.8	2.7	1.5	
Physical Education	3.5	1.7	0.5*	
Fine Arts	3.4	1.5	0.4*	
Alsharia	4.1	2.2	1.0*	

Source: Tables C-16 to C-30.

* Note:

The social internal rates of return to College of Science, Arts, Physical Education, Fine Arts, and Alsharia are very low when the alpha coefficient is equal to 1/2, because the costs (earnings foregone and institutional costs) of these colleges are very high compared with the earnings differentials after college graduation. The percentage of total cost of these college relative to total earnings differentials are equal to 96 per cent, 89 per cent, 95 per cent, 99 per cent, and 84 per cent respectively.

Comparative Social Internal Rate of Return of College Graduates (Relative to Secondary School Graduates) in Iraq, 1986/87, Under Subjective Estimates of the Alpha Coefficient.

Subject Group	Social IRR %	Alhpa Coefficient	Rank
0	2.6	1	10
Science	3.0	1	12
Engineering	7.3	1/2	1
Medicine	5.4	1/2	2
Pharmacy	4.9	1/2	3
Dentistry	4.5	1/2	5
Veterinary Medicine	4.0	1/2	9
Nursing	2.7	2/3	15
Agriculture	2.7	2/3	14
Economics & Administration	4.3	1	7
Law & Politics	4.5	1	6
Arts	3.9	1	10
Education	4.8	1	4
Physical Education	3.5	1	11
Fine Arts	3.4	1	13
Alsharia	4.1	1	8

Source: Tables c-16 to C-30.

Comparative Private and Social Internal Rates of Investment in Higher Education in Iraq, 1986/87, Using Subjective Estimates of the Alpha Coefficient.

		Social		Private	
Subject Group	α	IRR %	Rank	IRR %	Rank
Science	1	3.6	12	6.9	7
Engineering	1/2	7.3	1	11.0	1
Medicine	1/2	5.4	2	9.5	2
Pharmacy	1/2	4.9	3	7.6	5
Dentistry	1/2	4.5	5	8.6	3
Veterinary Medicine	1/2	4.0	9	8.3	6
Nursing	2/3	2.7	15	7.0	4
Agriculture	2/3	2.7	14	6.5	7
Economics & Administration	1	4.3	7	5.6	10
Law & Politics	1	4.5	6	6.8	8
Arts	1	3.9	10	6.1	10
Education	1	4.8	4	6.9	7
Physical Education	1	3.5	11	6.1	9
Fine Arts	1	3.4	13	6.1	9
Alsharia	1	4.1	8	6.1	9

Source:

Social internal rates of return from tables C-16 to C-30; private internal rates of return from tables C-1 to C-15.

Comparative private and Social Internal Rates of Investment In Higher Education in Iraq, 1986/87, Using Subjective Estimates of the Alpha Coefficient.

	$\alpha = 1$		α = 2	$\alpha = 2/3$./2
Subject Group	Private	Social	Private	Social	Private	Social
Science	6.9	3.6	4.4	1.7	3.0	0.5
Engineering	21.3	13.7	14.2	9.5	11.0	7.3
Medicine	16.0	9.8	11.8	7.0	9.5	5.4
Pharmacy	13.1	9.2	9.5	6.5	7.6	4.9
Dentistry	14.8	8.7	10.7	6.1	8.6	4.5
Veterinary Med.	14.4	7.9	10.5	5.5	8.3	4.0
Nursing	9.3	4.4	7.0	2.7	5.6	1.5
Agriculture	8.9	4.5	6.5	2.7	5.1	1.5
Econ. & Admin.	5.6	4.3	4.0	2.9	3.0	1.8
Law & Politics	6.8	4.5	5.0	2.9	3.9	1.8
Arts	6.1	3.9	3.8	2.0	2.5	0.8
Education	6.9	4.8	4.4	2.7	3.0	1.5
Physical Educ.	6.1	3.5	3.8	1.7	2.5	0.5
Fine Arts	6.1	3.4	3.8	1.5	2.5	0.4
Alsharia	6.1	4.1	3.8	2.2	2.5	1.0

Source:

Social internal rates of return from tables C-16 to C-30; private internal rates of return from tables C-1 to C-16.

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	Commencement Age							
	18	20	22	24	26	28		
Type of Program	Foregone Earnings	Foregone Earnings	Foregone Earnings	Foregone Earnings	Foregone Earnings	Foregone Earnings		
1*	972	1045	1102	1182	1220	1255		
_	1027	1085	1110	1223	1240	1310		
	1045	1102	1182	1220	1255	1372		
	1085	1110	1223	1240	1310	1382		
Total	4129	4342	4617	4865	5025	5319		
**								
2	972	1045	1102	1182	1220	1255		
	1027	1085	1110	1223	1240	1310		
	1045	1102	1182	1220	1255	1372		
	1085	1110	1223	1240	1310	1382		
	1102	1182	1220	1255	1372	1405		
Total	5231	5524	5837	6120	6397	6724		

3	972	1045	1102	1182	1220	1255		
	1027	1085	1110	1223	1240	1310		
	1045	1102	1182	1220	1255	1372		
	1085	1110	1223	1240	1310	1382		
	1102	1182	1220	1255	1372	1405		
	1110	1223	1240	1310	1382	1450		
Total	6341	6747	7077	7430	7779	8174		

Private Cost of University Education per Student by Program and Commencement Age, Baghdad University, In Iraqi Dinar.

Source: Table B.1.

* Four-year programs are Science, Engineering, Nursing, Agriculture, Economics and Administration, Law and Politics, Education, Arts, Physical Education, Fine of Arts and Alsharia.

** Five-year programs are Pharmacy, Dentistry, and Veterinary Medicine.

*** Six-year Program is Medicine only.

Table 7.10 Lifetime Earnings Differentials Attributed to Various Programs, and Various Age, Baghdad University, 1987.

	Commencement Age					
Program	18	20	22	24	26	28
Science	14246	9977	6114	4593	-762	-3802
Engineering	82219	73686	64438	55692	47559	39901
Medicine	99571	87396	76729	65489	55058	45305
Pharmacy	55886	48242	40614	33316	26605	20344
Dentistry	68040	59740	50936	42656	35014	27873
Veterinary Med.	65002	56906	48357	40323	32914	25993
Nursing	28718	22834	17376	12299	7711	3476
Agriculture	25643	19869	14803	10089	5840	1927
Arts	12305	8053	4243	707	-2442	-5343
Econ. & Admin.	13823	9525	5147	1191	-2330	-5752
Law & Politics	18270	13569	8911	4595	734	-2819

Note : The ranking of differential earnings of various programs is the same at all commencement ages.

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A Comparison of Private Internal Rate of return to investment in Various Programs of University Education at Various Ages, Baghdad University, 1987. -----r

	Commencement Age					
Program	18	20	22	24	26	28
Science	6.9	5.3	3.5	2.5	-1.0	-2.6
Engineering	21.3	19.8	18.4	16.9	15.7	14.3
Medicine	16.0	15.0	14.1	13.1	12.2	11.0
Pharmacy	13.1	12.0	10.9	9.7	8.6	7.3
Dentistry	14.8	13.7	12.6	11.4	10.3	9.1
Veterinary Med.	14.4	13.3	12.2	11.0	9.9	8.6
Nursing	9.4	8.0	6.6	5.1	3.8	3.0
Agriculture	8.9	7.6	6.1	4.6	3.0	1.1
Arts	6.2	4.4	2.6	0.5	-2.1	-5.2
Econ. & Admin.	5.6	4.1	2.5	0.6	-1.7	-3.9
Law	6.9	5.4	3.9	2.2	0.4	-2.1









CHAPTER EIGHT

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

8.1 Summary of This Study

The major purpose of this study was to measure the monetary returns to investment in different programs of university education in Iraq. It has not included the additional benefits to society that might be inadequately expressed in the reported incomes of university graduates. Such "external" benefits potentially exist but because of estimation difficulties, they were ignored. Cost-benefit analysis has been used in this study, and relative rates-of-return for fifteen different programs of university education in Baghdad University, were established.

In this study, it was assumed first of all that the individual has decided to invest in the university education rather than in some form of physical capital; that the costs of university education were treated as investment i.e. consumption benefits were ignored because of estimation difficulties ; that monetary benefits and costs only were taken into account, i.e. the external benefits and costs were ignored; that no students work part-time when attending university; that all graduates continue their studies directly after secondary school graduation and complete their work for an undergraduate degree without interruption; that secondary school graduates enter the labour force at age 18 and retire at age 60, while university graduates enter the labour force at ages 22, 23, and 24 depending upon the kind of programs studied. All retire at the age of 60. finally, it was assumed that academic salaries in the universities were allocated completely to the teaching function.

Educational planners should base their resource allocation decisions on the evaluation of total benefits and costs and resources available now and expected in the future. Investment efficiency questions of resource use are partially answered by comparing rates of return to university programs with non-human capital alternatives. Because the rates of return on investment in non-human capital were not available, two rates of return were chosen arbitrarily i.e. 7% and 12%. The first represents the savings account available in Iraqi banks (a rate which is "risk free") and the second represents the rate with some degree of risk.

Obtaining adequate cost data generally has not been a major problem in studies of returns to the general levels of education, but it has been

studies of returns to the general levels of education, but it has been difficult to get detailed expenditure data for different programs within a level of education. However, this study used information for the University of Baghdad which produces an annual budget which allocates all expenditures to the faculties and other service offices (Administration, Registration, Dormitory Office and Library Central). Each of these Faculties and Service Offices has a separate accounting system.

Cost data were derived from the financial statements of the faculties and the University of Baghdad, and the accounting records of the annual Budget and the Five Year Plans. The total costs of education vary according to the point of view taken. In this study, the costs of university education were estimated from point of view three entities: (i) the private individual; (ii) the institution (the university); and (iii) society at large. Since university education in Iraq is entirely free, and other education - related expenses are insignificant, the costs of university education to the student amount simply to a stream of earnings foregone. This is equivalent to the earnings of secondary school graduates. The institutional costs of university education are the costs incurred directly by faculties for providing the educational services. These costs consist of the operating costs and opportunity costs of capital assets used in the educational production process. The costs of service offices were allocated to the faculties according to the proportion of students enrolled in each faculty. From this information the institutional cost per student can be obtained by dividing the total institutional costs (operating costs, opportunity cost, and allocated costs) by the number of students enrolled in each faculty. The social institutional cost per student was also calculated by deducting the taxes and transfer payments from total institutional cost. All the costs were adjusted to 1987 prices by using a weighted average composite price index number.

In order to calculate the institutional cost per graduate, two methods were suggested. The net-value-added method assumes that the cost of dropouts is inherent in the cost of producing graduates, i.e the dropouts are treated as normal waste and the finished good should include this cost. The cost-per-student-year method assumes that the dropouts and graduates are treated as a joint products in the educational system each with their own separate costs, i.e dropouts are treated as abnormal waste.

Total social costs per graduate were calculated by adding the private cost per graduate (earnings foregone) to social institutional cost per graduate.

The benefits for each of the fifteen subject groups, resulting from the kind of university education acquired, were estimated by finding the marginal earnings between a secondary school graduate's earnings and the earnings of a university graduate from each program. This procedure involved the estimation of earnings streams for secondary school graduates and for each of the fifteen cohorts of graduates.

The earnings streams for secondary school graduates and for university graduates were derived from the 1972/73 survey of public sector employees in Iraq conducted by the Ministry of Planning. The data were then adjusted for salary increases between 1974 and 1987.

The extra earnings associated with various levels of education are due not only to additional education acquired but also to other factors such as social background, natural ability, age, region of work, occupation, and so on. Thus to estimate the economic benefits of education, all of these factors should be taken into account. Since it is beyond the scope of this study to estimate the "correct" alpha coefficient for university education in Iraq, three values for the alpha coefficient were applied (1, 0.67, and 0.5) to test the sensitivity of the results to a variety of assumptions about the influences of education and other factor upon earnings.

The streams of costs and benefits are used to calculate the private and social rates of return to investment in various university subjects. Rates of return were calculated for individuals who started their programs at the age of secondary school graduation (age of eighteen) and for those who commenced their studies at later age.

The internal rates of return so derived have been compared with the rates of return on investment in non-human capital, in order to judge whether the internal rate is relatively low or high. As mentioned above two rates were chosen (7% and 12%) for this purpose. It should be noted that the rates of return were estimated for university graduates employed in the public sector in Iraq, but not for university graduates employed in the private sector, or who are self employed. Accordingly the benefits of university education only include salaries and wages of public sector employees. Because of this limitation, the result of this study may underestimate both the benefits and rates of return from university education. Also the social internal rates of return derived must be viewed in a narrow sense since they are based on "economic" costs and benefits. The external effects of university education are excluded from the calculus. An attempt to estimate these effects, in a limited way, is provided in Appendix (D).

8.2 Findings of This Study

The results of this study are summarized as follows:

1. Generally, it was found that the private rates of return were higher than the social rates of return in all fields of specialization in university education in Iraq.

- 2. It was found that private and social rates of return for six year university education program (Medicine program) were higher than for either five years and four year programs, except for Engineering.
- 3. It was found that both private and social rates of return to an Engineering degree were the highest, whereas the private rate of return to Administration and Economics and the social rate of return to Fine Arts were the lowest rates of return among university programs alternatives.
- 4. The private rates of return on investment in five subjects (Engineering, Medicine, Dentistry, Pharmacy, and Veterinary Medicine) were found to be higher than returns associated with other types of investment, (i.e. to exceed 12%). The social rates of return on investment in all four year university education programs, except Engineering, were found lower than 7%. The social rates of return in five and six year (Medicine) were found to be higher than 12%.
- 5. It was found that the graduates from Medicine could gain the highest earnings stream of all university programs.
- 6. The results of this study show that the total social and private costs of medicine program and five years programs were greater than four year programs except Nursing. It was also found that the graduate social cost of Nursing and Agriculture programs was the highest among the four year programs. It was also found that the weighted average social institutional cost per student year for Nursing program was the highest among all the remaining university programs for year 1981/82-1986/87.
- 7. Earnings foregone (private costs) were a large proportion of total social costs in most programs under consideration. For example the percentage of total costs contributed by foregone earnings can be seen in the Table 8.1 below.

Tab.	le 8.1							
The	Percentage	of	Foregone	Earnings	to	Total	Costs	
	······							

Program	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
%	52	51	45	38	40	42	74	60	65	67	60	65	60	58	80

- 8. It was found that there was a positive relationship between commencement age and foregone earnings (private cost).
- 9. It was found that there was a negative relationship between the commencement age and the private internal rate of return.
- **10.** Because it neglects the non-market effects of education, the calculated private and social rates of return were probably underestimates.
- 11. It was found that the average period required to graduate from the

Science program was the highest among four year programs and was lowest for Nursing. In five year programs Veterinary Medicine was the highest and Dentistry was the lowest. Table 8.2 gives the average period needed to graduate from the subjects under investigation.

<u>Table 8.2</u> Average Period Required to Graduate from Various University Education programs in Iraq.

Program	Average Period	Program	Average Period	Program	Average Period
1	4.75	6	4.17	11	4.28
2	4.52	7	5.26	12	4.36
3	6.10	8	4.28	13	4.30
4	5.15	9	4.28	14	4.43
5	5.14	10	4.34	15	4.37

12. In the present study, it was found that the examination failure rate for all of the University of Baghdad was about 17% in 1984/85, 11% in 1985/86, and 21% in 1986/87. In 1984/85 the highest failure rate was in Administration and Economics 43% and the lowest was in Medicine and Dentistry 5%. In 1985/86 the highest failure rate was in Arts 27% and the lowest was in Dentistry 1%. Finally in 1986/87 the highest failure rate was 33% in Physical Education and the lowest was in Veterinary Medicine 1%.

8.3 Implication for Further Research

Further research could be worthwhile. First the kind of analysis pursued in this study can be applied to other kinds of education in Iraq. Such analysis could estimate the returns on investment in different kinds of secondary schooling in Iraq, such as Academic, Agricultural, Industrial, or Commercial secondary school. Also, it could be used to evaluate the returns from investment in various technical institutes such as Technical Medicine Institute, Administration Institute, Technical Agricultural Institute, and others.

Second, because separate data have not been available for women, the present study did not include an examination of the female labour force and rates of return to women's education. An attempt could be made to rectify this shortcoming, as an increasing proportion of women are re-entering the labour market.

Third, rate of return analysis could be used to evaluate the returns to investment in different tiers of education in Iraq, such as primary, elementary, secondary school, and university education. Moreover, this analysis could be used to examine the rates of return on investment in diverse levels of higher education e.g. undergraduate, master, and doctorate. Such a comparison would aid planners in determining resource allocation between these levels.

Fourth, it has been stated several times that this study takes account only of the economic benefits reflected in the earnings received by way of salaries and wages. In order to use the rate of return results more effectively to plan university resource allocation, we would need to undertake the measurement of external benefits (non-market benefits).

Fifth, the present study did not include any allowance for the mortality of the (male) labour force. The inclusion of this factor in rate-of-return analysis would likely reduce the lifetime earnings of the labour force, thereby reducing the rates of return.

Sixth, because of the lack data, the present study did not include the incomes of university graduates working in the private sector. Moreover, the data used were obtained from the 1972/73 Survey of Public Sector Employees in Iraq, which is now somewhat out of date. New data could now be derived from the 1987 Census for different sectors. Using this data in rate of return analysis may produce results different from those reported in this study.

Seventh, the present study included the total labour force without regard to occupation. A study of income differences among graduates of by occupation displays substantial differential between private employees, public employees and self-employed. The inclusion of occupational classification in the rate of return analysis would probably produce different returns for the same specialism.

8.4 Problems of Data Available

The problems of data availability may be summarized in the following points:

- 1. A large amount of fundamental data which is directly connected with the operation of the educational system and could be used for educational planning is unavailable. For example, student costs, graduate costs, and wastage through dropout and repetition.
- 2. This study utilities the 1972/73 national survey of government and public sector employees in Iraq, for analysing salaries and wages. However, these data were adjusted for increases in salary and wages for period 1973 and 1987. The writer recommends to use the 1987 Census to establish income data for university education graduates and other levels of education in Iraq.
- 3. Cost and cost accounting systems in the education area have not been developed in Iraq. As a result, the cost data in this area were not

readily available and the researcher faced difficulties in collecting them. In order to provide cost data for different subjects in the university and different levels of education we would need to construct a cost accounting system for all faculties of university of Baghdad and other universities, institutes, and other schools. However, cost data produced by this system would enable planners and researchers to undertake more detailed and accurate analyses of returns by subject group.

- 4. Because of the lack of data and the absence of a cost accounting system, it was assumed that the average cost per student within the same faculty was equal regardless of the specialization or level. For example, the average institutional cost per student in the Education program was calculated on the basis of the total student enrolment in the Faculty of Education as whole. But this Faculty consists of two groups of subject (i) social humanities subjects such as languages, history, geographic etc. and (ii) scientific subjects such as physics, chemistry, botany etc. The cost of students studying in former group is probably lower than the cost of students studying the latter group because the second group are more likely to use expensive equipment, materials, and buildings. Calculating the cost per student by using the average cost may increase the rate of return to the scientific subject, and decrease the rate of return to the other subject group. If the cost accounting system is established, the cost will be classified according to department (scientific and humanities) and subject as well. This will provide cost data by subject and department which is convenient for planning and making comparisons between different subjects and universities.
- 5. Most adjustments refer to the benefits side. However, there are a few adjustments of the cost side as well. It may be the case that the typical graduate of a particular type of education has spent in school more than minimum number of years required by that cycle of education. In this case, costs have to be increased according to the number of repeaters. In the same way, if 50% of the entrants into a particular level of education fail to complete the cycle, then to produce one graduate at this educational level requires that two individuals must enter and therefore the cost of producing one graduate must include the cost incurred by the dropout. This will obviously lower the rate of return. In this study, because data on failures and droppouts are not available for the period under investigation, the costs are not adjusted for probability of failure and droppingout. The percentage failure rates which are mentioned in current chapter, section 2 are high because of the Iraq-Iran war. Students preferred to repeat the educational level instead of participating in the military service, so that these data do not reflect the real percentage of the failures and dropouts.

Nevertheless, the rates of return to investment in university education in Iraq are probably overestimated by not taking into account failure rates.

8.5 Recommendations of This Study

Following this study, several recommendations have been suggested for future planning in order to reduce the cost of education as well as using limited resources more efficiently and wisely. The recommendations are as follows:

1. Shift Resources

The first implication of our findings is that resources should be shifted from university education programs which achieve low rates of return (Science, Nursing, Agriculture, Administration and Economics, Law and Politics, Arts, Fine Arts, Education, Physical Education, and Alsharia) toward the programs which achieve high rates of return (Engineering, Medicine, Pharmacy, Dentistry, Veterinary Medicine). In other words, the results seem to point in direction of expansion in Engineering, Medicine, Pharmacy, Dentistry, and Veterinary Medicine.

2. Reduce the Cost of Education

Costs per student at all programs could be reduced by solving the problem of wastage, at the same time raising the quality of university education. This might be achieved by doing some of the following things, although we have not undertaken an evaluation of their effectiveness.

- (i) the government could provide welfare, Security, income promotion for teachers. The government could also encourage the production of adequate textbooks, and provide the teaching materials.
- (ii) the reason for dropouts is not always due to economic reasons or native talent of the student. It is due to the shortage of teachers.
- (iii)administration could be improved. The responsibility for the administration of education in Iraq is divided among: (1) the Ministry of Education which the responsibility concentrate on secondary (Academic and Vocational) teacher training institutes, and elementary school; (2) the Ministry of interior which is responsible for the administration of primary education, fundamental education and literacy programmes; and (3) higher education is administered by the Ministry of Higher Education and Science Research. More co-operation and co-ordination among the ministries need to increase the efficiency

with which resources are allocated and reduce the costs of all educational levels.

(iv) the planning of economic, education and social affairs should be co-ordinated, so that each can provide each other with necessary and precise information at the right time and in the right form as well. Moreover, these planner should responsible for performing at the lowest possible cost.

3. Shift a Large Part of Total Cost Toward individuals

An important portion of total costs could be shifted from society toward the individuals who acquire university schooling through some form of tuition fee. This would increase the cost of university studies for those who benefit from them. This policy is potentially politically explosive, however. A portion of the student population has recently demonstrated against it, as being a further barrier to students of limited financial means. This problem could be solved if this policy accompanied by adopting an appropriate program of grants and/or loans.

Under this policy those able to pay a greater part of their university costs would do so while those unable to pay would be subsidized or allowed to finance their studies by obtaining a loan, which is repaid from their future income.

4. Recover a Greater Portion of Total Costs by Taxing the Income of University Graduates

Society could recover a large part of its costs by taxing income derived from university education. This might take the form of an educational surtax on university earnings with different rates for graduates of various subjects. Such a policy could also be used to encourage the development of specialism most desired by "society" and/or its planners.

It should be noted that the rate of return is not the only criterion for educational planning. For example, a country may adopt a policy of expansion of university education for political reasons, regardless of monetary costs and benefits associated with it. Or it may be politically infeasible to slow down the expansion of university education, even if the economic returns to such investment are low, because the government not need the people feel that the policy of higher education has been failed. In Iraq the number of students enrolled in higher education (universities and institutes) in 1987 was three times the number of students in 1979. Also, it must be emphasized that the recommendations are made in the

absence of non-market benefits estimates. The existence of such benefits would raise the social benefits, and the social rates of return without affecting private rates of return, thus reducing the differences between the two.

In this study, it was concluded that the resources in university education should be shifted from low rates of return programs to high rates of return programs. Also, it was concluded that those who receive the benefits of university education should pay a larger portion of total cost, so that a system of tuition fees or a surtax on professional income would be recommended. However, cost-benefit studies in this case were based on direct monetary returns to education accruing to individuals and society, thus indirect (external) benefits were excluded. It is likely, therefore, that the total benefits and the rates of return were underestimated. Therefore, one reason for retaining a substantial public investment in any university education may be because it offers greater indirect benefits than the other levels of education.

APPENDIX A SUPPLEMENT TO CHAPTER 5

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Table A-1 Operating Expenditure, University Of Baghdad, 1981/82, (In ID).

Collego		Expenditure								
COrrege	31	32	33	37	38	Total				
1	1331300	28683	307306	129464	2866	1799619				
2	1941366	145105	317120	577260	528	2981379				
3	1602664	85338	342365	158512	40695	2229574				
4	449780	11790	68176	23742	588	554076				
5	699358	17841	121956	54811	19732	913698				
6	232341	6224	99813	9627	0	348005				
7	1079282	63934	363466	10406	6446	1523534				
8	1952432	62798	717611	206448	21056	2960345				
9	632909	28515	225178	1321	1343	889266				
10	514954	84596	161339	1490	0	762379				
11	1419769	27205	257043	62591	600	1767208				
12	1657426	81530	173140	100743	1950	2014789				
13	313020	61641	207286	7	0	581954				
14	458022	13816	68780	17561	344	558523				
15	170164	6255	87221	3992	300	267932				
16	783777	59126	653365	46603	249456	1990387				
17	21661	5179	270	0	0	27110				
18	1327206	93479	2265278	316111	779	4002853				
19	123076	3014	25104	8160	614	159968				

Source: Compiled from the audited trial balance, Accounting Office Administration and Finance Department, University Of Baghdad.

Table A-2

Operating Expenditure, Uni	versity Of Baghdad,	1982/83,	(In ID).
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Colloro	Expenditure								
correge	31	32	33	37	38	Total			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	$\begin{array}{c} 1232137\\ 1594315\\ 1469782\\ 491099\\ 703116\\ 230312\\ 1009624\\ 1784246\\ 591949\\ 509316\\ 1362525\\ 1553401\\ 335071\\ 425740\\ 229895\\ 872153\end{array}$	37889 102251 74800 11076 14342 44511 68760 56847 31088 54860 37001 99120 66604 18674 8223 34280	471746 353549 373110 101220 118730 60970 326696 537705 137186 162638 282801 164226 125495 81586 23088 220312	176192 751798 207566 38511 111429 10179 27056 229225 1378 2290 79679 102824 61 26037 4024 61	500 2200 2062 0 1516 940 800 0 400 600 1582 720 1200 800 800	$\begin{array}{r} 1918464\\ 2804113\\ 2127320\\ 641906\\ 947617\\ 347488\\ 1433076\\ 2608823\\ 761601\\ 729504\\ 1762606\\ 1921153\\ 527951\\ 553237\\ 266030\\ 1225883\end{array}$			
17 18 19	59747 1254671 110960	1509 94552 2286	3989 1730803 26125	00000 356659 10761	0000 1782 418	65245 3438467 150550			

Source: Compiled from the audited trial balance, Accounting Office Administration and Finance Department, University Of Baghdad.

Table A-3 Operating Expenditure, University Of Baghdad, 1983/84, (In ID).

Collega			Expendi	ture		
COrrege	31	32	33	37	38	Total
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	$\begin{array}{c} 1215100\\ 1522224\\ 1465987\\ 494755\\ 687628\\ 255411\\ 941896\\ 1767164\\ 535845\\ 509865\\ 1372683\\ 1558919\\ 349376\\ 436240\\ 296622\\ 822304\\ 60332 \end{array}$	64109 110226 52756 7452 16516 28607 89986 73317 45787 58085 157463 111750 68586 70952 14055 43006 1173	$\begin{array}{r} 437506\\ 348939\\ 472498\\ 52549\\ 202668\\ 29548\\ 373771\\ 393683\\ 125545\\ 181632\\ 185936\\ 353302\\ 91231\\ 77545\\ 51902\\ 425270\\ 8465\end{array}$	$\begin{array}{c} 196416\\ 791473\\ 211603\\ 47755\\ 130069\\ 11314\\ 32358\\ 240831\\ 2028\\ 11495\\ 79924\\ 134673\\ 371\\ 48599\\ 4471\\ 106084\\ 0\end{array}$	$\begin{array}{c} 1380\\ 1107\\ 75\\ 0\\ 400\\ 200\\ 2757\\ 750\\ 0\\ 700\\ 1000\\ 600\\ 320\\ 400\\ 0\\ 1342\\ 0\end{array}$	$\begin{array}{c} 1914511\\ 2773969\\ 2202919\\ 602511\\ 1037281\\ 325080\\ 1440768\\ 2475745\\ 709205\\ 761777\\ 1797006\\ 2159244\\ 509884\\ 633736\\ 367050\\ 1398006\\ 69970\end{array}$
18 19	1139465 107521	97663 2318	1228944 29922	368494 16408	1380 120	2835946 156289

Source: Compiled from the audited trial balance, Accounting Office Administration and Finance Department, University Of Baghdad.

Table A-4

Operating Expenditure,	University	Of Baghdad,	1984/85,	(In	ID).
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Collogo		Expenditure								
COILege	31	32	33	37	38	Total				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	$\begin{array}{c} 1230090\\ 1575889\\ 1458269\\ 463290\\ 745364\\ 269437\\ 956214\\ 1736485\\ 566552\\ 497864\\ 1347987\\ 1553623\\ 356296\\ 430513\\ 300000\\ 785794 \end{array}$	104006 167498 110282 15082 19257 33620 150479 181430 74752 86581 142913 143423 61904 58021 24742 62287	$\begin{array}{r} 372701\\ 566038\\ 389976\\ 91623\\ 262224\\ 42921\\ 511814\\ 1050040\\ 211609\\ 174822\\ 248552\\ 326588\\ 183732\\ 210318\\ 129780\\ 463996 \end{array}$	212294 814044 223201 53427 134907 18382 49728 255248 7577 17565 85042 150000 7363 57681 11254 157820	1844 1726 4536 1400 4354 3553 4067 200 2400 4064 200 200 1988	$\begin{array}{r} 1920935\\ 3125195\\ 2186264\\ 624822\\ 1166106\\ 364360\\ 1671788\\ 3223203\\ 864557\\ 777032\\ 1826894\\ 2177698\\ 609295\\ 756733\\ 465976\\ 1471885\end{array}$				
17 18 19	55022 1102756 119086	1385 168577 4926	15155 1857575 14987	0 456192 30028	0 1889 211	71562 3586989 169238				

Source: Compiled from the audited trial balance, Accounting Office Administration and Finance Department, University Of Baghdad.

Table A-5						
Operating	Expenditure.	University	Of	Baghdad.	1985/86.(In	ID).
opororowing	ango on to a to a	our contractor				

Collogo	Expenditure								
COrrede	31	32	33	37	38	Total			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18	$\begin{array}{c} 1260188\\ 1673317\\ 1514578\\ 498940\\ 741633\\ 271474\\ 992428\\ 1842284\\ 587671\\ 501403\\ 1370688\\ 1596148\\ 410403\\ 499191\\ 329323\\ 845602\\ 1112034 \end{array}$	240335 180291 82761 53309 79653 70612 40582 100476 148151 150002 312378 431779 107516 41580 41520 70097 509480	$\begin{array}{c} 650970\\ 615932\\ 615371\\ 129354\\ 449051\\ 260673\\ 450144\\ 795551\\ 465983\\ 165539\\ 700945\\ 990118\\ 352937\\ 248736\\ 168503\\ 663628\\ 1221783 \end{array}$	246474 841404 306312 61808 135236 23345 70713 270308 17614 21125 91905 219088 21336 75462 13749 184395 468313	$1916 \\ 1829 \\ 1307 \\ 400 \\ 2656 \\ 248 \\ 4545 \\ 0 \\ 800 \\ 200 \\ 1400 \\ 600 \\ 1256 \\ 1144 \\ 200 \\ 3037 \\ 2800 \\ 10$	$\begin{array}{c} 2399883\\ 3312773\\ 2520329\\ 743811\\ 1408229\\ 626352\\ 1558412\\ 3008619\\ 1220219\\ 838269\\ 2477316\\ 3237733\\ 893448\\ 866113\\ 553295\\ 1766759\\ 3314410 \end{array}$			
19	132796	3968	27499	32665	1000	197928			

Source: Compiled from the audited trial balance, Accounting Office Administration and Finance Department, University Of Baghdad.

Table A-6 Operating Expenditure, University Of Baghdad, 1986/87, (In ID).

Collogo	Expenditure								
COrrege	31	32	33	37	- 38	Total			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18	$\begin{array}{c} 1328821\\ 1686542\\ 1556170\\ 520813\\ 765255\\ 286665\\ 1020080\\ 1912255\\ 661689\\ 488680\\ 1354303\\ 1710261\\ 483789\\ 587206\\ 340879\\ 805997\\ 931146\end{array}$	$\begin{array}{c} 127136\\ 132394\\ 141977\\ 66191\\ 77050\\ 37064\\ 99143\\ 303155\\ 104885\\ 157098\\ 228702\\ 289745\\ 11320\\ 75572\\ 92508\\ 58098\\ 124419\\ \end{array}$	$\begin{array}{c} 557165\\ 555692\\ 407753\\ 114454\\ 266629\\ 134604\\ 458927\\ 661494\\ 507374\\ 212182\\ 634529\\ 693829\\ 492391\\ 289287\\ 135690\\ 527336\\ 745201 \end{array}$	249976 881472 313347 63567 139241 24712 86285 277467 22788 21125 95434 223050 42121 80620 15121 191144 470170	$1741 \\ 2019 \\ 0000 \\ 600 \\ 1156 \\ 0000 \\ 1600 \\ 400 \\ 1200 \\ 400 \\ 3043 \\ 200 \\ 200 \\ 200 \\ 2837 \\ 1194$	$\begin{array}{c} 2264839\\ 3258119\\ 2419247\\ 765625\\ 1249331\\ 483045\\ 1666035\\ 3154771\\ 1297936\\ 879485\\ 2313368\\ 2919928\\ 1131821\\ 1032885\\ 584398\\ 1585412\\ 2272130\\ \end{array}$			
1 19	1 140070	4065	453/	3/593	400	200665			

Source: Compiled from the audited trial balance, Accounting Office Administration and Finance Department, University Of Baghdad.

Table A-7								
Number and	Percentage	of	Students	by	College,	University	of	Baghdad
1981/82-1986	/87.							

Col	1981	./82	1982	2/83	1983	3/84	1984	1/85	1985	5/86	1986	5/87
lege	No	olo	No	olo	No	olo	No	00	No	00	No	00
1 2 3 4 5 6 7 8 9 10 11 12 13	2632 4092 1917 836 719 350 1417 2455 4318 1206 4317 6383 1080	7.87 12.24 5.73 2.50 2.15 1.05 4.24 7.34 12.92 3.61 12.92 19.10 3.23	2577 3328 894 785 250 1276 2702 4345 1238 4095 6889 1049	7.71 9.96 6.30 2.68 2.35 0.75 3.82 8.09 13.01 3.71 12.26 20.63 3.14	2722 4092 2118 854 791 198 1126 2227 4013 1148 4404 6441 931	8.16 12.27 6.35 2.56 2.37 0.59 3.38 6.68 12.03 3.44 13.21 19.31 2.79	2535 4474 2106 834 813 212 1023 1907 3960 1124 4200 6233 915	7.70 13.58 6.39 2.53 2.47 0.65 3.11 5.79 12.02 3.41 12.75 18.92 2.78	3009 4282 2044 877 854 214 977 2594 5076 1182 6886 7468 1308	$\begin{array}{c} 7.50\\ 10.67\\ 5.09\\ 2.19\\ 2.13\\ 0.53\\ 2.43\\ 6.46\\ 12.64\\ 2.94\\ 17.15\\ 18.60\\ 3.26\end{array}$	3152 4092 2056 944 939 338 1025 2657 5683 1182 8093 7955 1591	$\begin{array}{c} 7.37\\ 9.56\\ 4.81\\ 2.21\\ 2.19\\ 0.79\\ 2.40\\ 6.21\\ 13.28\\ 2.76\\ 18.92\\ 18.59\\ 3.72 \end{array}$
14 15	863 843	2.58 2.52	944 921	2.83 2.76	1255 1033	3.76 3.10	1416 1186	4.30 3.60	1839 1536	4.58 3.83	1820 1257	$4.25 \\ 2.94$
Total	33428	100%	33399	100%	33353	100%	32938	100%	40146	100%	42784	100%

Source: Compiled from the "Student's Records", Statistical Department of College Baghdad University.

Table A-8 Number and Percentage of Dormitory Students by College, University of Baghdad, 1981/82-1986/87.

Col	1981	./82	1982	2./83	1983	3/84	1984	1/85	1985	5/86	1986	5/87
lege	No	%	No	00	No	olo	No	olo	No	00	No	8
1 2 3 4 5 6 7 8 9 10 11 12 13 14	723 870 436 242 93 111 584 472 963 910 1479 3317 656 313		612 990 441 220 70 129 425 828 1058 876 1525 3297 574 418	5.03 8.13 3.62 1.81 0.58 1.06 3.49 6.80 8.69 7.20 12.53 27.08 4.72 3.43	562 1070 465 237 86 133 450 838 886 1538 2697 447 447	4.93 9.39 4.08 2.08 0.76 1.17 3.95 7.36 7.77 7.60 13.50 23.68 3.93 4.14	481 1024 391 198 79 82 415 642 746 810 1605 2661 331 404	4.56 9.70 3.70 1.87 0.75 0.78 3.93 6.08 7.07 7.67 15.20 25.20 3.13 3.83	906 1177 468 211 98 128 414 1055 1357 1175 3026 3399 573 572	5.80 7.54 3.00 1.35 0.63 0.82 2.65 6.76 8.69 7.53 19.38 21.77 3.67 3.67	645 1003 399 172 78 70 334 653 1048 964 2179 2604 458 328	5.59 8.70 3.46 1.49 0.68 0.61 2.90 5.66 9.09 8.36 18.90 22.58 3.97 2.85 5.5
Total	11717	100%	12173	100%	11390	100%	10558	100%	15611	100%	11530	100%

Source: Compiled from "Student's Records", Dormitory Department, University of Baghdad.

		Capit	al cost	* (to n	learest	ID 100)	
Description	1981	1982	1983	1984	1985	1986	1987
Tools and Equipment Laboratory Equipment Store Construction preparation Room (W) Annual total Previous cumulative total Cumulative total	13700 2300 16000	193700 36200 67600 2500 300000 316000	37900 37900 316000 353900	4700 4700 353900 358600	15100 15100 358600 373700	373700	373700
Opportunity cost (at %7 of capital cost per annual)		22120	24773	25102	26159	26159	26159

Opportunity and Capital cost of Science College, University of Baghdad, 1981/82-1986/87, (Iraqi Dinars). Table A-9

Source : Compiled from the "Construction Project" records, Five - Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

Opportunity and Capital Cost of Engineering College, University of Baghdad, 1981/82-1986/87, (iraqi dinars). Table A-10

				40			
		Cal	pital Cos	st (to r	learest i	[d 100)	
Description	1981	1982	1983	1984	1985	1986	7987
Additional floors construction	86800	64000					
Urgent requirement and Laboratory Equipments	579300	961000	470000	154800	2200	5800	167200
Tools, Equipment and Vehicles		23200	12600	100	6200		
Laboratory Equipments		32800	182600	154900	0078	5800	167200
Previous cumulative total		666100	1747100	2229700	2384600	2393000	2398800
Cumulative total	666100	1747100	2229700	2384600	2393000	2398800	2566000
Opportunity cost (at %7 of							
capital cost per annual)		122297	156079	166922	167510	167916	179620

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

A-6

				-10			
		Capit	al cost	: (to r	learest	ID 100	
Description	1981	1982	1983	1984	1985	386 L	1987
Development in College Building	105000						
Laboratory Equipment	252400	281500	00/6				
Additional floors Construction		172400					
Annual total		453900	9700				
Previous cumulative total		357400	811300	821000	821000	821000	821000
Cumulative total	357400	811300	821000	821000	821000	821000	821000
Opportunity cost (at %7 of							
capital cost per annual)		56791	57470	57470	57470	57470	57470

Opportunity and Capital cost of Medicine College, University of Baghdad, 1981/82-1986/87, (Tradi Dinars). Table A-11

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

Opportunity and Capital cost of Pharmacy College, University of Baghdad, 1981/82-1986/87, (Iraqi Dinars). Table A-12

		Capit	al cost	" (to п	learest	ID 100)	
Description	1981	1982	1983	1984	1985	1986	1987
Lecture, Halls and Rooms Tools, and Equipment			9700				104200
Shads Construction Annual total	3400		9700				104200
Previous cumulative total	0000	3400	3400	13100	13100	13100	13100
Cumulative total Opportunity cost (at %7 of	3400	3400	NULET	notet	DOTET	ONTET	006/77
capital cost per annual)		238	917	617	917	917	8211
source :							

A.7

TA TAPTT' 10 1006T-70 TOET	· (ston						
		Capit	al cost	; [*] (to I	learest	ID 100)	
Description	1982	1983	1984	1985	1986	1987	1987
Tools, and Equipment			46800	200	3300		
Laboratory Equipment Annual tota	13100		46800	200	3300		
previous cumulative total		13100	13100	59900	60100	63400	63400
Ĉumulative total	13100	13100	59900	60100	63400	63400	63400
Opportunity cost (at %7 of							
capital cost per annual)	917	917	4193	4207	4438	4438	4438

Table A-13 Opportunity and Capital cost of Dentistry College, University of Baghdad, 1081/827-1086/87 (Traci Discover)

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

Table A-14 Opportunity and Capital cost of Veterinary Medicine College, University of Baghdad, 1981/82-1986/87, (Iraqi Dinars).

		Capit	al cost	* (to r	tearest	ID 100)	
Description	1981	1982	1983	1984	1985	1986	1987
Washing and Laundry Unit Development of falter dirty	93400	51400					
water station	117400	197600	50000				
Pools for dipping sheeps	10000	2002	1 600				
Laboratory Equipments		600					
Annual total		250100	51600				
Previous cumulative total		220800	470900	522500	522500	522500	522500
Cumulative total	220800	470900	522500	522500	522500	522500	522500
Opportunity cost (at %7 of							
capital cost per annual)		32963	36575	36575	36575	36575	36575
Source .							

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

A.8
		Capita	L cost	(to neare	est ID 1((0)	
Description	1981	1982	1983	788T	1985	1986	1987
Agriculture tools and Equipments Complete garden Department Building Change in Agriculture Engineering Building Pools, and Equipments Fools, and Equipments Fools, and Equipments Beehive Construction Experiment Station Library Equipments Band and inter construction Annual total Previous cumulative total Cumulative total Cumulative total Cumulative total Cumulative total Cumulative total Cumulative total	398500 6000 2000 3600 10300 3600 424000	232000 29500 13500 3900 45700 45700 146700 618000 618000 1042000 1042000	46700 9600 9000 1800 1800 11042000 1109100 17637	34000 34000 34000 1109100 11109100 1109100	10300 1143100 1153400 1153400 1153400	95800 95800 1249200 1249200 87444	10500 10500 1249200 1259700 1259700

Opportunity and Capital cost of Agriculture College, University of Baghdad, 1981/82-1986/87, (Iraqi Dinars). Table A-15

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

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Opportunity and Capital Cost of Law and Politics College, University of Baghdad 1981/82-1986/87 (Iraqi Dinars). Table A-16

Description 1981 1 Reception room Lecture halls and rooms	0000					
Reception room Lecture halls and rooms	788T	1983	1984	1985	1986	1987
Lecture halls and rooms					7200	
					29100	
4 KOOMS CONSCIUCTION						13000
[Land 627600]	0 600					
Annual total	600				36300	13000
Pulverise cumulative total 62	628200	628200	628200	628200	664500	677500
Cumulative total [627600]62	0 628200	628200	628200	628200	664500	677500
Opportunity cost (at %7 of						
Capital cost per annual)	43974	43974	43974	43974	46515	47425

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

		Capi	ttal cost	* (to ne	earest II	100)	
Description	1961	1982	1983	1984	1985	1986	1987
Two buildings construction Land for Development requirement Annual total	325600 1862300	82800 1900 84700				www.anditector	
Previous cumulative total Cumulative total	2187900	2187900 2272600	2272600 2272600	2272600 2272600	2272600 2272600	2272600 2272600	2272600 2272600
opportunity cost (at %) or capital cost per annual)		159082	159082	159082	159082	159082	159082

Opportunity and Capital cost of Administration And Economic College, University of Baghdad 1981/82-1986/87, (Iraqi Dinars). Table A-17

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

Opportunity and Capital cost of Arts College, University of Baghdad, 1981/82-1986/87 (Iraqi Dinars) . Table A-18

		Capit	al cost	to n	learest	ID 100)		
Description	1981	1982	1983	1984	1985	1986	1987	
Tools and Equipment Laboratory Equipment Annual total Previous cumulative total Cumulative total Opportunity cost (at %7 of capital cost per annual)	47600 47600	1600 1600 47600 49200 3444	49200 49200 3444	49200 49200 3444	49200 49200 3444	49200 49200 3444	49200 49200 3444	

Source : Sompiled from the "Construction Project" records, Five-Year Economic Development, Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

		Capite	al cost	to ne	arest I	D 100)
Description	1982	1983	1984	1985	1986	1987
Tools and Equipment Laboratory Equipment Annual total Previous cumulative total Cumulative total copportunity cost [at %7 of copital cost per annual)	365100 38200 383300 383300 383300 383300 26831	383300 383300 26831	109600 109600 383300 492900 34503	492900 492900 34503	492900 492900 34503	492900 492900 34503

Opportunity and Capital cost of Education College, University of Baghdad, 1981/82-1986/87 (Iragi Dinars). Table A-19

Source : Compiled from the "Construction Project" records, Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

Opportunity and capital cost of Physical Education College, University of Baghdad 1981/1982-1986/1987, (Iraqi Dinars). Table A-20

Capital cost (to nearest ID 100)	1987	105600 105600 7392
	Description	College building furnish in Chadrai Annual total Opportunity cost (at %7 of capital cost per annual)

Source: Compiled from the "Construction Project" records, Five Year Economic Development Plan Section administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost.

ЧÖ	
University	
College,	
Arts	
Fine	
ЧÖ	
Academy	Dinars).
Å	ç
cost	(Ira
capital	-1986/87,
and	1/82
Opportunity	Baghdad, 198
Table A-21	

L

		Capita	l cost	(to ne	arest I	D 100)	
Description	1981	1982	1983	1984	1985	1.986	1987
Lecture halls and rooms Shades construction	131500 11500	00011 0011	124300	2000		107100	
Tools and equipment Workshop construction		OUTOV					36400
Annual ĉotal		160200	124300	2000		107100	36400
Previous cumulative total		143000	303200	427500	429500	429500	536600
Cumulative total	143000	303200	427500	429500	429500	536600	573000
Opportunity cost (at %7 of						1	
capital cost per annual)		21224	29925	30065	30065	37562	40110

Source : Compiled from the "Construction Project", Five-Year Economic Development Plan Section, Administration And Finance Department, University of Baghdad. * Capital cost is the actual historical cost .

Opportunity and capital cost of Administration Office, University of Baghdad, 1981/1982-1986/1987, (Iraqi Dinars). Table A-22

L

	Car	ital co	st [°] (to	o neares	t ID 10	(0)
Description	1982	1983	1984	1985	1986	1987
Tool, Equipments and Vehicles	203400	142800	9200	16000	002001	00216
computer Annual total	203400	142800	9300	119000	123700	21700
Previous cumulative total		203400	346200	355500	474500	598200
Cumulative total	203400	346200	355500	474500	598200	619900
Opportunity cost (at %7 of				1		1
capital cost per annual)	14238	24234	24885	33215	41874	43393
		l				

Source: Source: Compiled from the "Construction Projects" records, Five-Year Rconomic Development Plan Section, Administration And Finance Department, University of Baghdad . * Capital cost is the actual historical cost .

		Capite	al cost [‡]	(to near	est ID 1	(00)	
Description	1981	1982	1983	1984	1985	1986	1987
Reception Room Additional life to student residence	4500 28400	4100	500 8200				
Boarding residence furnish		1500000	352600	100000	447200	41800	
Annual total		1504100	361300	100000	447200	41800	
Previous cumulative total		32900	1537000	1898300	1998300	2445500	2487300
Cumulative total	32900	1537000	1898300	1998300	2445500	2487300	2487300
Opportunity cost (at %7 of							
capital Cost per annual)		107590	132881	139881	171185	174111	174111

Opportunity and capital cost of Dormitory Office, University of Baghdad, 1981/1982-1986/1987, { Iraqi Dinars }. Table A-23

Source : Compiled from the "Construction Project" records, Five-Year Economic Development
Plan, Administration And Finance Department, University of Baghdad.
* Capital cost is the actual historical cost.

Opportunity and capital cost of Land by college, University of Baghdad, 1981/82-1986/87, { Iragi Dinars }. Table A-24

	Capital Cost [*] (To nearest	Opportu	nity Co	st (at er ann	%7 of c lal)	apital	cost	
College	foot at	1982	1983	1984	1985	1986	1987	
Science	633700	44359	44359	44359	44359	44359	44359	
Engineering	630000	441000	441000	441000	441000	441000	441000	
Medicine	863300	60431	60431	60431	60431	60431	60431	
Pharmacy	269000	18830	18830	18830	18830	18830	18830	
Dentistry	287800	20146	20146	20146	20146	20146	20146	
Nursing	231200	16184	16184	16184	16184	16184	16184	
Veterinary Medicine	2500000	175000	175000	175000	175000	175000	175000	
Agriculture	512800	35896	35896	35896	35896	35896	35896	
Admin And Economics	548400	38388	38388	38388	38388	38388	38388	
Law And Politics	28200	1974	1974	1974	1974	1974	1974	
Arts	1707800	119546	119546	119546	119546	119546	119546	
Education	1697000	118790	118790	118790	118790	118790	118790	
Academy of Fine Arts	221000	15470	15470	15470	15470	15470	15470	
Physical Education	47700	3339	3339	3339	3339	3339	3339	
Administration Office	1.000000	70000	70000	70000	70000	70000	70000	
Dormitory Office	1.901200	133084	133084	133084	133084	133084	133084	
Central Îibrary	64100	4487	4487	4487	4487	4487	4487	

Source: Compiled from financial records, Accounting Office, Administration And Finance Department, University Of Baghdad. *Capital cost is the actual historical cost.

UITICE and LIDIALY CENTRAL)	to various	berron :	es, untv	егзтсу с	T Bagnda	10, 1981	182, 1	-n-r ur	
					0	ollege			
Description	Cost In	direct		2	e	7	5	و	7
Operating Costs*									
Administration Office (a)		792327	141056	219381	102700	44808	38535	18819	75995
Registration Office (a)		27110	2133	3318	1553	678	583	285	1149
Central Library		159968	12589	19580	9166	3999	3439	1680	6783
Dormitory Office (b)	a	002853	246976	297012	148906	82859	31622	38027	199342
rotal Î	20	982258	402754	539291	262325	132344	14179	58811	283269
Dpportunity Costs **									
Administration Office (a)									
Capital Cost (except Lands)		14238	1121	1743	816	356	306	150	604
Capital Cost of Lands		70000	5509	8568	4011	1750	1505	735	2968
Central Library (a)									
Capital Costs of Lands		4487	353	549	257	112	16	47	190
Dormitory Office (b)									
Capital Costs (except Lands)		107590	6638	7983	4002	2227	850	1022	5358
Capital Costs of Lands		133084	8211	9875	4951	2755	1051	1264	6628
rotal		329399	21832	28718	14037	7200	3809	3218	15748

Table A-25 Allocation of Indirect Cost (costs of Administration Office, Registration Office, Dormitory

Table A-25 (continued)

					Col	lege			
Description		œ	a	10	11	12	13	14	15
Operating Costs*									
Administration Office	(a)	131557	231569	64703	231569	342334	57892	46242	45167
Redistration Office	(a)	1990	3503	979	3503	5178	876	669	683
Central Library	(a)	11742	20668	5775	20668	30554	5167	4127	4031
Dormitory Office	(q	161315	329035	311022	505160	1133208	224160	106876	187333
Total		306604	548775	382479	760900	1511279	288095	157944	237214
Opportunity Costs ^{°°}									
Administration Office	(a)								
Capital Cost (except Lands)		1045	1839	514	1839	2719	460	367	359
Capital Cost of Lands		5138	9044	2527	9044	13370	2261	1806	1764
Central Library	(a)								
Capital Costs of Lands		329	580	162	580	857	145	116	113
Dormitory Office	(ସ)								
Capital Costs (except Lands)		4336	8844	8360	13578	30459	6025	2873	5035
Capital Costs of Lands		5363	10940	10341	16795	37676	7453	3553	6228
Total		16211	31247	21904	41836	85081	16344	8715	13499

Allocation criteria as follows: (a) According to percent of students by college, (Table A-7) . (b) According to percent of dormitory students by college, (see Table A-8).

					4	ſ				
							ollege			
)escription		Cost Indi	rect	1	2	e	4	5	9	7
Derating Costs										
Administration Office (¿	a)	122	5883	94516	122098	77231	32854	28808	9194	46829
Redistration Office	a)	0	5245	5030	6499	4111	1749	1533	489	2492
Central Library	a)	15	0550	11607	14995	9485	4035	3538	1129	5751
Jormitory Office (k		343	8467	172955	279547	124473	62236	19943	36447	120002
fotal **		488	0145	284108	423139	215300	100874	53822	47259	175074
)pportunity Costs .										
Administration Office (a	a)									
Capital Cost (except Lands)		5	4234	1868	2414	1527	649	569	182	926
Capital Cost of Lands		2	0000	5397	6972	4410	1876	1645	525	2674
central Library (a	а)									
Capital Costs of Lands			4487	346	447	283	120	105	34	171
)ormitory Office (F	(0									
Capital Costs (except Lands)		13.	2881	6684	10803	4810	2405	TLL	1409	4638
Capital Costs of Lands		13.	3084	6694	10820	4818	2409	772	1411	4644
rotal		36	4686	20989	31456	15848	7459	3862	3561	13053

Allocation of Indirect Cost (costs of Administration Office, Registration Office, Dormitory Cost Office and Library Central) to various colleges, University of Baghdad, 1982/83, (In I.D.). Table A-26

Table-26 (continued)

					Col	Llege			
Description		ø	6	10	11	12	13	14	15
Operating Costs									
Administration Office	(a)	99174	159487	45480	150293	252900	38493	34692	33834
Registration Office	(a)	5278	8488	2421	7999	13460	2049	1846	1801
Central Library	(a)	12179	19587	5585	18457	31059	4727	4261	4155
Dormitory Office	(q)	233816	298803	247570	430840	931137	162296	117939	200463
Total		350447	486365	301056	607589	1228556	207565	158738	240253
Opportunity Costs									
Administration Office	(a)								
Capital Cost (except Lands)		1961	3153	668	2971	6667	761	686	609
Capital Cost of Lands		5663	9107	2597	8582	14441	2198	1.981	1932
Central Library	(a)								
Capital Costs of Lands		363	584	166	550	926	141	127	124
Dormitory Office	(q)								
Capital Costs (except Lands)		9036	11547	9567	16650	35984	6272	4558	7747
Capital Costs of Lands		9050	11565	9582	16675	36039	6281	4565	7759
Total		26073	35956	22811	45428	92389	15653	11917	18231

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operating costs are iron withes (A-1). * Opportunity costs are irom wattes $(A-2, C) \to A-2$ to A-Sillocation criteria as follows: (a) According to percent of students by college, (Table A-7); (b) According to percent of dormitory students by college, (Table A-8).

			1	•					
					0	ollege			
Description	Cost Ind	direct	1	2	е	4	5	و	7
Operating Costs Administration Office (a)	1	398006	114077	171535	88773	35789	33133	8248	47253
Registration Office (a)		69970	5710	8585	4443	1791	1658	413	2365
Central Library (a)		156289	12753	19177	9924	4001	3704	922	5283
Dormitory Office (b)	5	835946	139812	266295	115707	58988	21553	33181	112020
Total 2 **	4	160211	272352	465592	218847	100569	60048	42764	166921
Opportunity Costs									
Administration Office (a)						6	6	5	
Capital Cost (except Lands)		24885	2031	3053	084T	631	0.60	1 7 7	1778
Capital Cost of Lands		70000	5712	8589	4445	1792	1659	413	2366
Central Library (a)									
Capital Costs of Lands		4487	366	551	285	115	106	26	152
Dormitory Office (b)									1
Capital Costs (except Lands)		139881	6896	13135	5707	2910	1063	1637	5525
Capital Costs of Lands		133084	6561	12497	5430	2768	1011	1557	5257
Total		372337	21566	37825	17447	8222	4429	3780	14141

Table A-27 Allocation of Indirect Cost (costs of Administration Office, Registration Office, Dormitory Office and Library Central) to various colleges, University of Baghdad,1983/84, (In I.D.)

Table A-27 (continued)

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$						Col	lege			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Description		œ	g	10	11	12	13	14	15
Registration Office (a) 4674 8418 2407 9243 13511 1952 2631 2169 Central library Dimitory Office (a) 10440 18802 5376 9243 13511 1952 2631 2169 Central library Diffice (a) 20825 20313 51532 382536 511452 11452 17480 64845 Contral library Diffice (a) 208753 205532 382536 511752 11452 17480 210867 Opportunity Costs 2 208753 28753 28749 5197 55769 178480 210867 Opportunity Costs Carpital Cost of Lands (a) 1662 2994 856 3287 4805 694 936 772 Capital Cost of Lands (a) 300 540 154 593 2632 2170 1791 Capital Costs of Lands (a) 300 540 154 5497 5497 5791 791 791 Contral Library 0ffice (b) 10631	<u>Operating Costs</u> Administration Office	(a)	93387	168180	48092	184677	269955	39004	52565	43338
Central Library Dormitory Office(a)104401880253762064630179436158764845Dormitory TotalOffice(b)20872321553221553211452117408160515Dormitory TotalOffice(b)208753271407597419985197156769178480210867Doportunity 	Registration Office	(a)	4674	8418	2407	9243	13511	1952	2631	2169
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Central Library	(a)	10440	18802	5376	20646	30179	4361	5876	4845
Total for the formation of the formation	Dormitory Office	(q)	208725	220353	215532	382853	671552	111452	117408	160515
Opportunity Costs (a) 1662 2994 856 3287 4805 694 936 772 Capital Cost of Lands (a) 1662 2994 856 3287 4805 694 936 772 Capital Cost of Lands (a) 4676 8421 2408 9247 13517 1953 2632 2170 Capital Cost of Lands (a) 300 540 154 593 866 125 169 139 Capital Costs of Land (b) 10295 10869 10631 18884 33124 5497 5791 7917 Capital Costs of Land (b) 10295 10869 10631 18884 33124 5497 5791 7533 Capital Costs of Land 25103 15530 2530 5510 7533 7533 Total 2632 224163 49977 83826 13499 15038 18531	Total		317226	415753	271407	597419	985197	156769	178480	210867
Administration Office (a) 1662 2994 856 3287 4805 694 936 772 Capital Cost (except Lands) 1662 2994 8451 2408 9247 13517 1953 2632 2170 Capital Cost (except Lands) (a) 300 540 154 593 866 125 169 139 Capital Cost (except Lands) (a) 300 540 154 593 866 125 169 139 Capital Costs (except Lands) (b) 10295 10869 10631 18884 33124 5497 5791 7917 Dermitory Office (b) 10295 10869 10641 10114 17966 31514 5497 5791 7917 Capital Costs (except Lands) 97285 10869 10641 10114 17966 31514 5497 5791 7917 Total 25105 75165 24163 49977 83826 13499 15038 18531	Opportunity Costs									
Capital Cost (except Lands)1662299485632874805694936772Capital Cost of Landsfands467684212408924713517195326322170Central Librarycapital Costs of Land(a)300540154593866125169139Capital Costs of Land(b)1029510869106311888433124549757917917Capital Costs of Land(b)1029510341101141796631214552055107533Capital Costs of Land2672833165241634997783826134991853118531	Administration Office	(a)				*****				
Capital Cost of Lands 4676 8421 2408 9247 13517 1953 2632 2170 Cantral library Capital Costs of Land (a) 300 540 154 593 866 125 169 139 Dormitory Office (b) 10295 10869 10631 18884 33124 5497 5791 7913 Capital Costs of Land 9795 10341 10114 17966 31514 5230 5510 7533 Total 26728 33165 24163 49977 83826 13499 18531	Capital Cost (except Lands)		1662	2994	856	3287	4805	694	936	772
Central Library (a) 300 540 154 593 866 125 169 139 Capital Costs of Land (b) 300 540 154 593 866 125 169 139 Dermitory Office (b) 10295 10369 10631 18884 33124 5497 5791 7917 Capital Costs of Land 9795 10341 10114 17966 31514 5230 5510 7533 Total 26728 33165 24163 49977 83826 13499 15038 18531	Capital Cost of Lands		4676	8421	2408	9247	13517	1953	2632	2170
Capital Costs of Land 300 540 154 593 866 125 169 139 Dormitory Office (b) 10295 10869 10631 18884 33124 5497 5791 7917 Capital Costs (except Lands) 9795 10341 10114 17966 31514 5230 5510 7533 Total 26728 33165 24163 49977 83826 13499 18531	Central Library	(a)								
Dormitory Office (b) 10295 10869 10631 18884 33124 5497 5791 7917 Capital Costs (except Lands) 9795 10341 10114 17966 31514 5230 5510 7533 Capital Costs of Land 2728 33165 24163 49977 83826 13499 18531	Capital Costs of Land		300	540	154	593	866	125	169	139
Capital Costs (except Lands) 10295 10869 10631 18884 33124 5497 5791 7917 Capital Costs of Land 9795 10341 10114 17966 31514 5230 5510 7533 Total 26728 33165 24163 49977 83826 13499 18531	Dormitory Office	(q)								
Capital Costs of Land 9795 10341 10114 17966 31514 5230 5510 7533 Total 26728 33165 24163 49977 83826 13499 15038 18531	Capital Costs (except Lands)		10295	10869	10631	18884	33124	5497	5791	7917
Total 24163 49977 83826 13499 15038 18531	Capital Costs of Land		9795	10341	10114	17966	31514	5230	5510	7533
	Total		26728	33165	24163	499777	83826	13499	15038	18531

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Allocation criteria as follows: (a) According to percent of students by college, (Table A-7); (b) According to percent of dormitory students by college, (Table A-7);

				7						
	******				0	ollege				
Description	Cost	Indirect		3	ю	4	5	9	7	
Operating Costs [*]								0.00		
Administration Office (a) Registration Office (a)		C881/71	C22271	Z8866T	4573	1817	1768	1906	91107	
Central Library (a)	1131600	169238	13031	22983	10813	4282	4180	1100	5263	
Dormitory Office (b)		3586989	163567	347938	132719	67077	26902	27978	140969	
rotal _ **		5299674	295443	580521	242158	1204091	69206	39110	194234	
Deportunity Costs										
Administration Office (a)		21000	2550	1511	0010	070	000	216	2012	
capical cost of Lands Capital Cost of Lands		100002	0685	9206	4473	1771	1729	455	2177	
Central Library (a)										
Capital Costs of Lands		4487	345	609	287	114	111	29	140	
Dormitory Office (b)				1		1	1			
Capital Costs (except Lands)		171185	7806	16605	6334	3201	1284	1335	6728	
Capital Costs of Lands		133084	6069	12909	4924	2489	998	1038	5230	
rotal		116115	22168	44140	18140	8415	4942	3073	15308	

Allocation of Indirect Cost (costs of Administration Office, Registration Office, Dormitory Office and Library Central) to various colleges, University of Baghdad, 1984/85 , (In I.D.). Table A-28

Table A-28 (continued)

					Col	lege			
Description		œ	6	10	E E	12	13	14	15
Operating Costs									
Administration Office (a	a)	85222	176921	50191	187665	278481	40918	63291	52988
Registration Office		4143	8605	2440	9124	13540	1989	3077	2576
Central Library		9799	20343	5771	21578	32020	4705	7277	6093
Dormitory Office (b	(0	218089	253600	275122	545222	903921	112273	137382	234230
Total 🕺 🤐		317253	459466	333524	763589	1227962	1598851	211027	295887
Opportunity Costs ^{°°}									
Administration Office (a	(e								
Capital Cost (except Lands)		1923	3993	1133	4235	6284	923	1428	1196
Capital Cost of Lands		4053	8414	2387	8925	13244	1946	3010	2520
Central Library (a	(e								
Capital Costs of Lands		260	539	153	572	849	125	193	161
Dormitory Office (b	(0								
Capital Costs (except Lands)		10408	12103	13130	26020	43139	5358	6556	11178
Capital Costs of Lands		8091	9409	10208	20229	33537	4166	5097	8690
Total		24735	34458	27011	18665	97053	12518	16284	23745
ource: * Operating costs are fi	rom Tables	(<u>A</u> -3):	4* Opp	ortunity	costs	are from	Tables	(A-22 t	0 A-24

operating costs are non manually x^{-1} upportuntly costs are non fatters $\sqrt{x^{-1/2}}$ (b) According to percent of students by college, (Table \overline{A}^{-1}); (b) According to percent of dormitory students by college, (Table \overline{A}^{-1});

and manager A concrete in a service	THO SECTION OF				1001			
				o	ollege			
Description	Cost Indirect	T	~	m	4	5	6	7
Operating Costs * Adminition Office (a)	1766750	132507	188513	80028	38692	37632	0364	02020
central Library (2)	197928	14845	21119	10074	4334	4216	1049	4810
Dormitory Office (a)	3314410	192236	249906	99432	44745	20881	27178	87832
Total (b)	5279097	339588	459538	199434	87771	62729	37591	135574
Opportunity Costs Ĉ Administration Office (a)					*****			
Capital Cost (except Lands)	41874	3141	4468	2131	917	892	222	1018
Capital Cost of Lands	70000	5250	7469	3563	1533	1491	371	1701
Capital Costs of Lands	4487	337	479	228	98	95	24	109
Dormitory Office (b)	111121	10000	00101	5003	2350	1007	1428	467.4
capital Costs (eacey: Janua) Capital Costs of Lands	133087	6177	10035	3993	1797	838	1091	3527
Total	423559	26545	35579	15138	6695	4413	3136	10969

Table A-29 Allocation of Indirect Cost (costs of Administration Office, Registration Office, Dormitory Office and Library Central) to various colleges, University of Baghdad, 1985/86,

Table A-29 (continued)

					[o]	lege			
Description		8	6	10	11	12	13	14	15
Operating Costs									
Administration Office	(a)	114133	223318	51943	302999	328617	96676	81608	19919
Central Library	(a)	12/80 00/01/0	81052	9180	04922	CTROS	70700	0002	TRC/
Dormitory UILICE	(a)	5C0577	220202	C/ C6 77	042333	15CT7/	1200121	AC0777	160022
Total		350973	236358	301331	112616	1086919	189C8T	220112	298039
Opportunity Costs									
Administration Office	(a)								
Capital Cost (except Lands)		2705	5293	1231	7181	7788	1365	1918	1604
Capital Cost of Lands		4522	8848	2058	12005	13020	2282	3206	2681
Central Library	(a)								
Capital Costs of Lands		290	567	132	770	835	146	205	172
Dormitory Office									
Capital Costs (except Lands)		11770	15130	13111	33743	37904	6390	6390	11735
Capital Costs of Lands		8997	11565	10022	25792	28973	4884	4884	8970
Total		28284	41403	26554	79491	88520	15067	16603	25162

Alfocation criteria as follows: (a) According to percent of students by college, (Table A-7); (b) According to percent of dormitory students by college, (Table A-8).

			1	1	•				
					υ	ollege			
Description	Cost	Indirect	1	2	3	4	5	9	7
Operating Costs [*] administration Office (a)		1585412	116845	151565	76258	35038	34721	12525	38050
Central Library (a)		206665	15231	19757	9941	4567	4526	1633	4960
Dormitory Office (b)		2272130	127012	197675	78616	33855	15450	13860	65892
Total		4064207	259088	368997	164815	73460	54697	28018	108902
Opportunity Costs ** Administration Office (a)									
Capital Cost (except Lands)		43393	3198	4148	2087	959	950	343	1041
Capital Cost of Lands		70000	5159	6692	3367	1547	1533	553	1680
Central Library (a)		2097	100	000	210	0	00	0	100
Capital Costs of Lands Dormitory Office (b)		1877	Tee	677	017	ה ה ה	0	0	007
Capital Costs (except Lands)		174111	9733	15148	6024	2594	1184	1062	5049
Capital Costs of Lands		133087	7440	11579	4605	1983	905	812	3859
Total		425078	25861	37996	16299	7182	4670	2805	11737

Allocation of Indirect Cost (costs of Administration Office, Registration Office, Dormitory Office and Library Central) to various colleges, University of Baghdad, 1986/87, (In I.D.). Table A-30

Table A-30 (continued)

					Col	lege			
Description		8	6	10	11	12	13	14	15
Operating Costs									
Administration Office (a)		98454	210543	43757	299960	294728	58977	67380	46611
Central Library (a)		12834	27445	5704	39101	38419	7688	8783	6076
Dormitory Office (b)		128602	206537	189950	429432	513047	90204	64756	117242
rotal 🕺 🐣		068685	444525	239411	768493	846194	156869	140919	169929
Opportunity Costs [°]	<u> </u>								
Administration Office (a)		and the							
Capital Cost (except Lands)		2695	5763	1198	8210	8067	1614	1844	1276
Capital Cost of Lands		4347	9296	1932	13244	13013	2604	2975	2058
Central Library (a)									
Capital Costs of Lands		279	596	124	849	834	167	190	132
Dormitory Office (b)									
Capital Costs (except Lands)		9855	15827	14556	32907	39314	6912	4962	8984
Capital Costs of Lands		7533	12098	11126	25153	30051	5283	3793	6867
rotal	<u> </u>	24709	43580	28936	80363	91279	16580	13764	19317
the second secon			++			1		1 + CC-E	100-6

Operating costs are from Tables (A-6); ** Opportunity costs are from Tables (A-22 to A-24). Allocation criteria as follows: (a) According to percent of students by college, (Table A-7); (b) According to percent of dormitory students by college, (Table A-8). Source:

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- ("A"T UT)								
					College			
Description		н	7	e	ъ	5	و	7
Operating Costs (Direct Costs)	(a)	1799619	2981379	2229574	554076	913698	348005	1523534
<u>Opportunity costs</u> Capital Cost (except the Lands) Capital Cost of Lands		22120 44359	122297 441000	56791 60431	238 18830	917 20146	16184	32963 175000
Potal Opportunity Cost		66479	563297	117222	19068	21063	16184	207963
Allocation Indirect Costs Operating Costs Opportunity Costs	(0)	402754 21832	539291 28718	262325 14037	132344 7200	74179 3809	58811 3218	283269 15748
Total Allocation Indirect Costs		424586	568009	276362	139544	77988	62029	299017
Total Institutional Costs	(Ŧ)	2290684	4112685	2623158	712688	1012749	426118	2030514
Number of Students Enrolled Institutional Cost Per Student	(q) (e)	2632 870	4092 1005	1917 1365	852 852	719	350 1217	1417 1433

Table A-31 Total Institutional Costs and Institutional Cost Per Student, University of Baghdad, 1981/82,

Table A-31 (continued)

					College				
Description	ø	6		10	11	12	13	14	15
Operating Costs (Direct Costs) (a) 29603	45 889	266	762379	1767208	2014789	581954	558523	267932
Upportunity costs Capital Cost (except the Lands) Capital Cost of Lands	358	1596 389	082 388	34974 1974	3444 119546	26831 118790	3339	21224 15470	
Total Opportunity Cost	106	36 198	470	45948	122990	145621	3339	36694	
<u>Allocation Indirect Costs</u> (c. Operating Costs Opportunity Costs	3066	11 584 31	775 247	382479 21904	760900 41836	1511274 85081	288095 16344	157944 8715	237214 13499
Total Allocation Indirect Costs	3228	15 616	022	404383	802736	1596355	304439	166659	250713
Total Institutional Costs (f)	33897	96 1703	758 1	212710	2692934	3756765	889732	761876	518645
Number of Students Enrolled (d) Institutional Cost Per Student (e)	13	81	318	1206 1006	4317 624	6383 589	1080 824	863 883	843 615
The second	[-0] o[40	· (P)	4-0000) wiinn	Cote fro	m Tablec	0-01	-110-E	

Source:

A 14 14.

3×.,2

(a) Operating Costs from Table (A-1); (b) Opportunity Costs from Tables (A-9...A-21);
(c) Allocation Indirect Costs from Table (A-25); (d) Number of Students Enrolled from Table (A-7);
(e) Institutional Cost Per Student is f/d.

A-20

- (
					College			
Description		T	2	ε	Ť	5	9	7
Operating Costs (Direct Costs)	(a)	1918464	2804113	2127320	641906	947617	347488	1433076
Upportunity costs Capital Cost (except the Lands) Capital Cost of Lands	(1)	24773 44359	156079	57470 60431	917 18830	917 20146	16184	36575 175000
Total Opportunity Cost		69132	597079	117901	19747	21063	16184	211575
Allocation Indirect Costs (Dperating Costs Dpportunity Costs	0	284108 20989	423139 31456	215300 15848	100874 7459	53822 3862	47259 3561	175074 13053
Total Allocation Indirect Costs		305097	454595	231148	108333	57684	50820	188127
Total Institutional Costs (£)	2292693	3855787	2476369	769986	1026364	414492	1832778
Number of Students Enrolled (Institutional Cost Per Student (() ()	2577 890	3328 1159	2106 1176	894 861	785 1307	250 1658	1276 1436

Total Institutional Costs and Institutional Cost Per Student, University of Baghdad, 1982/83, (I.D.). Table A-32

Table A-32 (continued)

					College				
Description	L	œ	6	10	11	12	13	14	15
Operating Costs (Direct Costs)	(a)	2608823	761601	729504	1762606	1921153	527951	553237	266030
<u>Upportunity costs</u> Capital Cost (except the Lands) Capital Cost of Lands	(q)	77637 35896	159082 38388	43974 1974	3444 119546	26831 118790	3339	29925 15470	
Total Opportunity Cost	L'	113533	197470	45948	122990	145621	3339	45395	
<u>Allocation Indirect Costs</u> Operating Costs Opportunity Costs	ં	350447 26073	486365 35956	301056 22811	607589 45428	1228556 92389	207565 15653	158738 11917	240253 18231
Total Allocation Indirect Costs	L	376520	522321	323867	653017	1320945	223218	170655	258484
Total Institutional Costs	Ĵ.	3098876	1481392	1099319	2538613	3387719	754508	769287	524514
Number of Students Enrolled Institutional Cost Per Student	(e) (g	2702 1147	4345	1238 888	4095	6889 492	1049	944 815	921 570
	Table	ec (3-2)	0000 (q) .	rtunity (osts fro	ables mo	(A-9	A-211	

Source:

(a) Operating Costs from Tables (A-2); (b) Opportunity Costs from Tables (A-9...A-21)
(c) Allocation Indirect Costs from Tables (A-26); (d) Number of Students Enrolled from Table (A-7)
(e) Institutional Cost Per Student is f/d

- (-T.I. 'BO/COFT							
				College			
Description	1	2	e	4	5	0	7
Operating Costs (Direct Costs) (a)	1914511	2773969	2202919	602511	1037281	325080	1440768
Cupturturery costs Capital Costs (except the Lands) Capital costs of the Lands	25102 44359	166922 441000	57470 60431	917 18830	4193 20146	16184	36575 175000
Total Opportunity costs	69461	607922	117901	19747	24339	16184	211575
<u>Allocation Indirect Costs</u> (c) <u>Operating Costs</u> Opportunity Costs	272352 21566	465592 37825	218847 17447	100569 8222	60048 4429	42764 3780	166921 14141
Total Allocation Indirect Costs	293918	503417	236294	108791	64477	46544	181062
Total Institutional Cost (f)	2277890	3885308	2557114	731049	1126097	387808	1833405
Number of Student Enrolled (d) Institutional Cost Per Student (e)	2722 837	4092 949	2118 1207	854 856	791 1424	198 1959	1126 1628

Total Institutional Costs and Institutional Cost Per Student, University of Baghdad, Table A-33

Table A-33 (continued)

				College				
Description	ø	6	10	IT	12	13	14	15
Operating Costs (Direct Costs) (a)	2475745	709205	761777	1797006	2159244	509884	633736	367050
<u>Capital cost (except the Lands)</u> Capital Costs of the Lands)	80017 35896	159082 38388	43974 1974	3444 119546	34503 118790	3339	30065 15470	
Total Opportunity Costs	115913	197470	45948	122990	153293	3339	45535	
<u>Allocation of Indirect Costs</u> (c) <u>Operating Costs</u> Opportunity Costs	317226 26728	415753 33165	271407 24163	597419 49977	985197 83826	156769 13499	178480 15038	210867 18531
Total Allocation of Indirect costs	343954	448918	295570	647396	1069023	170268	193518	229398
Total Institutional Costs (f)	2935612	1355593	1103295	2567392	3381560	683491	872789	596448
Number of Students Enrolled (d) Institutional cost Per Student (e)	2227 2227 1318	4013 338	1148 961	4404 583	6441 525	931 734	1255 695	1033
						6	110 4	

Operating Costs from Tables (A-3); (b) Opportunity Costs from Tables (A-9...A-21) Allocation Indirect Costs from Tables (A-27); (d) Number of Students Enrolled from Table (A-7) Institutional Cost Per Student is f/d. e c g Source:

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-(-(I-T) (C8/786T								
					College			
tion		Ч	2	e	7	5	و	7
ng Costs (Direct Costs) (a)		1920935	3125195	2186264	624822	1166106	364360	1671788
nity costs Costs (except the Lands) Costs of Lands		26159 44359	167510 441000	57470 60431	917 18830	4207 20146	16184	36575 175000
pportunity Costs		70518	608510	117901	19747	24353	16184	211575
<u>ion of Indirect Costs</u> (c) ng Costs nity Costs		295443 22168	580521 44140	242158 18140	110409 8415	69206 4942	39110 3073	194234 15308
llocation Costs	8- 	317611	624661	260298	118824	74148	42183	209542
nstitutional Costs (f)	d	2309064	4358366	2564463	763393	1264607	422727	2092905
of Students Enrolled (d) tional Cost Per Student (e)		2535 911	4474 974 974	2106 1218	834 915	813 1555	212 1994	1023 2046

Total Institutional Costs and Institutional Cost Per Student, University of Baghdad Table A-34

Table A-34 (continued)

	****				College				
Description	l	ω	6	10	11	12	13	14	15
Operating Costs (Direct Costs) (a	() ()	3223203	864557	777032	1826894	2177698	609295	756733	465976
Capital Costs (except the Lands) Capital Costs of Lands	ີ	80738 35896	159082 38388	43974 1974	3444 119546	34503 118790	3339	30065 15470	
Total Opportunity Costs		116634	197470	45948	122990	153293	3339	45535	
<u>Allocation of Indirect Costs</u> (c Operating Costs Opportunity Costs	.	317253 24735	459466 34458	333524 27011	763589 59981	1227962 97053	159885 12518	211027 16284	295887 23745
Total Allocation Costs	L	341988	493924	360535	823570	1325015	172403	227311	319632
Total Institutional Costs (1	Ģ	3681825	1555951	1183515	2773454	3656006	785037	1029579	785608
Number of Students Enrolled (d Institutional Cost Per Student (d	66	1907 1931	3960 393	1124 1053	4200 660	6233 587	915 858	1416 727	1186 662

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Source: (a) Operating Costs from Tables (A-4); (b) Opportunity Costs from Tables (A-9...A-21);
(c) Allocation Indirect Costs from Tables (A-28); (d) Number of Students Enrolled from Table A-7;
(e) Institutional Cost Per Student is f/d.

1985/86, (I.D.).							
				College	2		
Description		7	m	đ	5	Q	7
<u>Derating Costs (Direct Costs)</u> (a)	2399883	3312773	2520329	743811	1408229	626352	1558412
upportunity costs Capital cost (except the Lands) Capital Costs of the Lands	 26159 44359	167916 441000	57470 60431	917 18830	4438 20146	16184	36575 175000
Total Opportunity Costs	 70518	608916	117901	19747	24584	16184	211575
Allocation of Indirect Costs (c) perating Costs Opportunity Costs	339588 26545	459538 35579	199434 15138	87771 6695	62729 4413	37591 3136	135574 10969
Fotal Allocation of Indirect costs	366133	495117	214572	94466	67142	40727	146543
<pre>fotal Institutional Costs (f)</pre>	 2836534	4416806	2852802	858024	1499955	683263	1916530
Number of Students Enrolled (d) Institutional cost Per Student (e)	 3009	4282	2044 1396	877 978	854 1756	214 3193	977 1962

Total Institutional Cost and Institutional Cost Per Student, University of Baghdad, Total A-35

Table A-35 (continued)

					College				
Description		8	9	10	11	12	13	14	15
Operating Costs (Direct Costs)	(a)	3008619	1220219	838269	2477316	3237733	893448	866113	553295
upportunity tosts Capital Costs (except the Lands) Capital Costs of Lands	9	87444 35896	159082 38388	46515 1974	3444 119546	34503 118790	3339	37562 15470	
Total Opportunity Costs		123340	197470	48489	122990	153293	3339	53032	
<u>Allocation of Indirect Costs</u> Operating Costs Opportunity Costs	(C)	350973 28284	536358 41403	307337 26554	1679277 779491	1086979 88520	185687 15067	211622 16603	298639 25162
Total Allocation Costs	L	379257	577761	333891	1058768	1175499	200754	228225	323801
Total Institutional Costs	(£)	3511216	1995450	1220649	3659074	4566525	1097541	1147370	877096
Number of Students Enrolled Institutional Cost Per Student	(e)	2594 1354	5076 393	1182 1033	6886 531	7468	1308 839	1839 624	1536 571
curros. (a) Oversting Costs from	T-deT	- (3-5) -	(h) (nn	ortunity	Costs fy	older mot	C (3-0	110-E	

 (a) Operating Costs from Tables (A-5); (b) Opportunity Costs from Tables (A-9...A-21)
 (c) Allocation Indirect Costs from Tables (A-29); (d) Number of Students Enrolled from Table A-7;
 (e) Institutional Cost Per Student is f/d. Source:

					College			
Description		1	N	e	7	5	و	7
Operating Costs (Direct Costs)	(a) (1)	2264839	3258119	2419247	765625	1249331	483045	1666035
Capital Costs (except the Lands) Capital Costs (except the Lands) Capital Costs of the Lands	(a) (26159 44359	167620 441000	57470 60431	8211 18830	4438 20146	16184	36575 175000
Total Opportunity Costs		70518	608620	117901	27041	24584	16184	211575
Allocation of Indirect Costs Derating Costs Opportunity Costs	(0)	259088 25861	368997 37996	164815 16299	73460 7182	54697 4670	28018 2805	108902 11737
Total Allocation Costs		284949	406993	181114	80642	59367	30823	120639
Total Institutional Costs	(Ŧ)	2620306	4273732	2718262	873308	1333282	530052	1998249
Number of Students Enrolled Institutional cost Per Student	(q) (e)	3152 831	4092 1044	2056 1322	944 925	939 1420	338 1568	1025

Total Institutional Cost and Institutional Cost Per Student, University of Baghdad, 1986/87, (I.D.). Total A-36

Table A-36 (continued)

					College				
Description		8	6	10	11	12	13	14	15
Operating Costs (Direct Costs) ((a)	3154771	1297936	879485	2313368	2919928	1131821	1032885	584398
Upportunity costs Capital Costs (except the Lands) Capital Costs of the Lands	q	88179 35896	159082 38388	47425 1974	3444 119546	34503 118790	7392 3339	40110	- <u> </u>
Total Opportunity Costs		124075	197470	49399	122990	153293	10731	55580	
<u>Allocation of Indirect Costs</u> (Operating Costs Opportunity Costs	<u>၂</u> ၂၃	239890 24709	44525 43580	239411 28936	768493 80363	846194 91279	156869 16580	140919 13764	169929 19317
Total Allocation Costs		264599	488105	268347	848856	937473	173449	154683	189246
Total Institutional Costs (<u>િં</u>	3543445	1983511	1197231	3285214	4010694	1316001	1243148	773644
Number of Students Enrolled (Institutional cost Per Student ((je)	2657 1334	5683 349	1182 1013	8093 406	7955 504	1591 827	1820 683	1257 615
Curree: (a) Overating Costs from	Ther	19-01 S	un0 (4) .	ortinnity	Costs fy	alder mo	6 (A-9	A-211	

Source:

< 3 . 1

(a) Operating Costs from Tables (A-6); (b) Opportunity Costs from Tables (A-9...A-21).
(c) Allocation Indirect Costs from Tables (A-30); (d) Number of Students Enrolled from Table A-7;
(e) Institutional Cost Per Student is f/d.

Table A-37 Weight Average of Composite Price Index Number in the city of Baghdad, 1973-1987.

Year	Composite Price Base Year 1973	Index Number Base Year 1987
1973	100.0	43.5
1974	100.2	43.6
1975	102.2	44.5
1976	132.3	57.6
1977	147.3	64.1
1978	149.5	65.1
1979	149.5	65.1
1980	149.5	65.1
1981	205.6	89.5
1982	269.1	117.1
1983	298.3	129.8
1984	304.2	132.4
1985	308.0	134.0
1986	295.7	128.7
1987	229.8	100.0

Source: Republic of Iraq, Central Statistical Organization, Annual Abstracts of Statistics 1987, Table 7/2, P.143.

•																																										
(In ID)	/81	Adj. Cost		1315	1758	834	1700	 	1841	CZ81	2051	754	922		202	834	606	1127		184			187	11 17 17	Cost.	 1005	1044	1322	925	1420			ncat	1334	349	1013	406	204	1000	170	01	CT0
86/87,	1980	Actual Cost		1177	1.573	746	0.031		1 04 X	1633	1836	675	502		018	746	814	1019		702			1986	1	Cost	 1007	T044	1322	925	1420			DCAT	1334	349	1013	406	202	1000	170	0100	619
4/75-19	/80	Adj. Cost		1822	2344	1510	1010		3049	2430	2379	817	750	1 1	5/TT	1037	1247	1605	1001	955			/86	1 1 1	Cost	 007	TNR	1085	760	1364			7224	1052	305	803	813	110		200	5 S 5	444
lad, 197	1979	Actual Cost		1186 954	1526	100	1000		C86T	1582	1549	532	494	11 F	164	675	812	10/11		622			1985		Cost	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TENT	1396	978	1756		0 1 1 1 1 1 1 1 1	T 962	1354	393	1033	531	1120		200	5 Z G	571
f Baghć	61/3	Adj. Cost		1415	2025	1010		5	C177	2333	1785	568	000	1" C 2 C 2 C	528	765	078		100	723			/85	;	Cost		171	606	683	UYLL		01000	1521	1441	293	786	202	000	0 C	040	545	494
rsity c	1978	Actual Cost		921	1318	001		9171	TOT	1519	1162	370		10	540	498	637		CT1	471			198 <i>1</i>		Actual	 116	914	1218	915	1 5 5 5		1494	2046	1931	393	1053	660			200	171	662
, Unive	178	Adj. Cost		10250	1730			1000	1902	1989	1512	518			837	605	227	200	1.584	653			184	;;	Adj. Cost	032	111	912	647	1076		1480	1230	995	255	726	040		201	100 100	525	436
nd year	1977	Actual Cost		879	1122	100		1001	1238	1295	984	337		01	545	394	777		106	425			1983		Actual Cost	831	949	1207	856	1000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	T 20 A	1628	1318	338	961	100			134	695	577
illege a	LLI	Adj. Cost		1337	1510		, u 1 1 1 1	8CTT	2012	1922	1437	162		ר בי ביו ביו	832	540	1002		180	583			/83	;	Adj. Cost	080	893	906	663	2001		1177	1106	884	263	684	100	0 0 7 7	51.0	554	628	439
t by Co	1976	Actual Cost		857				771	1290	1232	126	100		2007	533	346	019		504	374			1982		Actual Cost	068	1159	1176	861		LOCT.	AC01	1436	1147	341	888			もつ	6T/	815	570
Studer	176	Adj. Cost		1139	1572	101		590T	2448	2161	1401	100		0 7 0	190	552	2201	7/0T	840				/82		Adj. Cost	143	858	1166	728	0000	0071	4201	1224	1179	337	. G	000) () (200	104	754	525
Cost Per	1975	Actual Cost		656			10,0	510	1410	1245	807			312	455	318		010	484				186 I		Actual Cost	870	1005	1365	852		205T	1171	1433	1381	395	1006			200	824	883	615
ional (/75	Adj. Cost		1236	000		201	777	1115	2227	1537	1207		8/10	809	661	1000	7007	1609																							
Institut	1974	Actual Cost		550	104	17 17 17 17 17 17	200	005	496	166	684		100	381	360	204	1 1 1	CT0	91/		- tourst				lege	-	2	m	P	it L	0	0	7	8	6	. -	, r		Ņ	m	4	Ū.
rable A-38		College	,		20	0.5	τ· I	n	0	2	α		, ,	0 T	11	10	4 C 1 F	n •	14	15	102/ 02-014-1	tool of atrait			Col													- 1				-

Source: Institutional cost for years 1974/75 to 1980/81 are from the unpublished study of institutional cost of graduate in Iraq by committee was consist to that purpose according to the Law Wo. 532, 1983, Baghdad University, Republic of Iraq; Institutional cost for years 1981/82 to 1986/87 are from Tables A-31 to A-36.

Table A	-39							
Number	of	Graduat	es	According	to	Graduation	and	Admission
Years,	Co	ollege	of	Science,		University	o£	Baghdad,
1981/82	-198	36/87.						

		Graduation Year											
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87							
1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	20 67 211	17 110 277	5 53 104 324	2 21 74 151 285	8 23 69 118 222	25 47 133 263							
Total	298	404	486	533	440	468							

Source: Compiled from the individual graduates personal files, Registration Office, College of Science, University of Baghdad.

Table A-40Number of Graduates According to Graduation and AdmissionYears, College of Engineering, University of Baghdad,1981/82-1986/87

		Graduation Year											
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87							
1975/76 1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	7 13 77 491	2 6 29 109 523	8 27 246 423	9 62 318 443	17 116 279 376	7 26 90 248 279							
Total	588	669	704	832	788	650							

Source: Compiled from the individual graduates personal files, Registration Office College of Engineering, University of Baghdad.

Table A	-41							
Number	of	Graduat	es	According	to	Graduation	and	Admission
Years,	Co	llege	of	Medicine	,	University	of	Baghdad,
1981/82	-198	36/87						

		Graduation Year											
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87							
1974/75 1975/76 1976/77 1977/78 1978/79 1979/80 1980/81 1981/82	3 243	1 5 13 228	1 3 6 293	3 19 331	6 10 25 323	10 29 285							
Total	246	247	306	353	364	324							

Source: Compiled from individual graduates personal files, Registration Office College of Medicine, University of Baghdad.

Table A-42Number of Graduates According to Graduation and AdmissionYears, College of Pharmacy, University of Baghdad,1981/82-1986/87

		Graduation Year												
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87								
1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83	8 117	21 156	12 139	12 122	1 33 112	2 10 25 143								
Total	125	177	151	134	157	180								

Source: Compiled from individual graduates personal files, Registration Office, College of Pharmacy, University of Baghdad.

Table A-43Number of Graduates According to Graduation and AdmissionYears, College Dentistry, University of Baghdad,1981/82-1986/87.

		Graduation Year											
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87							
1974/75 1975/76 1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83	4 4 4 84	1 3 8 115	2 4 15 112	3 11 126	6 5 129	1 6 146							
Total	96	127	133	140	140	153							

Source: Compiled from individual graduates personal files, Registration Office, College of Dentistry, University of Baghdad.

Table-44Number of Graduates According to Graduation and AdmissionYears, College of Nursing, University of Baghdad,1981/82-1986/87

		Graduation Year												
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87								
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	6 69	1 9 70	3 52	1 2 6 57	2 14 45	3 6 32								
Total	75	80	55	66	61	41								

Source: Compiled from individual graduates personal files, Registration Office, College of Nursing, University of Baghdad.

Table A-45					
Number of (Graduates	According	to Gr	aduation a	and Admission
Years, Colle 1981/82-1986	ege of Ve 5/87.	terinary Me	edicine	Universit	y of Baghdad,

		Graduation Year										
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87						
1974/75 1975/76 1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83	3 2 18 225	2 4 3 36 245	7 28 216	1 4 7 55 220	1 2 7 11 34 144	2 5 7 19 130						
Total	248	290	251	287	198	164						

Source: Compiled from individual graduates personal files, Registration Office, College of Veterinary Medicine, University of Baghdad.

Table A-46 Number of Graduates According to Graduation and Admission Years, College of Agriculture, University of Baghdad, 1982-1986/87

		Graduation Year											
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87							
1977/78 1978/79 1979/80 1980/81 1981 82 1982/83 1983/84	110 441	16 66 528	5 13 110 425	3 24 133 388	5 16 136 252	11 97 200							
Total	551	610	553	548	409	308							

Source: Compiled from individual graduates personal files, Registration Office, College of Agriculture, University of Baghdad.

Table-47

Years, College of Administration and Economics, University of Baghdad, 1981/82-1986/87.

			Graduati	ion Year		
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
1975/76 1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	5 25 128 680	4 48 109 721	1 2 5 21 90 746	3 6 43 139 709	9 54 219 608	5 65 127 552
Total	838	882	865	900	980	749

Source: Compiled Compiled from individual graduates personal files, Registration Office, College of Administration and Economic, University of Baghdad.

Table A-48 Number of Graduates According to Graduation and Admission Years, College of Law and Politics, University of Baghdad, 1981/82-1986/87

			Graduati	ion Year		
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	43 152	14 51 210	2 11 32 216	1 10 27 172	2 2 14 46 171	1 3 34 142
Total	195	275	261	210	235	180

Source: Compiled from individual graduates personal files, Registration Office, College of Law and Politics, University of Baghdad.

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Table A Number Years, 1981/82	-49 of -19	Graduates College 36/87.	Ac of	cording Arts	to U	Graduation niversity	and of	Admission Baghdad,
				Grad	-terr	ion Vear		

			Graduat	ion Year		
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	110 549	25 111 553	3 38 135 708	2 10 39 171 753	4 16 46 172 704	2 5 35 208 661
Total	659	689	884	975	994	911

Source: Compiled from individual graduates personal files, Registration Office, College of Arts, University of Baghdad.

Table A-50 Number of Graduates According to Graduation and Admission Years, College of Education, University of Baghdad, 1981/82-1986/87.

			Graduat	ion Year		
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
1974/75 1975/76 1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	6 12 8 69 915	12 32 72 1043	1 4 23 38 191 1051	5 16 154 345 1029	3 6 42 99 306 758	9 25 88 300 801
Total	1010	1159	1312	1549	1124	1223

Source: Compiled from individual graduates personal files, Registration Office, College of Education, University of Baghdad.

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Table A-51 <u>Number of</u> Graduates According to Graduation and Admission Years, College of Physical Education, University of Baghdad, 1981/82-1986/87

			Graduati	ion Year		
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	4 209	18 265	2 44 203	2 17 87 109	14 50 66	6 96 69
Total	213	283	249	215	130	171

Source: Compiled from individual graduates personal files, Registration Office, College of Physical Education, University of Baghdad.

Table A-52 Number of Graduates According to Graduation and Admission Years, College of Academy of Fine Arts, University of Baghdad,1981/2-1986/87.

	:		Graduati	ion Year		
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	1 8 105	1 7 35 126	3 10 28 121	3 25 66 110	3 5 29 65 136	4 8 31 134
Total	114	169	162	204	238	177

Source: Compiled from individual graduates personal files, Registration Office, College of Academy of Fine Arts, University of Baghdad.

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Total182248185195248205Source:
Compiled from individual graduates personal files,
Registration Office, College of Alsharia, University of
Baghdad.

			Graduat:	ion Year		
Admission Year	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
1976/77 1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	5 24 153	4 12 232	4 25 156	20 53 122	15 35 43 155	34 56 115
Total	182	248	185	195	248	205

Table A-53 Number of Graduates According to Graduation and Admission Years, College of Alsharia, University of Baghdad, 1981/82-1986/87.

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<u>Table A-54</u> Institutio	nal cost per Graduate	e, College	e of Scien	ice, Unive	arsity of	Baghdad,	1981/82–3	1986/87,	(II II).	
		1981/	'82 Gradua	ttes	1982/	'83 Gradua	tes	198	3/84 Gradu	ates
Year	Institutional Cost Per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1976/77 1977/78	1337 1350	20 67	20 87	26740 117450	17	17	22950	ŝ	ۍ	6750
1978/79 1979/80	1415 1822	211	298 298	421670	277	127	179705 736088	53 104	58 162	82070 295164
1980/81	1315		298	391870		404	531260	324	486	639090
1 981/82	743		298	191614		404	259772		486 486	312498
1983/84	632								486	307152
Total		298		1692300	404		2106919	486		1976120
Instituti Cost / Gr	onal aduate	ID 169230	1 = 30/298	D 5, 679	ID 210691	I = 707/6	D 5,215	ID 16761.	20/486 = I	D 4,066
Table A-54	(continued)									
		1984	1/85 Gradu	ates	1985	6/86 Gradu	ates	1986/	'87 Gradua	tes

		1981	4/85 Grad	lates	1861	0/80 HEAC	lates	ORGT	R/ Fractic	ces
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	cost (19871D)	Number Admitted	Number Enrol led	Cost (1987ID)
1977/78 1978/79 1978/79 1980/81 1981/82 1982/83 1982/83 1982/85 1985/86	1350 1315 1812 1812 1315 636 636 636 632 633 733 831	21 74 151 285 285	233 248 533 533 533 533 533	2700 32545 176734 326120 396019 365638 336856 365638	8 23 118 222 222	8 31 100 218 218 218 440 440 440	11320 56482 131500 161974 301840 278080 292200 322520	25 47 133 363	25 25 468 468 468 468	32875 53496 140630 295776 318240 344
Total		533		1999052	440		1562916	468		1572969
Instituti	onal Cost/Graduate	30666T (II	52/533 = I	D 3,751	ID 156291	6/440 = 1	D 3,552	ID 157296	9/468 = I	D 3,361

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							income from			
		1981,	/82 Gradue	ates	1982	'83 Gradua	tes	198	3/84 Gradu	ates
Year	Institutional Cost per Student (198711	t Number D) Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1975/76 1976/77	788 956	13	7 20	5516 19120	20	~ ~ ~	1576 7648			
1070/78	1025	LT 104	97 003	99425 740524	ຊ	37	37925	8 5	8 H	8200
1979/80	1465		288	861420	523	699	980085	246	282	411665
1980/81	1102		588	647976		669	737238	423	704	775808
1981/82	858		588	504504		669	574002		704	604032
1982/83 1983/84	983 717					669	657627		704 704	692032 504768
Total		588		2886485	669		3181959	704		3041060
Institut	ional. Cost/Graduate	ID 288645	38/588 = I	D 4,909	JD 318195	I = 699/69	D 4,756	ID 304106	$I = \frac{1}{2}0L/0$	0 4,320
Table A-5	5 (continued)									

Table A-55 Institutional cost per Graduate, College of Engineering, University of Beghdad, 1981/82-1986/87, (In ID).

		198	4/85 Gradi	lates	1985	s/86 Gradi	lates	1986/	'87 Gradua	tes
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	(UI787ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1978/79 1979/80 1980/81 1981/82 1981/82 1983/84 1984/85 1984/85 1985/86	1273 1465 1102 858 983 727 727 801 1044	9 318 443	9 71 832 832 832 832 832 832	11457 104015 428678 713856 817856 596544 604864	17 116 279 376	17 133 412 788 788 788 788 788 788	24905 146566 353496 774604 564996 572876 631188	7 26 90 248 279	7 331 371 650 650 650 650	10255 36366 36366 105534 364693 466050 472550 520650 678600
Total		832		3277270	788		3068631	650		2654698
Institut.	ional Cost/Graduate	ID 32772	70/832 = I	D 3, 939	ID 30686	31/788= I	D 3,894	ID 26546	598/650= I	D 4,084

Source: Number of graduates by year of admission from table A-40. Institutional cost per student-year from table A-38.

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<u>Table A-5</u> Instituti	6 onal cost per Graduate	e, College	e of Medic	ine, Univ	versity of	f Baghdad,	1981/82-	-1986/87,	(III III).	
		1981	L/82 Grad	iuates	1982	2/83 Gradu	ates	36T	3/84 Grad	aates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1974/75 1975/76 1976/77 1977/78 1977/78	1897 1572 1572 1512 1539 2025	3 2 <u>4</u> 3	3 246 246 246	4716 371952 427794 498150	1 5 228 228	1 6 247 247	1897 9432 9432 28728 429533 429533	0 0 0 0 0 ⊡ 70 70	306 306	1897 6288 10584 22607 619650
1979/80 1980/81 1981/82 1982/83 1983/84	2344 1758 1166 906 912		246 246 246	576624 432468 286836		247 247 247 247	578968 434226 288002 223782		906 306 306 306 306 306 306 306 306 306 3	717264 537948 356796 277236 279072
Total		246		2598540	247		2494743	306		2829342
Institut	ional Cost/Graduate	ID 259854	10/246 = I	D 10,563	ID 249474	13/247 = I	D 10,100	ID 282934	2/306 = I	0 9,246
Table A-5	6 (continued)									
		1984	1/85 Gradu	ates	1985	5/86 Gradu	ates	1986/	87 Gradua	ces
-										

ates	Cost (1987ID)	23440 68562 377784 293544 294516 294516 351540 351540 428328	2133202	D 6,584
187 Gradue	Number Enrolled	10 324 324 324 324 324 324 324 324		[= 1/324
1986,	Number Admitted	10 29 285	324	ID 21332(
rates	Cost (1987ID)	10434 32400 96104 639912 424424 331968 331968 331968 331968 331968 334940	2590842	D 7,118
5/86 Grad	Number Enrolled	16 16 364 364 364 364 364 364 364		12/364 =]
1981	Number Admitted	6 10 323 323	364	ID 259084
uates	Cost (19871D)	5217 44550 827432 620574 411598 319318 320877 320877	2872002	D 8,136
4/85 Grad	Number Enrolled	353 353 353 353 353 353 353 353 353 353		02/353 = 1
198	Number Admitted	331 331	353	ID 28720(
	Institutional Cost per Student (1987ID)	1739 2025 2344 1166 1166 912 912 1085 1085 1322		ional Cost/Graduate
	Year	1977/78 1978/79 1978/79 1980/81 1981/82 1982/83 1982/85 1984/85 1985/86	Total.	Institut

Source: Number of graduates by year of admission from table A-41. Institutional cost per student-year from table A-38.

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<u>Table A-5</u> Instituti	7 onal cost per Graduate	e, College	of Pharm	racy, Univ	versity of	E Baghdad,	1981/82-	-1986/87,	(III III).	
		1981	L/82 Grad	luates	1982	2/83 Gradu	ates	361	33/84 Grad	uates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1976/77 1977/78 1978/79	959 962 1212	117	8 225 225	7672 120250 151500	21 156	21 177	20202 214524	12	12	14544
1979/80 1980/81 1981/82 1982/83	1510 834 928 663		SZ SZ SZ	188750 104250 91000		111 171 171	267270 47618 128856 117351	139	ទទទទ	228010 125934 109928 100113
1983/84	647					i			151	97697
Total		125		663422	177		895821	151		676226
Institut	ional Cost/Graduate	ID 663422	2/125 = ID	5,307	ID 89582	I = 1/17	D 5,061	ID 67622(s/151 = ID	4,478
Table A-5	7 (continued)									
		1984	1/85 Gradu	lates	3861	5/86 Gradu	ates	1986/	'87 Gradua	tes

					-					
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)
1979/80 1980/81 1981/82 1982/83 1982/83 1983/84 984/85 1985/86 1986/87	1510 834 628 647 663 760 925	122	12 134 134 134 134	18120 111756 97552 88842 88842 86698 91522	11 112 112	12 45 157 157 157 157 157	18120 37530 114296 104091 101579 107231 119320	2 10 255 143	2 12 180 180 180 180 180 180	3020 10008 26936 119340 116460 122940 136800 166500
Total		134		494490	157		602167	180		702004
Institut	ional Cost/Graduate	ID 494490)/134 = ID	3, 690	ID 60216	1/157 = ID	3, 835	тр 702004	i/180 = ID	3,900

Source: Number of graduates by year of admission from table A-42. Institutional cost per student-year from table A-38.

mal cost	per Graduate	e, College	e of Denti	stry, Un	iversity o	of Baghdad	1, 1981/82	2–1986/87,	(H H)	-
		1981	1/82 Grad	luates	1982	2/83 Gradi	ates	198	83/84 Grac	uates
Institutional Cost Num per Student (1987ID) Adm	Ach	itted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1124 1064		77	ସ୍ଟ CO (4496 8512		ĩ	1064	ſ	(
1158		84 A	18	157344	m co	12 4	4632	ンタ	N 10	2316 9834
1960			ର ଜ ଚ	188160	115	127	248920	112	28	41160
1790			9	171840		127	227330		133	238070
1203 1007 1076			9 9	115488		127	152781 127889		133 133 133	159999 133931 143108
		90		803208	127		1091148	133		1051874
onal cost/Graduate I	н	D 8932	1 = 96/80	D 9,579	7II60I (II	18/127 = I	D 8, 661	ID 10218	374/133= 1	D 7,909
(continued)										

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		1987	1/85 Gradu	ates	198	5/86 Gradi	lates	1986	/87 Gradue	tes
Inst	citutional Cost Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
	1960	m	m	5880						
	2432	11	14	34048	9	9	14592			
	1790	126	140	250600	5	11	19690		~	1790
	1203		140	168420	129	140	168420	9	~	8421
	1007		140	140980		140	140980	146	153	154071
	1076		140	150640		140	150640		153	164628
	1160		140	162400		140	162400		153	177480
	1364					140	190960		153	208692
	1420								153	217260
		140		912968	140		847682	153		932342
ona	l cost/Graduate	ID 91296	58/140 = I	D 6,521	ID 84768	32/140 = I	D 6,055	ID 93234	42/153 = I	D 6,094

Source: Number of graduates by year of admission from table A-43. Institutional cost per student-year from table A-38.

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<u>Table A-5</u> Instituti	9 onal cost per Graduate	e, Colleg	e of Mursi	ing, Unive	ersity of	Baghdad,	1.981/82–1	1986/87,	(III III).	
		198.	1/82 Grac	duates	1982	2/83 Gradi	lates	361	83/84 Grac	duates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Acmitted	Number Enrolled	Cost (1987ID)
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1982/83	1902 2475 3049 1841 1277 1277	9 0 0	^ទ អ្ត អ្	11412 185625 228675 138075 77925	1 م 7 م	8888011	1902 24750 243920 147280 83120 102160	ي ي ۳	~ % % % %	9147 9147 101255 57145 70235 81400
Total		75		641712	80		603132	ß		319182
Institut	ional Cost/Graduate	ID 647.	337/75 = 3	ID 8,556	ID 6031	[= 08/22]	D 7,539	ID 319]	182/55 = 1	D 5,803
Table A-5	9 (continued)									
		198	4/85 Gradi	lates	1981	5/86 Gradi	lates	1986/	/87 Gradue	ates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1978/79 1979/80	2475 3049	7 7	rH M	2475 9147						

Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1978/79 1979/80 1980/81 1981/82 1982/83 1982/85 1984/85 1984/85	2475 3049 10841 1039 1277 1288 1480 2481 2481 2481 268	22 0 2 1	ы <i>w v </i> 6 6 6 6 6	2475 9147 9147 9147 9147 84282 97680 97680 98208	45 45	16 116 116 116 116 116 116 116 116 116	3682 16624 77897 90280 90768 151341	32 6 32	0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3117 3117 11493 60680 61008 101721 64288
Total		66		376935	19		430592	41		302307
Instituti	ionalists/Graduate	ID 3769	335/66 = I	D 5,711	ID 430	592/61= ID	7,059	ID 3023	07/41 = I	D 7,373

Source: Number of graduates by year of admission from table A-44. Institutional cost per student-year from table A-38.

<u>Table A-6</u> Instituti	0 onal cost per Graduate	e, College	e of Veter	cinary Mee	dicine, U	liversity	of Baghd	ad, 1981/8	32-1986/87	(II II)
		1981	L/82 Crac	luates	1982	2/83 Gradu	ates	361	33/84 Grad	uates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1974/75 1975/76 1975/76 1976/77 1978/79 1978/79 1978/79 1978/79 1978/79 1980/81 1981/82 1982/83	2227 2161 1982 1989 1989 2433 2433 2433 11224 11224 11224 11224	3 18 225	. 5 23 248 248 248 248 248 248 248 248	6681 10805 44206 493272 578584 602640 452600 303552	ай а и и и и и и и и и и и и и и и и и и	222990 22990 222290 222222	4454 12966 17298 89505 676570 704700 529250 354960 354960 320740	7 28 216	7 35 251 251 251 251 251 251 251	13923 81655 609930 458075 307224 277606 308730
Total		248		2492340	290		2710443	251		2057143
Institut	ional Cost/Graduate	ID 249234	i0/248 = 1	D 10,049	ID 271044	13/290 = 1	D 9, 347	ID 205714	13/251 = 1	D 8,196
Table A-6	0 (continued)									
		1984	1/85 Gradu	lates	1985	6/86 Gradu	ates	1986/	'87 Gradua	tes
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1976/77 1977/78 1977/78 1978/79 1978/79 1977/78 1978/82 1981/82 1982/83 1983/84 1985/85 1985/85	1922 1989 2333 2433 244 11224 11224 11224 11224 11224 11224 11226	220 55 220	112 67 67 287 287 287 287 287 287 287	1922 9945 27996 162810 523775 533775 3523775 353715 353010 438249	2 11 144	$\begin{array}{c} 2\\ 54\\ 198\\ 198\\ 198\\ 198\\ 198\\ 198\\ 198\\ 198$	3978 20997 48600 98550 98555 242352 243540 243540 243540 320346 320346 301752	1 25 19 130	164 166 166 166 166 166 166 166 166	1922 1989 6999 19440 27375 41616 181384 201720 250428 201720 250428 21936 319800
Total		287		2186417	198		1481103	164		1.302609
Institut.	ional Cost/Graduate	ID 218641	.7/287 = I	D 7, 618	ID 148110	13/198 = I	D 7,480	ID 130260	1 = ¥91/6	D 7,943
Source.										

source: Number of graduates by year of admission from table A-45. Institutional cost per student-year from table A-38.

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<u>Table A-6</u> Instituti	<u>1</u> onal cost per Graduate	e, College	e of Àgric	ulture, I	Jniversity	/ of Bagh	ład, 1981,	/82–1986/8	17, (In ID	
		1981	l/82 Grad	luates	1982	2/83 Gradi	ates	361	33/84 Grad	uates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83	1512 15185 23785 2379 2051 1179 814 814 995	110 441	11 12 12 12 12 12 12 12 12 12 12 12 12 1	166320 983535 1310829 1130101 649629	16 66 528	16 82 810 810 810 810 810 810	24192 146370 14531190 1251110 719190 539240	5 110 425	22 22 22 23 23 73 F8 22	7560 32130 304512 1134203 451987 48852 488852 550235
TOTAL		551		4240414	610		4131292	553		3169479
Institut	ional Cost/Graduate	ID 424041	14/551 = I	D 7, 696	ID 413129	92/610 = 3	D 6,773	ID 316947	9/553 = I	0 5, 731
Table A-6	1 (continued)									
		1987	1/85 Gradu	ates	386T	5/86 Gradi	lates	19861	'87 Gradua	tes
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Nunder Admitted	Number Enrolled	Cost (19871D)	Number Admitted	Number Enrolled	Cost (1987ID)
1978/79 1979/80 1980/81 1981/82	1785 2379 2051 1179	3 24 133 388	3 27 548 548	5355 64233 328160 646092	5 16 136 252	5 5 21 157 157	8925 11895 43071 185103 261556	LL	11	12969 05/172

stitutional Cost r Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1785 2379	34 3	3 27	5355 64233	5	ഗറ	8925 11895			
2051	133	160	328160	16	21	43071			
1179	388	548	646092	136	157	185103	11	п	12969
884		548	484432	252	409	361556	97	108	95472
995		548	545260		409	406955	200	308	306460
1441		548	789668		409	589369		308	443828
1052					409	430368		308	324016
1334								308	410872
	548		2863200	409		2037142	308		1593617
al Cost/Graduate	ID 286320	0/548 = I	D 5,225	ID 20371	42/409= I	D 4,981	ID 1593(617/30 = I	D 5,174
	titutional Cost : Student (1987ID) 1785 2051 1179 2051 1179 884 995 1441 1052 1334 1052 1334	tiutional cost Number : Student (1987ID) Admitted 1785 3 2051 133 1179 338 2051 133 1179 338 1179 338 1179 338 1141 1152 1441 1052 1344 548 1052 1334 548	tiutional Cost Number Number : Student (1987ID) Admitted Enrolled 2051 133 160 1179 2351 2351 2351 2051 133 160 1179 388 548 548 1441 1052 1344 548 1441 1052 1344 548 1344 548 1334 548 1334 1052 1348 548 548 548 548 548 548 548 548 548 5	tiutional cost Number Number Cost : Student (1987ID) Admitted Enrolled (1987ID) 2051 133 2379 24 64233 2051 133 160 32816 64602 1179 388 548 64602 884 545260 1441 548 548 64402 995 548 548 64602 1942 388 545260 1441 548 545260 1052 1052 548 545260 1052 1052 548 545260 1052 1052 548 545200 548 545200 548 545200 1052 1052 548 545200 1052 1052 558 545200 1052 1052 1052 558 545200 1052 1052 1052 558 545200 1052 1052 1052 558 545200 1052 1052 1052 558 545 1052 1052 1052 1052 558 558 558 558 1052 1052 1052 1052 1052 558 558 558 558 558 558 558 558 558 5	tiutional cost Number Kumber Cost Number testudent (1987D) Admitted Enrolled (1987D) Admitted (1982D) Admitted (1988D) Adm	titutional cost Number Number Number Cost Number Number Number Number Student (1987D) Admitted Enrolled (1987D) Admitted (1987D)	titutional cost Number Number Number Cost Student (1987ID) Admitted Enrolled (1987ID) 2319 2319 2319 2355 55 55 55 54 21 1895 2051 133 2051 133 2051 133 2051 133 2051 133 2051 133 2051 133 2051 133 2051 133 2055 54 21 2051 133 2055 54 20 2051 136 155 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 54 20 2055 2055 20 2055 20 2055 20 2055 20 2055 20 2055 20 2055 20 2055 2055 20 2055 20 2055 20 2055 20 2055 2055 2055 20 2055 20 2055 20 2055 2055 20 2055 20 2055 20 2055 20 2055 2055 2055 20 2055 2055 2055 20 2055 20 2055 20 2055 2055	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$

Source: Number of graduates by year of admission from table A-46. Institutional cost per student-year from table A-38.

stituti 81/82-1	onal cost per traduat 986/87, (In ID).	e, college	e or acruit 1/82 Grad	ursurau do	n and Ecol	2/83 Gradi	niversity lates	or bagnor 196	au, 33/84 Grad	uates Cont	Non-State State
н	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Runder Enrolled	Cost (1987ID)	Admitted	Rumber Enrolled	(1987ID)	
75/76 6/77 6/77 17/78 17/78 17/78 17/78 19/80 11/82 12/83 13/84	495 462 518 518 568 817 734 337 263 263	5 25 128 680	838 838 838 838 838 838 838 838 838	2475 13860 81844 475984 684646 631852 631852 289110	48 109 721	4 52 161 882 882 882 882 882 882	1848 26936 91448 720594 665028 297234 231966	1 21 746 746	1 3 2 8 5 8 6 5 8 6 5 8 6 5 8 6 5 8 6 5 8 6 5 8 6 5	495 1386 4144 16472 97223 652210 291505 227495 220575	
al		838		2173057	882		2035054	865		1511505	
stitut	ional Cost/Graduate	ID 217305	57/838 = I	D 2,593	ID 203505	54/882 = 1	D 2,307	ID 15858	393/865 =	ID 1,747	
le A-6	2 (continued)										
		786T	1/85 Gradu	ates	1985	5/86 Gradi	lates	1986/	/87 Gradua	tes	
អ	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	
77/78 78/79 79/80 30/81 31/82 33/83 33/83 33/83 33/85 35/86	518 518 817 754 754 263 263 263 293 293 293 293 293 293	3 6 139 709	а 191 900 900 900 900 900	1554 5112 5112 42484 144014 303300 236700 2263700 263700	9 219 608 608	0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	7353 47502 95034 234070 2260770 271450 271450	5 65 552 552	749 749 749 749 749	3770 23590 51811 1190995 219457 228445 228445 228445	
Les.		900		1226364	068		1143129	749		979469	
titut	ional Cost/Graduate	ID 122636	I = 006/59	D 1, 363	ID 114312	E = 068/63	D 1,284	94679 at	I = 67/65	D 1,308	
er of	graduates by year of	adnissior	l from tab	le À-47.	Instituti	ional cost	: per stuc	dent-year	from tabl	e A-38.	

Table A-62

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<u>Pable A-6</u> Instituti	53 Ional cost per Graduate	e, College	e of Law a	nd Polit	ics, Unive	ersity of	Baghdad,	1981/82-3	1986/87, (면 ID).
		198]	1/82 Grad	luates	198	2/83 Grad	lates	198	33/84 Grad	uates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrol led	Cost (1987 田)	Number Acmitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83	510 524 7529 922 8559 8559 884 726	43 152	43 195 195 195	21930 102180 148005 179790 167505	14 51 210	14 65 275 275 275 275 275	7140 34060 208725 253550 253550 253550 288100	216 216	13 13 26 26 26 26 26 26 26 26 26 26 26 26 26	1020 6812 34155 34155 240642 224199 178524 178524 189486
Total		1195		019910	275		927800	261		874838
Institut	cional Cost/Graduate	ID 61941	10/195 = 1	D 3,176	ID 9278(00/275 = 1	D 3,374	ID 8748:	38/261 = I	D 3,352
Table A-6	33 (continued)									
		1987	1/85 Gradu	ates	1981	5/86 Gradi	lates	1986/	/87 Gradua	tes
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Achitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1978/79 1979/80	524 759	101	п Ц	524 8349	~ ~	<u>لم</u>	1048 3036	1	T	759
1980/81 1981/82	922 859	27 172	38 210	35036 180390	14 46	18 64	16596 54976	m	ल यः	922 3436
1982/83	684		210	143640	171	235	170610	34	38	25992

		786T	Nosis Cal	ares	106T		Iaces	1096T	allore 19	res
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Achitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)
1978/79 1978/79 1979/80 1980/81 1981/82 1982/83 1982/83 1984/85 1985/86	524 759 922 859 854 786 803 1013	1 10 172 172	210 210 210 210 210 210	524 8349 35036 35036 180390 143640 152460 152460 152460	142 142 171 171	2 4 18 64 64 235 235 235 235 235	1048 3036 3036 54976 54976 16596 160740 170610 188705 188705	1 34 142 142	1 1 38 38 180 180 180 180	759 922 3436 25992 130680 141480 141480 144540 182340
Total		210		685459	235		780421	180		630149
Institut	ional Cost/Graduate	ID 68545	59/210 = I	D 3,264	780 JID	421/235 =	ID 3, 321	ID 63014	19/180 = I	0 3,501

A 16 M 14

Source: Number of graduates by year of admission from table A-48. Institutional cost per student-year from table A-38.

<u>Table A-6</u> Instituti	id onal cost per Graduat	e, College	e of Arts,	Univers	ity of Bag	jhdad, 19	31/82-198	6/87, (In	в.)	-
		1981	1/82 Grad	luates	1982	2/83 Grad	lates	361	83/84 Grad	luates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83 1983/84	837 829 1174 905 533 410	110 549	110 659 659 659 659	92070 546311 773666 596395 351247	25 111 553	25 889 889 889 889 889 889 889 889 889 88	20925 112744 808886 623545 367237 367237 329342	38 135 708	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2511 33989 206624 800020 471172 472552 422552 422552
Total		659		2359689	689		2262679	884		2425828
Institut	ional Cost/Graduate	ID 235968	39/659 = I	D 3,581	ID 226267	9/689 = 3	D 3,284	ID 242582	28/884 = I	D 2,744
Table A-6	4 (continued)									
		1987	1/85 Gradu	lates	1985	6/86 Grad	lates	1986/	/87 Gradua	tes
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)
1977/78 1978/79 1979/80 1980/81 1981/82	837 929 1174 533 478	2 10 171 753	112 51 222 975 975	1674 9948 59874 200910 519675 466050	4 16 172 172	20 20 238 238	3316 23480 59730 156604 450276	2 35 208	2 7 42 250	2348 6335 22386 119500

		DAT -		Rece	120/T		Series	100CT		C LCS
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1977/78 1978/79 1978/79 1981/82 1981/82 1982/83 1982/83 1982/86 1985/86	837 1174 905 905 533 440 413 413	2 10 171 753	222 51 222 975 975 975 975	1674 9948 59874 59874 59940 519675 466050 429000 429000	4 16 172 704	200 200 942 942 942 942 942	3316 23480 59730 156604 450276 414480 464406 389046	35 35 208 661	250 911 911 911 911	2348 6335 22386 11.9500 400840 449123 376243 369866
Total	-	975		2167806	942		1931588	911		1746641
Instituti	onal Cost/Graduate	ID 21678(06/975 = I	D 2,223	ID 193156	38/942 =]	D 2,051	ID 174664	I = 116/11	D 1,917

n Source: Number of graduates by year of admission from table A-49. Institutional cost per student-year from table A-38.

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									500 and / doing 10
	luates	Cost (1987ID)	550 2700 16940 50490 50490 266509 497248 497248 497248	3109445	ID 2,370		tes	Cost (19871D)	9333 28356 61366 115938 485531 535674 530925 616392
(II II)	33/84 Grad	Number Enrolled	1 5 66 66 1312 1312 1312 1312 1312		15/1312 =		'87 Gradue	Number Enrolled	9 1222 1223 1223 1223 1223
1986/87,	361	Number Admitted	1 4 23 23 23 191 1055	1312	ID 310944		1986/	Number Admitted	و 3 25 88 88 88 801 801
1981/82-1	lates	Cost (1987ID)	6480 26620 88740 1201883 966606 582977 439261	3312567	ID 2,858		rates	Cost (1987ID)	1815 5499 52887 125100 229368 4610106 4810106 4810106 481058 531732 531732 531732
Baghdad,	2/83 Grad	Number Enrolled	12 44 116 1159 1159 1159 1159		57/1159 =		5/86 Grad	Number Enrolled	3 51 150 150 456 1214 1214 1214 1214
ersity of	361	Number Admitted	32 72 1034	1159	ID 331250		1985	Number Admitted	а 6 758 758
ion, Univ	duates	Cost (1987ID)	3966 9936 14040 57475 772650 1047370 842340 508030	3255807	ID 3,224		lates	Cost (1987ID)	3025 12831 181475 181475 433680 779147 57071 614953 678462
of Educat.	1/82 Grad	Number Enrolled	6 18 18 1010 1010 1010 1010 1010		= 0101/10		1/85 Grad	Number Enrolled	5 21 175 1549 1549 1549 1549
College o	36T	Number Admitted	915 915 915	1010	ID 32558(7861	Number Admitted	5 16 154 345 1029
5 on cost per Graduate,		Institutional Cost per Student (1987ID)	661 540 540 540 605 1037 834 834 370 370 370		ional Cost/Graduate	(continued)		Institutional Cost per Student (1987ID)	605 1037 834 834 370 370 370 370 370 370 373 377 504
Table A-6 Institutio		Year	1974/75 1975/76 1976/77 1978/79 1978/79 1978/80 1980/80 1981/82 1982/83 1982/83	Total.	Instituti	Table A-65		Year	1977/78 1978/79 1978/79 1980/81 1981/82 1982/83 1982/83 1984/85 1985/86 1985/86

Source: Number of graduates by year of admission from table A-50. Institutional cost per student-year from table A-38.

 1549
 3293878
 1214
 2634051
 1223
 2477515

 ID
 3293878/1549 = ID
 2,126
 ID
 2465501/1214 = ID
 2,032
 ID
 2477515/1223 = ID
 2,026

Institutional Cost/Graduate

Total

194 J

le A-6	6 onal Cost per Graduate	e, Collega	e of Physi	ical Educe	ation, Uni	iversity o	sf Baghdao	J, 1981/8	2-1986/87,	(E D.)
		1981	1/82 Grad	luates	1982	2/83 Gradi	lates	19	83/84 Grad	luates
	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
779 3/79 3/79 3/80 0/81 1/82 2/83 2/83	837 1247 909 554 554	209 209	.4 213 213 213 213 213	3348 208314 265611 149952 149952	18 265	18 283 283 283 283 283	17604 352901 257247 199232 156782	2 44 203	249 249 249 249 249 249 249 249 249 249	1956 57362 57362 175296 137947 137946
1		213		820842	283		983766	249		736847
itut	ional Cost/Graduate	ID 8208/	42/213 = I	D 3,854	ID 98376	56/283 = 1	D 3,476	ID 73684	1/249 = 1	D 2,959
è À-6	6 (continued)									
		1987	1/85 Gradu	lates	1985	5/86 Gradu	lates	19861	/87 Gradua	tes
	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
719 782 782 784 785 787 87 87 87 87 87 87 87 87 87 87 87 87	878 1247 709 554 554 652 652 827	17 17 109	106 106 215 215 215 215 215	1956 23693 96354 151360 119110 119110 119110 119110 119110	14 50 66	14 64 130 130 130	12726 45056 72020 72020 83200 84760	9 9 0 0 0 0	6 171 171 171 171	4224 56508 94734 111492 111492

Total2156491831303697821/131012Institutional Cost/GraduateD 649183/215 = D 3,215D 369782/130 = D 2,844D 517815/171=D 3,028Source:Number of graduates by year of admission from table A-51. Institutional cost per student-year from table A-38.

Table A-6 Instituti	<u>1</u> on cost per Graduate,	College c	of Academy	r of Fine	Arts, Uni	lversity o	f Baghdac	J, 1981/82	2-1986/87,	(II II).
		1981	./82 Grad	bates	1982	2/83 Gradu	ates	361	33/84 Grad	uates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost (19871D)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1976/77 1977/78 1978/79	786 1384 1095	1 8 105	1 9 111	786 12456 124830	1 35	8 th 61	786 11072 47085	3 10	ω [] i	4152 14235
1979/9/80 1980/81 1981/82 1982/83 1983/84	1605 1137 754 628 525		114	122970 129618 85956	921	169 169 169	2/1245 192153 127426 106132	28 121	18221	65805 184194 122148 101736 85050
Total		114		543000	169		755899	162		577320
Institut	ional Cost/Graduate	ID 536616	1/114 = ID	4,707	ID 75589	I = 691/6	0 4,473	ID 57732	20/162 = I	D 3,564
Table A-6	7 (continued)									
		1001	/OE Carry		1001	106 100	-+	1006	China To	

		1987	1/85 Gradu	ates	1981	5/86 Grad	ates	1986,	187 Gradue	tes
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (1987ID)
1978/79 1979/80	1095 1605	3 25	28 3	3285 44940	άų	mω	3285 12840			
1980/81	1137 754	110	94 204	106878 153816	53 62	37 102	42069 76908	7 00	12 4	4548 9048
1982/83	628		204	128112	138	238	149464	31	43	27004
1983/84	525		204	107100		238	124950	134	177	92925
1984/85	543		204	110772		238	129234		171	96111
1985/86	485					238	115430		5	85845
1986/87	683								111	120891
Total.		204		654903	238		654280	177		436374
Institut	ional Cost/Graduate	D6523 CII	3/204 =ID	3,210	ID 65428	30/238 = 1	D 2,749	ID 43637	14/177 = 1	D 2,465

Source: Number of graduates by year of admission from table A-52. Institutional cost per student-year from table A-38.

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Table A-6 Instituti	8 onal cost per Graduat	e, College	s of Alsha	ria, Univ	rersity of	E Baghdad,	1981/82-	-1986/87,	(III III).	
		1981	l/82 Grad	uates	786T	2/83 Gradi	rates	36T	33/84 Grad	uates
Year	Institutional Cost per Student (1987ID)	Number Admitted	Number Enrol led	Cost (1987ID)	Number Admitted	Number Enrolled	Cost (19871D)	Number Admitted	Number Enrolled	cost (1987ID)
1976/77 1977/78	583 653 203	5 24 172	29 5	2915 18937	Ъ.	বা দ	2612			
1979/80	955	5¢1	182	173810	232	16 248	236840	52 72	294	2892
1980/81 1981/82	784 525		182	142688		248 248	194432	156	185	145040 97125
1982/83 1983/84	439 436					248	108872		185 185	81215 80660
Total		182		565486	248		684524	185		434627
Institut	ional Cost/Graduate	ID 565486	5/182 = ID	3,107	ID 68462	24/248 = 1	D 2,760	ID 43462	7/185 = I	0 2, 349
Table A-6	8 (continued)									

	st 987ID)	17850 39510 89380 01270 91020 26075	65105	2,269
37 Graduat	under C	34 90 205 205 205 205 205 205	Ŧ	6/205 = ID
1986/8	Number Admitted	34 56 115	205	ID 4651.05
ates	Cost (1987ID)	14325 39200 48825 108872 108128 108128 122512 110112	551974	D 2,226
i/86 Gradu	Number Enrolled	15 50 53 248 248 248 248 248		4/248 = I
1985	Number Admitted	15 35 155 155	248	ID 55197
ates	Cost (1987ID)	19100 57232 102375 85605 85605 85020 96330	445662	D 2,285
1/85 Crad	Number Enrolled	20 73 195 195 195 195		2/195 = J
1987	Number Admitted	20 53 122	195	ID 44566
	Institutional Cost per Student (1987ID)	955 784 439 494 615 615		ional Cost/Graduate
	Year	1979/80 1980/81 1981/82 1982/83 1983/84 1983/84 1985/86 1985/86	Total	Instituti

Source: Number of graduates by year of admission from table A-53. Institutional cost per student-year from table A-38.

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Institutional	1981/82-1986/8
оf	dad,
Summary	of Bagh
Table A-69	

College	1981/82 Graduates	1982/83 Graduate	1983/84 Graduates	1984/85 Graduates	1985/86 Graduates	1986/87 Graduates	1981/82-1986/87 Weighted Average
Science	5.679	5.215	4.066	4.021	3,751	3,552	4,492
Encineering	4,909	4,756	4,320	3, 939	3,894	4,084	4,280
Medicine	10,563	10,100	9,246	8,136	7,118	6,584	8,434
Рћаттаси	5,307	5,061	4,478	3, 690	3, 835	3,900	4,366
Dentistry	9,579	8,661	7,909	6,521	6,055	6,094	7,261
Nursing	8,556	7,539	5, 803	5, 711	7,059	7,373	7,074
Veterinary Medicine	10,049	9,347	8,196	7, 618	7,480	7,943	8,505
Agriculture	7,696	6,773	5, 731	5,225	4,981	5,174	6,054
Administration and Econ.	2,593	2,307	1,747	1,363	1,284	1,308	1,770
Law and Politics	3,176	3,374	3, 352	3,264	3, 321	3,501	3, 332
Arts	3,581	3,284	2,744	2,223	2,051	1,917	2,548
Rducation	3.224	2,858	2,370	2,126	2,032	2,026	2,422
Physical Education	3,854	3.476	2,959	3,215	2,844	3,028	3,234
Academy of Fine Arts	4.707	4,473	3,564	3,210	2,749	2,465	3,404
Alsharia	3,107	2,760	2,349	2, 285	2,226	2,269	2,492

SOURCE: From Tables A-53 to A-68.

Table A-70	Estimated	Customs	Paid	by	University	of	Baghdad	on	Equipment,	by
	College, 1	1981/1982	2 (In	ID)					

	Equip	oment		
College and Service Dept.	University Budget*	Five-Year Plan Budget**	Total	Custom Duty20%
1 2 3 4 5 6 7 8 11 12	276757 1287420 234341 99223 404359 21180 50931 88324 141783 95943	229900 1017000 281500 13100 1100 525400 1600 383300	$\begin{array}{r} 506657\\ 2304420\\ 515831\\ 99223\\ 417459\\ 21180\\ 52031\\ 613724\\ 143383\\ 479234\end{array}$	$ \begin{array}{r} 101331\\ 460884\\ 103168\\ 19845\\ 83492\\ 4236\\ 10406\\ 122745\\ 28677\\ 95847 \end{array} $
12 14 16 19 18	16675 23721 7974 81203	70100 203400	76775 227121 7974 81203	15355 45424 1595 16241

Source: *Compiled from the Financial records, Accounting Office, Administration and Finance Department, University of Baghdad; ** From Tables A-9 to A-24; *** 20% X Total Equipment

Table A-71 Estimated Customs Paid by university of Baghdad on Equipment and Laboratory (Prorated Cost), by College, 1982/1983 (In ID).

	Equip	pment		
College and Service Dept.	University Budget*	Five-Year Plan Budget**	Total	Custom Duty20%
1 2 3 4 5 6	167703 369694 225033 62519 147866 2890	37900 482600 9700 9700	205603 852294 234733 72219 147866 2890	41121 170459 46947 14444 29573 578
7 8 11 12 14	81649 51718 83083 8707 42382	1600 46700	83249 98418 83083 8707 42382	16650 19684 16617 1741 8476
16 19 18	9774 3754 26405	142800	152574 3754 26405	30515 751 5281

Source: * Compiled from the Financial records, Accounting Office, administration and Finance Department, University of Baghdad; ** From Tables A-9 to A-24; *** 20%* Total Equipment.

Table A-72	Estimated	l Customs	Paid	by	university	of	Baghdad	on	Equipment,	by
	College,	1983/1984	l (In	ID)).					

	Equip	oment		
College and Service Dept.	University Budget*	Five-Year Plan Budget**	Total	Custom *** Duty20%
$ \begin{array}{c} 1\\ 2\\ 3\\ 4\\ 5\\ 6\\ 7\\ 8\\ 11\\ 12\\ 14\\ 16\\ 19\\ 12 \end{array} $	57422 29161 13804 39519 46398 2797 10692 50308 659 49644 12402 33283 7619	4700 154900 46800 109600 9300	$\begin{array}{c} 62122\\ 184061\\ 13804\\ 39519\\ 93198\\ 2797\\ 10692\\ 50308\\ 659\\ 159244\\ 12402\\ 42583\\ 7619\\ 7619\end{array}$	12424 36812 2761 7904 18640 559 2138 10062 132 31849 2480 8517 1524

Source: * Compiled from the Financial records, Accounting Office, Administration and Finance Department, University of Baghdad; ** From Tables A-9 to A-24; *** 20%* Total Equipment.

	Equip	pment		
College and Service Dept.	University Budget*	Five-Year Plan Budget**	Total	Custom Duty20%
1 2 3 4 5 6 7 8	32952 71451 26478 18532 15752 10958 19302 45854	15100 8400 200	48052 79851 26478 18532 15952 10958 19302 45854	9610 15970 5296 3706 3190 2192 3860 9171
9 10 11 12 13 14 15 16 19 18	13550 18778 17750 50416 20121 28255 15980 120485 122794 90676	119000	$\begin{array}{c} 13550\\ 18778\\ 17750\\ 50416\\ 20121\\ 28255\\ 15980\\ 239485\\ 122794\\ 90676\end{array}$	$\begin{array}{c} 2710\\ 3756\\ 3550\\ 10083\\ 4024\\ 5651\\ 3196\\ 47897\\ 24559\\ 18135\\ \end{array}$

Source: * Compiled from the Financial records, Accounting Office, Administration and Finance Department, University of Baghdad; ** From Tables A-9 to A-24; *** 20% X Total Equipment.

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Table A-74	Estimated	l Customs	Paid	by	university	of	Baghdad	on	Equipment,	by
	College,	1985/1986	5 (In	ID)).					

	Equip	oment		
College and Service Dept.	University Budget*	Five-Year Plan Budget**	Total	Custom Duty20%
1 2 3 4 5 6 7 8 9 10 11 12 13 14 16	$\begin{array}{c} 153041\\ 96122\\ 372422\\ 17534\\ 1357\\ 2890\\ 20337\\ 55358\\ 26820\\ 710\\ 12587\\ 296365\\ 49078\\ 58044\\ \end{array}$	5800 3300 123700	$\begin{array}{c} 153041\\ 101922\\ 372422\\ 17534\\ 4657\\ 2890\\ 20337\\ 55358\\ 26820\\ 710\\ 12587\\ 296365\\ 49078\\ 58044\\ 123700\\ \end{array}$	$\begin{array}{r} 30608\\ 20384\\ 74484\\ 3507\\ 931\\ 578\\ 4067\\ 11072\\ 5364\\ 142\\ 2517\\ 59273\\ 9816\\ 11609\\ 24740\\ \end{array}$
19 18	9386 26435		9386 26435	1877 5287

Source: * Compiled from the Financial records, Accounting Office, Administration and Finance Department, Baghdad University; ** From Tables A-9 to A-24; *** 20% X Total Equipment.

	Equip	oment		
College and Service Dept.	University Budget*	Five-Year Plan Budget**	Total	Custom Duty20%
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	20910 24952 13662 2905 12571 3053 4391 32049 17259 6946 4798 7995 17073 18747 2267 6155 200402	167200 21700	$\begin{array}{c} 20910\\ 202152\\ 13662\\ 2905\\ 12571\\ 3053\\ 4391\\ 32049\\ 17259\\ 6946\\ 4798\\ 7995\\ 17073\\ 18747\\ 2267\\ 27855\\ 20492\end{array}$	$\begin{array}{c} 4182\\ 40430\\ 2732\\ 581\\ 2514\\ 611\\ 878\\ 6410\\ 3452\\ 1389\\ 960\\ 1599\\ 3415\\ 3749\\ 453\\ 5571\\ 6008\end{array}$

Source: * Compiled from the Financial records, Accounting Office, Administration and Finance Department, Baghdad University; ** From Tables A-9 to A-24; *** 20%* Total Equipment.

	1981/82		1982	2/83	1983/84		
	Capital Cost of Building*	Tax Component	Capital Cost of Building*	Tax Component	Capital Cost of Building*	Tax Component	
College	(ID)	5%	(ID)	5%	(ID)	5%	
1 2 3 7	70100 64000 172400 249000	3505 3200 8620 12450	50000	2500			
8	92600 82800	4630	103596	5180	34000	1700	
14 16	90100	4505	124300	6215	2000 2295	100 115	
19	4100	205	8700	435			

Table A-76	Estimated	"Tax Compo	onent" or	Capital	Cost of	Building	by Collge
	and Year,	University	of Bagh	lad, 1981	/82–1986,	/87, (In ː	[D].

Table A-76 Continued

	198-	4/85	198	5/86	1980	5/87
	Capital Cost of Building*	Tax Component	Capital Cost of Building*	Tax Component	Capital Cost of Building*	Tax Component
College	(ID)	5%	(ID)	5%	(ID)	5%
4 7 8 10 12 13 14 16	10300	515	95800 36300 27531 110715	4790 1815 1377 5536	104200 15681 10500 13000 51042 40015 29688	5210 784 525 650 2552 2001 1484

Source: * Compiled from the "Construction Project" records, Five-Year Development Plan (see Tables A-9 to A-24) and from financial records, Accounting Office, Administration and Finance Department, University of Baghdad.

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Table A-77 Estimated Customs Duty Paid by University of Baghdad on Vehicle by College and By 1981/82-1986/87, (In Iraqi Dinars).

	1981/8	32	1982,	/83	1983	3/84
College	Budget*	Custom**	Budget [*]	Custom**	Budget*	Custom**
6 10 16 19	23800 5100 1397	11900 2550 684	4000 67279 16267	2000 33640 8133	44000	22000

Table A-77 Continued

	1984/8	35	1985,	/86	1986	5/87
College	Budget*	Custom**	Budget [*] Custom ^{**}		Budget [*]	Custom**
1 4 6 9 10 12 13 14 19	10260 6560 14260 10260 14260 5780	5130 3280 7130 5130 7130 2890	14260 23800 3700	7130 11900 1350	14200	7100

Source: * Compiled from Financial records, Accounting Office, Administration and Finance Department, University of Baghdad. ** The custom duty on imported vehicles to Iraq varies appreciably according to model, purpose of imported, and country's producer. It is estimated at 100% of the c.i.f. cost, or equivalently, 50% of the total cost inclusive of customs duty.

	1981/1	L982	1982/1	L983	1983	3/1984
College	Dormitory Office Expenses*	Pure Subsidy Component**	Dormitory Office Expenses*	Pure Subsidy Component**	Dormitory Office Expenses*	Pure Subsidy Component**
1 2 3 4 5 6 7 8 9 10 11 12 13 14	246976 297012 148906 82859 31622 38027 199342 161315 329035 311022 505160 1133208 224160 106876	135837 163357 81898 45572 17392 20915 109638 88723 180969 171062 277838 623264 123288 58782	$\begin{array}{c} 172955\\ 279547\\ 124473\\ 62236\\ 19943\\ 36447\\ 120002\\ 233816\\ 298803\\ 247570\\ 430840\\ 931137\\ 162296\\ 117939 \end{array}$	$\begin{array}{r} 95125\\ 153751\\ 68460\\ 34230\\ 10969\\ 20046\\ 66001\\ 128599\\ 164342\\ 136164\\ 236962\\ 512125\\ 89263\\ 64866\end{array}$	$\begin{array}{r} 139812\\ 266295\\ 115707\\ 58988\\ 21553\\ 33181\\ 112020\\ 208725\\ 220353\\ 215532\\ 382853\\ 671552\\ 111452\\ 117408 \end{array}$	$76897 \\ 146462 \\ 63639 \\ 32443 \\ 11854 \\ 18250 \\ 61611 \\ 114799 \\ 121194 \\ 118543 \\ 210569 \\ 369354 \\ 61299 \\ 64574 \\ \end{cases}$

Table A-78 Estimated "Pure Subsidy" of students' Boarding and Living Expenses According to College and year, University of Baghdad, 1981/1982 - 1986/87, (In ID).

Table A-78 Continued

	1984/1	.985	1985/1	L986	1986/1987		
College E	Dormitory Office Expenses*	Pure Subsidy Component**	Dormitory Office Expenses*	Pure Subsidy Component**	Dormitory Office Expenses*	Pure Subsidy Component**	
1 2 3 4 5 6 7 8 9 10 11 12 13 14	163567 347938 132719 67077 26902 27978 140969 218089 253600 275122 545222 903921 112273 137382	$\begin{array}{c} 89962\\ 191366\\ 72995\\ 36892\\ 14796\\ 15388\\ 77533\\ 119949\\ 139480\\ 151317\\ 299872\\ 497157\\ 61750\\ 75560\end{array}$	$\begin{array}{r} 192236\\ 249906\\ 99432\\ 44745\\ 20881\\ 27178\\ 87832\\ 224054\\ 288022\\ 249575\\ 642333\\ 721547\\ 121639\\ 121639\end{array}$	$\begin{array}{c} 105730\\ 137448\\ 54688\\ 24610\\ 1.1485\\ 14948\\ 48308\\ 123230\\ 158412\\ 137266\\ 353283\\ 396851\\ 66901\\ 66901\end{array}$	$\begin{array}{c} 127012\\ 197675\\ 78616\\ 33855\\ 15450\\ 13860\\ 65892\\ 128602\\ 206537\\ 189950\\ 429432\\ 513047\\ 90204\\ 64756\end{array}$	$\begin{array}{r} 69857\\ 108721\\ 43239\\ 18620\\ 8498\\ 7623\\ 36241\\ 70731\\ 113595\\ 104473\\ 236188\\ 282176\\ 49612\\ 35616\end{array}$	

Source: From Tables A-25 to A-30; ** The "pure subsidy" component is estimated at 55% of students' boarding and living expenses (Students' Dormitory expenses). For the basis of the estimate, see pp. 11.

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Table A-79 Allocation** of Customs Duty on Equipment of Administration Office and Library Central by College, University of Baghdad, 1981/82-1986/87, (In ID).

	81/82	82/83	83/84	84/85	85/86	86/87
Administration Office*	45424	30515	8517	47897	24740	5571
Library Central*	10241	5281	11294	18132	5287	6098
Total	61665	35796	19811	66032	30027	11669
College						teres and the second second second second
1	4853	2760	1617	5085	2252	860
2	7548	3565	2431	8967	3204	1116
3	3533	2255	1258	4219	1528	561
4	1542	959	507	1671	657	258
5	1326	841	470	1631	640	255
6	04/	1269		429	159	92
	4526	2806	1222	2054	10/0	280
9	7967	4657	2383	7937	3795	1550
10	2226	1328	681	2252	883	322
11	7967	4389	2617	8419	5150	2208
12	11778	7385	3825	12493	5585	2169
13	1992	1124	553	1836	979	434
		1013		2839		496
15	1554	988	614	2377	1120	343

Source: * From Tables A-70 to A-75. ** Allocation customs on Equipment was according to number of students (see Table A-7).

Table A-80	A1.	location*	* of	Custom	s duty	on	Equipment	of	Dormitory	Off	ice
	by	College	and	Year,	Baghdad	l U	niversity	198	1/82–1986/	87	(In
	ID)	•									

	81/82	82/83	83/84	84/85	85/86
Custom Duty*	1595	751	1524	24559	1877
College					
1 2 3 4 5 6 7 8 9 10 11 12 13	99 118 59 33 15 79 64 131 124 201 452 89	38 61 27 14 4 8 26 51 65 51 65 54 94 203 36	75 143 62 32 12 18 60 112 118 116 206 361 60	1120 2382 909 459 184 191 965 '1493 1736 1884 3733 6189 769	$ \begin{array}{r} 109 \\ 142 \\ 56 \\ 25 \\ 12 \\ 15 \\ 50 \\ 127 \\ 163 \\ 141 \\ 364 \\ 409 \\ 69 \\ \end{array} $
14 15	43 75	26 44	63 86	941 1604	69 126

Source: * From Tables A-75 to A-75. ** Allocation customs on Equipment was according to number of Dormitory students (see Table A-8).

College	Administratio	on Office	Dromitor	v Office		
	1983/84	1986/87	1981/82	1982/83		
	115	1484	205	435		
1 2 3 4 5 6 7 8 9 10 11 12 12 13 14 15	9 14 7 3 1 4 8 14 4 15 22 3 4 4	109 142 71 33 32 12 36 92 197 42 281 276 55 63 44	13 15 8 4 2 2 10 8 17 16 26 58 11 5 10	22 35 16 2 5 15 30 38 31 55 118 20 15 25		

 Table A-81
 Allocation

 of "Tax component" on Capital Cost of Building of Administration Office, Library Central, and Dormitory Office, by College, University of Baghdad, 1981/82-1986/87, (In ID).

Source:

* From Table A-76; ** Allocation "Tax Component" was according to number of students (see Table A-7) for Building of Administration Office and Library Central and according to number of Dormitory students for Building of Dormitory Office (see Table A-8).

 Table A-82
 Allocation ** of Customs duty on Vehicles of Administration Office and Dormitory Office, by College, University of Baghdad, 1981/82-1986/87, (In ID).

College	Administratio	on Office	Dromitory	y Office		
	1983/84	1986/87	1981/82	1982/83		
	684	33640	8133	2890		
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	54 84 39 17 15 7 29 50 88 25 88 131 22 18 17	2594 3351 2119 902 791 252 1285 2721 4377 1248 4124 6940 2054 952 928	409 661 294 147 47 86 284 553 707 586 1019 2203 384 279 474	132 280 107 54 21 23 114 176 205 221 439 729 90 111 188		

Source:

* From Table A-77; ** Allocation Customs on Vehicles of Administration Office was according to number of students (see Table A-7) and according to number of Dormitory students for Vehicles of Dormitory Office (see Table A-8).

quipment by College, University of Baghdad, 1981/82-1986/87, (In Iragi Dinars)	1982/83 1983/84	y Allocation Customs Allocation Administ. Allocation Customs Allocation Administ. y Customs Library Dormitory y Customs Library Dormitory office Office Office Office	1b 2b 3b 1c 2c 3c	106283 41121 2760 38 43919 12424 1617 75 14116	468550 170459 3565 61 174085 36812 2431 143 39386	106760 46947 2255 27 49229 2761 1258 62 4081	21420 14444 959 14 15417 7904 507 32 8443	84831 29573 841 4 30418 18640 470 12 19122	4898 578 269 8 855 559 117 18 694	13100 16650 1367 26 18043 2138 670 60 2868	127335 19684 2896 51 22631 10062 1323 112 11497	8098 <u>4657</u> 65 <u>4722</u> 2383 118 2501	2350 1328 54 1382 681 116 797	36845 16617 4389 94 21100 132 2617 206 2955	108077 1741 7385 203 9329 31849 3825 361 36035	2081 1124 36 1160 553 60 613		0070 C0 (C7/ 1077 CTCA 1 07 (CTT 10/52 A2001)
yhdad, 19		Total D		43919	174085	49229	15417	30418	855	18043	22631	4722	1382	21100	9329	1160	0515	2422
ity of Bag	/83	Dormitory Office	Зb	38	61	27	14	Ŧ	80	26	51	65	54	94	203	36	26	2
ge, Univers	1982	Allocation Customs Administ. É Library Office	2b	2760	3565	2255	959	841	269	1367	2896	4657	1328	4389	7385	1124	21013	2121
by Colle		Customs Duty	1b	41121	170459	46947	14444	29573	578	16650	19684			16617	1741		8176	2
uipment		Total		106283	468550	106760	21420	84831	4898	13100	127335	8098	2350	36845	108077	2081	16920	10101
uty on Eq.	/82	Dormitory Office	3a	66	118	59	33	13	15	79	64	131	124	201	452	60	43	2
L Customs D	1981	Allocation Customs Administ. É Library Office	2a	4853	7548	3533	1542	1326	647	2615	4526	7967	2226	7967	11778	1992	1501	
3 Tota		Customs Duty	la	101331	460884	103168	19845	83492	4236	10406	122745			28677	95847		10000	
Table A-8			College	-	2	m	4	S	6	7	8	ດ	10	11	12	13	1 1	
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College,	
Equipment by	-
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Customs	
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Continued	
A-83	-
Table	

	Total		45568 415042 276999 27699 2760	796
5/87	Dormitory Office	3c		
198	Allocation Customs Administ. É Library Office	2c	1112 1112 1116 1116 1112 1258 1122 1150 1122 1128 1122 1128 1122 1128 1122 1128 1	343
	Customs Duty	1c	4182 40430 2731 2812 2514 6410 8749 13452 13455 13455 13455 13455 1455 37495	453
	Total		32969 23730 23730 23730 41868 9233 9233 9233 1523 1166 8031 682031 108663 130864 130864 13085431	1276
/86	Dormitory Office	Зb	11 74 66 75 75 75 75 75 75 75 75 75 75 75 75 75	126
1985	Allocation Customs Administ. É Library Office	2b	2252 2252 15204 15204 1520 1520 1520 1920 2525 2525 2525 2525 2525 2525 2525 2	1150
	Customs Duty	цЪ	2008 20384 74484 3504 3504 3504 3504 4067 11072 5364 5364 5364 5364 142 5364 142 5364 142 5364 142 5364 142 5364 142 5373 59273	
1	Total		15815 27319 56826 5826 5826 5826 5825 5812 5812 12487 12383 12383 12383 12383 12383 12383 12383 12383 12383 12383 12383 12383 12383 28702	7177
1/85	Dormitory Office	3a	21120 2382 4599 4599 4559 1184 11493 17493 37884 61884 61833 61884 61833 61884 61833 61884 618	1604
1987	Allocation Customs Administ. É Library Office	2a	5085 8267 8267 1671 1671 1671 1671 2054 2054 2054 12833 12833 12833 12833 12833	2377
	Customs Duty	ц Ц	19610 155970 155970 37296 31990 21902 27171 27171 35550 100524 4024 100524 5657	3196
		College	11111 100400000000000000000000000000000	12

Items 1a to 1c from Tables A-70 to A-75, items 2a to 2c from Table A-79, and items 3a to 3c from Table A-80. Source:

Total Custom Duty on Vehicle According to College and Year, University of Baghdad, 1981/82-1986/87, (In Iraqi Dinars). Table A-84

1986/87	Customs of Duty	2£	7100
1985/86	Customs of Duty	2e	7130 11900 1350
	Total		132 280 51280 51280 51280 51280 3480 75280 7220 7220 7220 7220 7220 7220 7220 7
1984/85	Allocation of Customs Dormitory Office	Зb	132 280 54 54 54 54 521 231 231 231 233 231 233 231 233 231 233 231 233 231 233 231 233 231 233 231 233 231 233 231 231
	Custom of Duty	2d	5130 3280 7130 7130
1983/84	Customs of Duty	2c	22000
	Total		30000 3000000
82/83	Allocation of Customs Dormitory Office	3a	409 409 4144 4144 4144 4144 115 115 115 115 115
198	Allocation of Customs Administ. Office	ЧТ	25594 23551 23551 2119 2119 2112 251 2512 4124 4124 4124 4124 65960 65960 5552 2522 2522
	Customs of Duty	2b	5000
	Total		54 84 39 11907 11907 120 2535 88 2535 131 131 131 131 131 131
381/82	Customs of Duty	2a	11900 2550
51	Allocation Of Customs Administ. Office	la	1482188009445 1388009445 1388009445 14851885 1485185 1485555 1485555555555
	col- lege		0.4222000020050101 111111

Source: Items 1a to 1b and items 3a to 3b from Table A-82, items 2a to 2d from Table A-77.

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	Total		9	14	2	m	m	ы	4	1708	14	ব	15	22	m	104	ব
1983/84	Allocation Tax of Administ. Office	3a	Ø	34	7	m	m	-	4	¢	14	Ŧ	15	22	m	4	7
	Tax Component	lc								1700						100	
	Total		22	35	16	00	2	ŝ	2515	5210	38	31	55	118	20	6230	25
1982/83	Allocation Tax of Dormitory Office	2ľb	22	35	16	œ	N	ഹ	12	30	38	31	55	118	20	15	25
	Tax Component	1b							2500	5180						6215	
1	Total		3518	3215	8628	ц.	~	2	12460	4638	4157	16	26	58	11	4510	10
1981/82	Allocation Tax of Dormitory Office	2a	13	15	ø	4	2	2	10	œ	17	<u>1</u> 6	26	58	11	ъ	10
	Tax Component	1a	3505	3200	8620				12450	4630	4140					4505	
	College			2	m	đ	ŝ	ഄ	7	8	໑	10	11	12	13	14	15

Total "Tax Component" on Building, according of College and Year, University of Baghdad, 1981/82-1986/87, (In Iraqi Dinars). Table A-85

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Table A-	85 Continue	q			
	1984/85	1985/86		1986/87	
College	Тах Сотролепт	Tax Component	Tax Component	Allocation Tax of Administ. Office	Total
	1d	1e	Ι£	3b	
1				109	109
~ ~				142	142
) বা			5210	33	5243
ŋ				32	32
6				12	12
2			784	36	820
00	515	4790	525	92	617
໑				197	197
10		1815	650	41	691
11				281	281
12			2552	276	2828
13		1377		55	с С
14		5536	2001	63	2064
15				44	44
Source:					

Jource: Trems 1a to 1f from Table A-76, items 2a, 2b, 3a, and 3b from Table A-81.

				0	OLLEGE			
Description	1	2	3	4	5	و	7	8
1. Total Institutional Cost	2290684	4112685	2623158	712688	1012749	426118	2030514	3389796
Less laxes and litalistic rayments. 2.Customs on Equipment and Laboratory Equipment 3.Customs on Vehicles	106283 54	468550 84	106760	21420 17	84867 15	4898 11907	13100 29	127335
4.Tax component of buildings	3518	3215	8628	4	N	2	12460	4638
5.Pure Subsidy Component of Boarding and Living Expenses	135837	163357	81898	45572	17392	20915	109638	88723
Total Taxes and Transfer Payment	245692	635206	197325	67013	102240	37722	135227	220746
Social Institution Cost	2044992	3477479	2425833	645675	910509	388396	1895287	3169050
Number of Students Enrolled Social Institutional Cost per Student	2632 777	4092 850	1918 1265	836 778	719 1272	350 1116	1417 1338	2455 1291
Table A-86 Continued								

Table A-86 Social institutional cost and Social Institutional Cost per Student, University of Baghdad, 1981/82, (In Iragi Dinars).

				COLLEC	E		
Description	5	TO	11	12	13	14	15
1.Total Institutional Cost	1703758	1212710	2692934	3756765	889732	761876	518645
Less Taxes and Transfer Payments: 2. Customs on Equipment and Laboratory Equipment	808	2350	36845	10801	2081	16989	1629
3.Customs on Venicies 4 Tax Component of Buildings	4157	9T 2107	260	121	11	4510	10
5. Pure Subsidy Component of Boarding and Living Expenses	180969	171062	277838	623264	123288	58782	103033
Total Taxes and Transfer Payment	193312	176003	304797	731530	125402	80299	104689
Social Institution Cost	1510446	1036707	2388137	3025235	764330	861577	413956
Number of Students Enrolled	4345	1238	4095	6383	1080	863	843
Social Institutional Cost per Student	348	837	583	474	708	190	491

Source: (1) From Table A-31; (2) From table A-83; (3) From table A-84; (4) From table A-85; (5) From table A-78.

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· lammer affair and									
				0	OLLEGE				these second
Description	1	2	ñ	ř	5	و	7	80	
1.Total institutional cost Lass Targe and Transfer Detworts.	2292693	3855787	2476369	769986	1026364	414492	1832778	3098876	
2. Customs on Equipment and Laboratory Equipment	43919	174085	49229	15417	30418	855	18043	22631	-
3.Customs on Vehicles	3003	4012	2413	1049	838	338	1569	3274	-
5.Pure Subsidy Component of Boarding and	77	00	9	ø	7	n	CTCZ	NT7C	-
Living Expenses	95125	153751	68460	34230	10969	20046	66001	128599	
Total Taxes and Transfer Payment	142069	331883	120118	50704	42227	21244	88128	150374	
Social Institution Cost	2150624	3523904	2356251	719282	984137	393248	1744650	2948502	-
Number of Students Enrolled Social Institutional Cost per Student	2577 835	2328 1514	2106 1119	894 804	785 1254	250 1573	1276 1367	2702 1091	
Table A-87 Continued									
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Table A-87 Social institutional cost and Social Institutional Cost per Student, University of Baghdad, 1982/83, (In Iradi Dinars).

				COLLEG	ä		
Description	6	10	11	12	13	14	15
1.Total Institutional Cost	1481392	1099319	2538613	3387719	754508	769287	524514
2. Customs on Equipment and Laboratory Equipment	4722	1382	21100	9329	1160	9515	1032
3.Customs on Vehicles	5084	3834	5134	9143	1440	1231	1402
4. Tax Component of Buildings	88	31	55	118	20	6230	25
5. Pure Subsidy Component of Boarding and Living Expenses	164342	136164	236962	512125	89263	64866	110255
Total Taxes and Transfer Payment	174186	141411	263251	530715	91883	81842	112714
Social Institution Cost	1307206	957908	2275362	2857004	662625	687445	411800
Number of Students Enrolled Social Institutional Cost per Student	4345 301	1238 774	4095 556	6889 415	1049 632	944 728	921 447

Source: (1) From Table A-32; (2) From table A-83; (3) From table A-84; (4) From table A-85; (5) From table A-78.

1									
				0	EDELECE				
Description	7	7	ε	4	5	9	7	8	
1. Total Institutional Cost	2277890	3885308	2557114	731049	1126097	387808	1833405	2935612	
Less Taxes and Transfer Payments: 2. Customs on Equipment and Laboratory Equipment	14116	39386	4081	8443	9122	694	2868	11497	
J.CURTOME ON VENICIES	0	14	7	m	m	Ч	4	1708	
5.Pure Subsidy Component of Boarding and Living Expenses	76897	146462	63639	32443	11854	18250	61611	114799	
Total Taxes and Transfer Payment	91022	185862	67727	40889	20979	18945	64483	128004	
Social Institution Cost	2186868	3699446	2489387	690160	1105118	368863	1768922	2807608	
Number of Students Enrolled Social Institutional Cost per Student	2722 803	4092 904	2118 1175	854 808	791 1397	198 1863	1126	2227 1261	
able A-88 Continued									

Table A-88 Social institutional cost and Social Institutional Cost per Student, University of Baghdad, 1983/84, (In Iragi Dinars).

				COLLEG	H		
Description	0	10	11	12	13	14	15
1. Total Institutional Cost	1355593	1103295	2567392	3381560	683491	872789	596448
<u>Less Taxes and Transfer Payments:</u> 2.Customs on Equipment and Laboratory Equipment	2501	797 797	2955	36035	613	3288	700
3.customs on venilies 4.Tax Component of Buildings 5.Pure Subsidy Component of Boarding and Living Expenses	14 121194	22000 4 118543	15 210569	22 369354	3 61299	104 64574	4 88283
Total Taxes and Transfer Payment	123709	141344	213539	405411	61915	67966	88987
Social Institution Cost	1231884	961951	2353853	2976149	621576	804823	507461
Number of Students Enrolled Social Institutional Cost per Student	4013 307	1148 838	4404 534	6441 462	931 668	1255	1033

Source: (1) From Table A-33; (2) From table A-83; (3) From table A-84; (4) From table A-85; (5) From table A-78.

								3	
				0	OLLEGE				
Description	1	2	3	4	5	ę	7	8	
1. Total Institutional Cost	2309064	4358366	2564463	763393	1264607	422727	2092905	3681825	
Less razes and remeter requence: 2. Customs on Equipment and Laboratory Equipment 3. Customs on Vehicles 4. Tax Component of Buildings	15815 132	27319 280	10424 107	5836 54	5005 21	2812 5153	6879 114	14487 176 515	
5.Pure Subsidy Component of Boarding and Living Expenses	89962	191366	72995	36892	14796	15388	77533	119949	
Total Taxes and Transfer Payment	105909	218965	83526	42782	19822	23353	84526	135127	
Social Institution Cost	2203155	4139401	2480937	720611	1244785	399374	2008379	3546698	
Number of Students Enrolled Social Institutional Cost per Student	2535 869	4474 925	2106 1178	834 864	813 1531	212 1884	1023	1907 1860	
Table A-89 Continued									

Table A-89 Social institutional cost and Social Institutional Cost per Student, University of Baghdad, 1984/85, (In Iragi Dinars).

				COLLEG	ΞĒ		
Description	g	10	11	12	13	14	15
1. Total Institutional Cost	1555951	1183515	2773454	3656006	785037	1029579	785608
Less Taxes and Transfer Payments: 2.Customs on Equipment and Laboratory Equipment 3.Customs on Vehicles	12383 3485	7892 221	15702 439	28765 7859	6629 5220	9431 7241	7177 188
4.Tax Component of Buildings 5.Pure Subsidy Component of Boarding and Living Expenses	139480	151317	299872	497157	61750	75560	128827
Total Taxes and Transfer Payment	155348	159430	316013	533781	73599	92232	136192
Social Institution Cost	1400603	1024085	2457441	3122235	711438	937347	649416
Number of Students Enrolled Social Institutional Cost per Student	3960 354	1124 911	4200	6233 501	915 778	1416 662	1186 548

Source: (1) From Table A-34; (2) From table A-83; (3) From table A-84; (4) From table A-85; (5) From table A-78.

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	8	3511216	13139	4790	123230	141159	3370057	2594 1299		
	7	1916530	4847		48308	53155	1863375	977 1907		
	و	683263	752		14948	15700	667563	214 3119		
OLLEGE	5	1499955	923		11485	12408	1487547	854 1742		
υ	4	858024	4189	2 2 1 1 1	24610	40699	817325	877 932		
	ε	2852802	76068		54688	130756	2579420	2044 1332		
	2	4416806	23730		137448	161178	4064614	4282		
	T	2836534	32969		105730	145829	2690705	3009 894		
	Description	1.Total Institutional Cost Loce Warne and Wranefor Darmonte.	Jess large and ilauster requents. 2.Customs on Equipment and Laboratory Equipment 3 Customs on Vehicles	4.Tax Component of Buildings	J.Fure substay component of boarding and Living Expenses	Total Taxes and Transfer Payment	Social Institution Cost	Number of Students Enrolled Social Institutional Cost per Student	Table A-90 Continued	

Table A-90 Social institutional cost and Social Institutional Cost per Student, University of Baghdad, 1985/86, (In Iraqi Dinars).

				COLLEC	82		
	9	10	11	12	13	14	15
1. Total Institutional Cost	1995450	1220649	3659074	4566525	1097541	147370	877096
Taxes and Transfer Fayments: 2.Customs on Equipment and Laboratory Equipment	9322	1166	8031	65267	10864	13053	1276
5. Pure Subsidy Component of Boarding and Living Expenses	158412	137266	353283	396851	1377 66901	5536 66901	122865
Total Taxes and Transfer Payment	167734	141597	361314	462118	79142	85490	124141
Social Institution Cost	1827716	1079052	3297760	4104407	1018399	61.880	752955
Number of Students Enrolled Social Institutional Cost per Student	5076 360	1182 913	6886 479	7468	1308	1839	1536

Source: (1) From Table A-35; (2) From table A-83; (3) From table A-84; (4) From table A-85; (5) From table A-78.

			i nemera in					
				0	OLLEGE			
Description	ı	2	е	7	5	9	7	8
1.Total Institutional Cost	2620306	4273732	2718262	873308	1333282	530052	1998249	3543445
Less Taxes and Transfer Fayments: 2. Customs on Equipment and Laboratory Equipment	5042	41546	3293	839	2769	703	1158	7135
3.CUSTOMS ON VENICIES 4.Tax Component of Buildings	109	142	71	5243	32	12	820	617
5.Pure subsidy component of boarding and Living Expenses	69857	108721	43239	18620	8498	7623	36241	70731
Total Taxes and Transfer Payment	75008	150409	46603	24702	11299	8338	38219	78483
Social Institution Cost	2545298	4123323	2671659	848606	1321983	521714	1960030	3464962
Number of Students Enrolled Social Institutional Cost per Student	3152 808	4092	2056 1299	944 944 899	939 1408	338 1544	1025 1912	2657 1304
Table A-91 Continued								

Social institutional cost and Social Institutional Cost per Student, University of Baghdad, 1986/87, (In Iraqi Dinars). Table A-91

				COLLEG	E.		
Description	6	10	11	12	13	14	15
1. Total Institutional Cost 198:	1983511	1197231	3285214	4010694	1316001	1243148	773644
Less Taxes and Transfer Payments: 2. Customs on Equipment and Laboratory Equipment	5002	1711	3168	3768	3849	4245	796
3.Customs on Venicies 4.Tax Component of Buildings	191	691	281	2828	22	2064	44
5.Fure sussiay component of boarcing and Living Expenses	113595	104473	236188	282176	49612	35616	64483
Total Taxes and Transfer Payment 118	118794	106875	239637	288772	60616	41925	65323
Social Institution Cost 1864	1864717	1090356	3045577	3721922	1255385	1201223	708321
Number of Students Enrolled Social Institutional Cost per Student	5683 328	1182 922	8093 376	7955 468	1591 789	1820 660	1257 564

Source: (1) From table A-36; (2) From table A-83; (3) From table A-84; (4) From table A-85; (5) From table A-78.

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	-						_		_						-				-										_									
(In I.D.)	30	Adjusted Cost**		1619	1110	1000	2001	C222	2222	2195	2125	630	570	983	846	1057		168			987	Adjustęd Cost [±]	000	1008	1299	668	1408	1544	1912	1304	328	922	376	468	789	000	70 <i>4</i>	4
986/87	198	Actual Cost*		1054			110	0 I 0 0 I 0 0 I 0	1800	1429	1403	410	371	640	551		707	200				Actual Cost*	000	1008	1299	0 0 0 0	1408	1544	1912	1304	328	922	376	468	789		700	
1975/76-1		djusted Cost**		1306	2001	000	000	1134	2361	2223	1657	470	427	733	661			000	-		1986	Adjusted Cost**	202	772	1035	724	1354	2423	1482	1009	280	709	372	427	605	2740	797	
aghdad,	5791	ctual Z ost*		850 760	000			5211	1941	1221	1079	306	278	477	430	100		410 410	-		tratic Science	Actual Cost*	000	500	1332	932	3 1742	5 3119	1001	1299	360	913	479	550	644		2440	
ty of Ba	*****	sted Ac t** C		640	- u - u - v) G	י הפו פו					32	24	50	5) (- 1 1	10	n 00	-		985	Adjustec Cost**	243	069	879	645	1143	1406	1465	1388	264	680	437	374	583	ទីសិទី	202	
iversi	978	l Adju Cos		12		-				201	57	ব	4	-	1	10			-		F	totual (090	925	1178	864	1531	1884	1963	1860	354	911	585	201	778	0 N 0 0 L	240	
lege, Ui	F	Actua Cost*		813			900	1227	C/ TT	1226	016	281	276	488	336	0000		370			ett	justed Z	E D E	683	887	610	1055	1407	1187	952	232	633	403	349	505	104	115	
to Col.		djusted Cost**		1203	1206	0001	1000	T C C C	1261	66/T	1349	393	384	764	171	1070	200	520			1981	tual Adst	203	904	1175	808	1397	1863	1571	1261	307	838	534	462	668	150	T A T	
According	1977	Actual Z Cost*		771	1 U 0 0 0 0) () () (200	CS ZT	ECTT 222	865	252	246	490	302	1 4		333				justed Ac ost** Co	613	1166	862	619	966	1212	1053	841	232	596	428	319	487	100	344	
Student		djusted Cost**		7997 649		000FT	777	2010	2332	1161	1278	405	557	701	462	190		047	-		198	Actual Ad Cost* C	0.25	1514	6111	804	1254	1573	1367	1091	301	774	554	415	632	871	1 7 7 7	
Cost per	1976	Actual A Cost*		574	100	100	910	1201	1300	921T	136	233	321	404	266	2 4 4		9 7 7			982	Adjusted Cost**	661	726	1080	664	1086	953	1143	1102	297	715	498	405	605	0/0	613	
tutional		ljusted tost**		1103	1771				900T	2020	1404	658	755	701	553	1020	000	0071	-			Actual Cost [‡]	222	850	1265	778	1272	1116	1338	1291	348	837	583	474	708	06/	163	
ial Insti	1975	ctual Ac Sst* C		491	000	000	010	577	5	222	625	293	336	312	246	1000		700	nued		186	Adjusted Cost**	1103	188	1570	636	1560	1660	1474	1854	580	747	731	658	733	543	TTO	
92 Soci		ge Ac										¥.75617							32 Conti		e	Actual Cost*	100	162	1405	569	1396	1486	1452	1659	519	669	654	589	656	844	1 #0	1
lable A-:		Colleç		10	1 (1) =	\$1 L	n	9 (20	ດັ	10	11	12	1 1-) < r	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	able A-5			College	-	10	m	4	'n	و	7	ø	ຄ	10	11	12	13	1-4	ст	
· ۳			-									_		****	-				- 64	. 4	-					-	-					_		_		-		

 Source: Institutional cost for years 19/4/75 to 1980/81 are from the unpublished study of institutional cost of particulate in Iraq by committee was consist to that purpose according to the Law No. 532, 1983, Baghdad University, Republic of Iraq; Institutional cost for years 1981/82 to 1986/87 are from Tables A-31 to A-36.
 Notes: (*) Actual costs are in current Iraqi Dinars.
 (**) Adjusted costs are actual costs corrected for 1987 composie price index; see table A-37. : and the

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	ates *	Cost 1987 I	624	7574	26227	32270	31249	29451	181004	ID 372		ates *
	/84 Gradu	Number Enrolled	ν	58	162	486	486	486		47÷486 =		'87 Gradua
	1983,	Number Admitted	Ŋ	53	104	1			486	ID 1810(1986/
	ates *	Cost 1987 ID	21233	165862	654076	268256	259772		1814811	ID 4492		ates*
	'83 Gradu	Number Enrolled	17	127	404	404	404			11÷404 =		86 Gradua
	1982/	Number Admitted	17	110	277				404	ID 18148		1985/
	uates *	Cost 1987 ID	24060 108663	389188	482462 328694	197872			1530939	LD 5137		ates *
· le tom	/82 Grad	Number Enrolled	20 87	298	298 298	298				9÷298 =]		/85 Gradi
	1981	Number Admitted	20 67	211					298	ID 153093		1984
DET HT LIDIODET JULTOFT		Social Institutional cost per Student (1987ID)	1203 (a) 1249 (a)	1306 (a)	1619 (a) 1103 (a)	664 (b)	643 (b)	606 (b)		Institutional Cost/Graduate	93 Continued	
		Year	1976/77 1977/78	1978/79	1980/81	1981/82	1982/83	1983/84	Total	Social 1	able A-1	_

of Baghdad,	
University c	
llege of Science,	
r Graduate, Co.	Laracic is
Cost per	7987 TS01
Institutional	-1086/87 /Tn
Social	1981/82
Table A-93	

		· · · · · · · · · · · · · · · · · · ·		2772					
rable A-	-93 Continued								
		1981	1/85 Gradu	ates*	1985,	/86 Gradua	tes *	1986/	'87 Grad
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolle
			,						

Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1977/79 1978/79 1978/79 1980/81 1981/82 1983/84 1983/85 1985/85 1985/85	1249 (a) 1306 (a) 1619 (a) 1103 (a) 664 (b) 664 (b) 665 (b) 666 (b) 649 (b) 808 (b)	2 21 151 285 285	2 8 8 7 3 3 2 8 2 3 8 2 3 3 3 3 3 3 3 3 3 3 3 3	2498 30038 157043 253914 253912 345912 345917 345917	23 23 118 222 222	8 31 2100 440 440 440	10448 50189 144752 282920 285560 305800	25 47 133 263	225 468 4688 4688 4688	27575 47575 47808 131808 283608 303732 325260 378144
Total		533		1828669	440		1456609	468		1497942
Social I	nstitutional Cost/Graduate	ID 18286	69÷533 =	ID 3431	ID 145660	I = 077÷6(D 3310	ID 14979	942÷468 =	ID 3201

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Law No. 532 (1983), Baghdad University, Baghdad-Iraq. Social Institutional Cost per student-year for year 1918/82 to 1986/87 are derived from Table A-92. Number of Graduates by year of admission from Table A-39. (a) Source:

(q) (*)

		1981	L/82 Gradu	lates *	1982,	/83 Gradua	ites*	1983,	/84 Gradua	tes
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1975/76 1976/77 1977/78 1978/79 1979/80	649 (a) 878 (a) 897 (a) 1167 (a) 1200 (a)	13 13 491	20 20 588 588 588 588 588 588 588 50 50 50 50 50 50 50 50 50 50 50 50 50	4543 17560 87009 686196 705600	2 2 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	9006 906 906 906 90 90 90 90 90 90 90 90 90 90 90 90 90	1298 7024 33189 170382 802800	8 246 223	35 35 704 704	7176 40845 337200 622336
1981/82 1982/83 1983/84	726 (m) 1166 (b) 683 (b)		8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	426888		000 000 000	485694		704 704 704	511104 820864 480832
Total		588		2447588	669		2871837	704		2820357
Social 3	Institutional Cost/Graduate	ID 24475	88÷588 =	ID 4163	ID 28718	337 : 669 =	ID 4293	ID 28203	357÷70₫ =	ID 4006

Social Institutional Cost per Graduate, College of Engineering, University of Baghdad, 1981/82-1986/87, (In 1987 Iraqi dinars). Table A-94

Table 94 Continued

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		1987	1/85 Gradu	lates	1985,	'86 Gradua	tes	1986/	/87 Gradua	ttes
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1978/79 1978/79 1980/81 1981/82 1982/83 1984/85 1984/85 1985/86	1167 (a) 1200 (a) 1200 (a) 1284 (a) 7284 (a) 1166 (b) 633 (b) 690 (b) 772 (b) 1008 (b)	9 818 818 818	71 9 883 8332 8332 8332 8332 8332 8332 832 83	10503 85200 343876 64032 970112 56820 574080 574080	17 116 279 376	17 133 133 133 138 788 788 788 788	20400 117572 299112 918808 538204 543720 608336	7 26 290 279	7 33 31 371 650 650 650	8400 29172 89298 432586 448500 448500 551800 55200
Total		832		3156059	788		3046152	650		2608906
Social	Institutional Cost/Graduate	ID 31560	159÷832 =	ID 3793	ID 30461	.52÷788 =	ID 3866	ID 26085	906÷650 =	ID 4013

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Law Wo. 532 (1983), Baghdad University, Baghdad-Iraq.
 (b) Social Institutional Cost per student-year for year 1981/82 to 1986/87 are derived from Table A-92.
 (*) Wumber of Graduates by year of admission from Table A-40.

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TORONO AND A		Construction of the local data and the locae data and the local data a		
ates*	Cost 1987 ID	1771 5800 9772 582318 582318 582318 582318 582318 4804200 330480 330480 263772 263772 263772	2625346	ID 8580
184 Gradua	Number Enrolled	000000 000000 000000 000000 000000 00000		346÷306 =
1983,	Number Admitted	ศ ฑ ฑ ๒ ฑ ๑ N	306	ID 26253
ates *	Cost 1987 ID	1771 8700 8700 26524 406315 470041 531297 387790 387790 266760 212914 212914	2312112	ID 9361
'83 Gradu	Number Enrolled	61 19 20 20 20 20 20 20 20 20 20 20 20 20 20		12÷247 =
1982/	Number Admitted	1 13 228 228	247	ID 23121
uates *	Cost 1987 ID	4350 343416 468138 468138 529146 3862146 3862146 3862146 265680	2401620	CD 9763
./82 Grad	Number Enrolled	শ ও ও ও ও ও ও		0÷246 =]
1981	Number Admitted	ต ต ซิ ซิ 2	246	ID 240162
	Social Institutional cost per Student (1987ID)	1771 (a) 1450 (a) 1366 (a) 1645 (a) 1645 (a) 1645 (a) 1570 (a) 1571 (a) 1570 (a) 1570 (a) 862 (b) 887 (b)		institutional Cost/Graduate
	Year	1974/75 1975/76 1975/76 1976/77 1976/77 1978/79 1982/81 1982/83 1982/83 1983/83 1983/83	Total	Social I

Table A-95 Social Institutional Cost per Graduate, College of Medicine, University of Baghdad, 1981/82-1986/87, (In 1987 Iragi dinars).

otal	246	2401620	247	2312112	306	
ocial Institutional Cost/Graduat	e ID 24016	20÷246 = ID 9763	ID 23121	112÷247 = ID 9361	ID 26253	346÷
ble A-95 Continned						

Table A-5	95 Continued									
		1984	2/85 Gradu	ates *	1985/	/86 Gradua	ates	1986/	87 Gradue	tes*
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1977/78 1978/79 1979/80 1980/81 1981/81 1981/82 1982/84 1984/85 1985/86 1985/86	1645 (a) 1903 (a) 2157 (a) 1570 (a) 1570 (a) 862 (b) 887 (b) 887 (b) 887 (b) 1299 (b)	19 331 331	3 3 3 3 3 3 3 3 3 3 7 3 3 3 3 3 3 3 3 3	4935 41866 711981 554210 554210 381240 304240 313111 310287	10 323 323	991444444 144999999 888889 888888	9870 30448 88191 571480 571480 393120 313768 3139956 376740	10 295 285	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	21510 21510 349920 279920 287388 287388 287388 287388 287388 287380 287388 287388 287380 287388 287796
Total		353		2669238	364		2426441	324		2040348
Social I	institutional Cost/Graduate	ID 26692	238÷353 =	ID 7562	ID 24264	141-364 =	ID 6666	ID 20403	848-324 =	ID 6297

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to law Wo. 532 (1983), Bagddad University, Bagddad-Iraq. Social Institutional Cost per student-year for year 1981/82 to 1986/87 are derived from Table A-92. Number of Graduates by year of admission from Table A-41. Source: (a)

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Contraction of the local division of the loc		Contraction of the second s		
ates *	Cost 1987 ID	13269 197659 96036 100264 93469 92110	592807	ID 3926
'84 Gradua	Number Enrolled	151 151 151 151 151		:07÷151 =
1983/	Number Admitted	12	151	ID 5928
ates *	Cost 1987 ID	18249 196116 231693 112572 117528 109563	785721	ID 4439
'83 Gradu	Number Enrolled	21 177 177 177 177 177 177		21÷177 =
1982/	Number Admitted	21 156	177	ID 7857
ates *	Cost 1987 ID	7128 108625 138500 163625 79500 83000	580378	ID 4643
/82 Grad	Number Enrolled	125 125 125 125 125		:78÷125 =
1981	Number Admitted	117	125	ID 5803
	Social Institutional cost per Student (1987ID)	891 (a) 869 (a) 1108 (a) 1309 (a) 636 (a) 664 (b) 619 (b) 610 (b)		Institutional Cost/Graduate
	Year	1976/77 1977/78 1978/79 1979/80 1980/81 1982/83 1982/83 1982/83	Total	Social I

Table A-96 Social Institutional Cost per Graduate, College of Pharmacy, University of Baghdad, 1981/82-1986/87, (In 1987 Iragi dinars).

Table A-96 Continued

		1981	1/85 Grad	lates *	1985/	186 Gradue	ates *	1986,	/87 Gradua	tes*
	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
/80	1309 (a)	12	12	15708	12	12	15708	8	2	2618
/81	636 (a)	122	134	85224	33	45	28620	10	12	7632
/82	619 (P)		134	82946	112	157	97183	25	37	22903
/83	614 (b)		134	82276		157	96398	143	180	110520
84	610 (P)		134	81740		157	95770		180	109800
/85	645 (b)		134	86430		157	101265		180	116100
/80	724 (b)					157	113668		180	130320
/8/	(q) 668								180	161820
-		134		434324	157		548612	180		661713
I I	nstitutional Cost/Graduate	ID 4343	824÷134 =	ID 3241	ID 5486	512÷157 =	ID 3494	ID 661	713÷180 =	ID 3676

Source: (a) Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Law No. 532 (1983), Baghdad University, Baghdad-Iraq.
(b) Social Institutional Cost per student-year for year 1981/82 to 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-42.

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	- farmer - Frank - and									
		198]	L/82 Gradu	ates *	1982	/83 Gradua	ates *	1983	/84 Gradua	ites *
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1974/75 1975/76	1009 (a) 932 (a)	বব	4 80	4036 7456		-	932			
1976/77	1089 (a)	ব	12	13068	m	4	4356	2	7	2178
1977/78	1415 (a)	84	96	135840	80	12	16980	ъ	و	8490
1978/79	1734 (a)		96	166464	115	127	220218	15	21	36414
1979/80	2235 (a)		96	214560		127	283845	112	133	297255
1980/81	1560 (a)		96	149760		127	198120		133	207480
1981/82	1086 (b)		96	104256		127	137922		133	144438
1982/83	966 (b)					127	122682		133	128478
1983/84	1055 (b)								133	140315
Total		96		795440	127		985055	133		965048
Social .	[nstitutional Cost/Graduate	367 UI		ID 8286	ID 985(055÷127 =	ID 7756	ID 965()48÷133 =	ID 7256
Ple Ple	37 Continned									

Table A-97 Social Institutional Cost per Graduate, College of Dentistry, University of Baghdad, 1981/82-1986/87, (In 1987 Iragi dinars).

340÷153 = ID 5986	ID 9158	ID 5830	130÷140 =	ID 8161	ID 6071	92÷140 =	1D 8498	[nstitutional Cost/Graduate	social 1
915840	153	816130		140	849892		140		otal
153 201162		DOCADT	ΠŤΤ					(q) 8071	1986/87
153 174879 153 207162		160020	140		160020	140		1143 (D) 1354 (D)	L984/85
153 161415		147700	140		147700	140		1055 (b)	1983/84
153 147798	146	135240	140		135240	140		966 (b)	1982/83
7 7602	ە	152040	140	129	152040	140		1086 (b)	1981/82
1 1560	-	17160	11	S	218400	140	126	1560 (a)	1980/81
		14410	6	9	31290	14	11	2235 (a)	08/6/61
					5202	m	m	1734 (a)	978/79
Number Enrolled 1987 ID	Number Admitted	Cost 1987 ID	Number Enrolled	Number Admitted	Cost 1987 ID	Number Enrolled	Number Admitted	Social Institutional cost per Student (1987ID)	fear
/87 Graduates [*]	1986/	ates	/86 Gradua	1985,	ates	1/85 Gradu	1981		

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Iaw Wo. 532 (1983), Baghdad University, Baghdad Variera.
(b) Social Institutional Cost per student-year for year 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-43.

			ACCOUNTS OF THE OWNER OF	
ates *	Cost 1987 ID	8547 91300 52415 66660 77385	296307	ID 5387
/84 Gradua	Number Enrolled	2 2 2 2 2 2 2 2 2 2 2 2		5307 : 55 =
1983/	Number Admitted	52	55	ID 296
ates*	Cost 1987 ID	1805 23670 227920 132800 76240 96960	559395	ID 6992
/83 Gradu	Number Enrolled	10 10 80 80 80 80		395-80 =
1982/	Number Admitted	1 9 70	80	ID 553
uates*	Cost 1987 ID	10830 177525 213675 124500 71475	598005	ID 7973
L/82 Gradi	Number Enrolled	75 75 75 75		:005÷75 =
1981	Number Admitted	ଓ ଭ ଓ	75	ID 598
	Social Institutional cost per Student (1987ID)	1805 (a) 2867 (a) 2869 (a) 1660 (a) 953 (b) 1212 (b) 1407 (b)		Institutional Cost/Graduate
	Year	77/1978 78/1979 1979/80 1980/81 1982/83 1982/83	Total	Social I

Table A-98 Social Institutional Cost per Graduate, College of Mursing, University of Baghdad, 1981/82-1986/87, (In 1987 Iraqi dinars).

τ + 1 + ć 80 1 Table

ID 291747÷41 = ID 7116	ID 6752	1896 : 61 =	ID 411	ID 5370	1402÷66 =	ID 324	Institutional Cost/Graduate	Social 1
41 291747	411896		61	354402		66		Total
	147803	61		06176	9		2423 (b) 1544 (b)	1985/86 1986/87
32 41 57687 41 57646	85827 85766	61		92862 92796	0 0 0 0		1407 (b) 1406 (b)	1983/84 1984/85
6 9 10908	73932	61	45	79992	90		1212 (b)	1982/83
3 3 2859	15248	16	14	62898	90	57	953 (b)	1981/82
	3320	2	2	14940	9	9	1660 (a)	1980/81
				8547	m	2	2849 (a)	1979/80
				2367	1	-	2367 (a)	1978/79
umber Number Cost dmitted Enrolled 1987 ID	Cost N 1987 ID A	Number Enrolled	Number Admitted	Cost 1987 ID	Number Enrolled	Number Admitted	Social Institutional cost per Student (1987ID)	Year
1986/87 Graduates*	ates *	/86 Gradu	1985,	lates*	1/85 Gradu	1981		
							as continued	гарте А-

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Law No. 532 (1983), Baghdad University, Baghdad-Iraq. Social Institutional Cost per student-year for year 1986/87 are derived from Table A-92. Number of Graduates by year of admission from Table A-44. Source: (a)

(q)(*)

	-				
	ates [*]	Cost 1987 ID	13181 77805 550985 369974 264303 264303 264303	1861038	ID 7414
	'84 Gradu	Number Enrolled	251 251 251 251 251 251		38÷251 =
	1983/	Number Admitted	7 28 216	251	ID 18610
	ates *	Cost 1987 ID	4040 11862 16191 16191 644670 644670 634550 427460 331470 305370 305370	2462348	I0491
	83 Gradu	Number Enrolled	000000000 0000000000000000000000000000		348÷290 =
	1982/	Number Admitted	ひ st w の い で ず の	290	ID 24623
	uates*	Cost 1987 ID	6060 6060 41377 551304 551304 551304 55555 365555 365555 283464 283464	2268986	=ID 9149
Inars).	1/82 Grad	Number Enrolled	8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		:986÷248
n Tradi di	1981	Number Admitted	з 18 225	248	ID 2268
TAST/ 82-TASS/8121 (TU TAS'		Social Institutional cost per Student (1987ID)	2020 (a) 1797 (a) 1799 (a) 1883 (a) 21925 (a) 2195 (a) 1474 (a) 1143 (b) 1187 (b)		nstitutional Cost/Graduate
		Year	1974/75 1975/76 1976/77 1978/79 1978/79 198/80 1980/81 1981/82 1982/83 1982/83	Total	Social I

Social Institutional Cost per Graduate, College of Veterinary Medicine, University of Baghdad, Table A-99

Table A-99 Continued

		198.	4/85 Grad	lates *	1985,	/86 Gradu	ates *	1986	/87 Gradua	tes*
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1976/77	1799 (a) 1883 (a)	r= 1	<u>م</u> اب	1799	~	~	3766	-		1799 1883
1978/79	2223 (a)	7	12	26676	1	ທ	20007	2	m	6669
1979/80	2195 (a)	55	67	147065	11	20	43900	S	œ	17560
1980/81	1474 (a)	220	287	423038	34	54	79596	7	15	22110
1981/82	1143 (b)		287	328041	144	198	226314	19	34	38862
1982/38	1053 (b)		287	302211		198	208494	130	164	172692
1983/84	1187 (b)		287	340669		198	235026		164	194668
1984/85	1465 (b)		287	420455		198	290070		164	240260
1985/86	1482 (b)					198	293436		164	243048
1986/87	1912 (b)								164	313568
Total		287		1999369	198		1400609	164		1253119
Social	Institutional Cost/Graduate	:0001 DI	369÷287 =	ID 6966	ID 1400(= 801÷609	ID 7074	ID 1253	= 791÷611	ID 7641

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to law Wo. 532 (1983), Baghdad University, Baghdad-Iraq. Social Institutional Cost per student-year for year 1986/182 to 1986/87 are derived from Table A-92. Number of Graduates by year of admission from Table A-45. Source: (a)

(q) (*)

		1981	1/82 Gradu	lates*	1982	/83 Gradua	tes	1983	/84 Gradua	tes*
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1977/778 1979/87 1979/87 1979/87 1979/81 1982/83 1982/83 1983/83	1398 (a) 1557 (a) 2155 (a) 1855 (a) 1855 (a) 1102 (b) 841 (b) 952 (b)	110 110	110 5531 5531 5531	153780 91307 1187405 1021554 607202	2 8 8 9 9 2 8 9 9 2 9 9 9	16 82 610 610 610 610	22368 132874 1314550 1103940 672220 513010	135 113 425	128 128 128 553 553 553 553	6990 275840 1025262 4659406 465073 526456
Total		551		3882948	610		3788962	553		2938853
Social	Institutional Cost/Graduate	ID 38829	48÷551 =	ID 7047	ID 3788	962÷610 =	ID 6211	ID 2938	353÷553 =	ID 5314
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Social Institutional Cost per Graduate, College of Agriculture, University of Baghdad, 1981/82-1986/87, (In 1987 Iraqi dinars). Table A-100

A-100 Continued Table

		198.	4/85 Gradı	lates *	1985,	/86 Gradue	ates *	1986/	87 Gradu	ates
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1978/79	1657 (a)	m	m	4971	S	5	8285			
1979/80	2155 (a)	24	27	58185		ហ	10775			
1980/81	1854 (a)	133	160	296640	16	21	38934			
1981/82	1102 (b)	388	548	603896	136	157	173014	11	11	12122
1982/83	(q) T28		548	460868	252	409	343969	97	108	90828
1983/84	952 (b)		548	521696		409	389368	200	308	293216
1984/85	1388 (b)		548	760624		409	567692		308	427504
1985/86	(q) 600T					605	412681		308	310772
1986/87	1304 (b)								308	401632
Total		548		2706880	409		1944718	308		1545074
Social]	Institutional Cost/Graduate	ID 27068	380÷548 =	ID 4940	ID 19447	718÷409 =	ID 4755	ID 15450	14-308 =	ID 5016

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to law Wo. 532 (1983), Baghdad University, Baghdad University, Baghdad Varac.
(b) Social Institutional Cost per student-year for year 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-46.

		1981	./82 Gradu	ates*	1982,	/83 Gradua	ites	1983,	84 Gradua	ites*
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1975/76 1977/78 1977/78 1978/79 1979/80 1981/82 1981/82 1982/83 1982/83	405 (a) 393 (a) 472 (a) 472 (a) 630 (a) 580 (a) 237 (b) 232 (b)	25 128 680	1223 1223 1223 1223 1223 1223 1223 1223	2025 11790 68256 393860 527940 486040 248886	48 109 721	161 52 882 882 882 882 882	1572 22464 75670 555660 511560 261954 261954	1 5 50 746	8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	$\begin{array}{c} 405\\ 1179\\ 1179\\ 3456\\ 74970\\ 501700\\ 501700\\ 256905\\ 200680\\ 200680\end{array}$
Total		838		1738797	882	:	1633504	865		1253605
Social :	Institutional Cost/Graduate	ID 17387	97÷838 =	ID 2095	ID 16335	504÷882 =	ID 1852	ID 12536	605÷865 =	ID 1449

Table A-101 Social Institutional Cost per Graduate, College of Administration and Economics, University of Rachdad, 1981/82-1986/87, (Tn 1987 Traci dinare).

Table A-101 Continued

Personal Property and	and a second design of the sec			
1984/85 Graduates [*] 1985/86 Graduates [*] 1986/87 Graduates [*]	Cost 1987 ID	2900 20790 45704 173768 197736 209720 245672	896290	T01101
	Number Enrolled	1469 1469 1469 1469 1469 1469 1469 1469		= 657÷06
	Number Admitted	5 65 127 552	749	ID 8962
	Cost 1987 ID	5670 36540 83754 83754 206480 206480 234960 234960 249200	1023084	ID 1150
	Number Enrolled	0 0 0 0 0 3 3 8 6 0 0 0 5 3 8 8 8 8 8 5 8 8 8 8 5		ID 1023084=890 =
	Number Admitted	5 9 5 4 6 0 8	890	
	Cost 1987 ID	1296 4230 32760 110780 267300 208800 208800 208800 237600	1071566	ID 1191
	Number Enrolled	9000 9000 9000 9000 9000 9000 9000 900		ID 1071566÷900 =
	Number Admitted	466 1399 7099	006	
	Social Institutional cost per Student (1987ID)	432 (a) 437 (a) 630 (a) 580 (a) 580 (a) 532 (b) 232 (b) 232 (b) 232 (b) 232 (b) 232 (b)		nstitutional Cost/Graduate
	Year	1977/78 1978/79 1978/79 1979/80 1981/82 1981/82 1983/83 1985/85 1985/85	rotal	social I

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Law Wo. 532 (1983), Baghdad University, Baghdad-Iraq.
(b) Social Institutional Cost per student-year for year 1981/82 to 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-47.

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		1981	1/82 Gradu	lates *	1982,	/83 Gradua	tes	1983,	/84 Gradua	tes
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1977/78 1979/8/79 1979/8/79 1980/81 1982/83 1982/83	424 (a) 427 (a) 570 (a) 747 (a) 715 (b) 596 (b) 633 (b)	43 152	43 1955 1955 1955	18232 83265 111150 145665 139425	14 51 210	14 65 275 275 275 275	5936 27755 156750 205425 196625 163900	11 11 32 216 216	2 13 45 261 261 261	848 5551 25650 194967 186615 155556 155556
Total		195		497737	275		756391	261		734400
Social	Institutional Cost/Graduate	TD 4977	37÷195 =	ID 2552	ID 756:	391÷275 =	ID 2751	ID 734/	±00÷261 =	ID 2813
Table A-	102 Continued									

Social Institutional Cost per Graduate, College of Law and Politics, University of Baghdad, 1981/82-1986/87, (In 1987 Iragi dinars). Table A-102

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- - -		786T	1/85 Gradi	lates*	1985,	/86 Gradu	ates [*]	1986,	/87 Gradua	ates*
ear	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
978/79	427 (a)	1	н	427	2	2	854			
979/80	570 (a)	10	11	6270	2	a.	2280	1		570
18/086	747 (a)	27	38	28386	14	18	13446			747
981/82	715 (b)	172	210	150150	64	64	45760	m	ъ	2860
982/83	596 (b)		210	125160	171	235	140060	34	38	22648
983/84	633 (P)		210	132930		235	148755	142	180	113940
984/85	680 (b)		210	142800		235	159800		180	122400
985/86	(q) 60L					235	166615		180	127620
986/87	922 (b)								180	165960
otal		210		586123	235		677570	180	-	556745
ocial	Institutional Cost/Graduate	ID 5861	.23÷210 =	ID 2791	ID 6775	570÷235 =	ID 2883	ID 556	745÷180 =	ID 3093

Source: (a) Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to law No. 532 (1983), Baghdad University, Baghdad-Iraq.
(b) Social Institutional Cost per student-year for year 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-48.

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		1981	L/82 Gradu	ates*	1982	/83 Gradua	ates *	1983.	/84 Gradua	tes
H	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
/1978/79	750 (a) 733 (a)	110	110	82500	25 111	25 136	18750 99688	mœ	3 11 11	2250
79/80	983 (a)		659	647797	553	689	677287	135	176	173008
80/81	731 (a)		659	481729		689	503659	708	884	646204
81/82	(q) 867		629	328182		689	343122		884	440232
82/83	428 (b)		-			689	294892	2046.64	884	378352
33/84	403 (p)								884	356252
tal		659		2023255	689		1937398	884		2026351
ial	Institutional Cost/Graduate	ID 20232	:55÷659 =	ID 3070	ID 1937:	398÷689 =	ID 2812	ID 2026:	351÷884 =	ID 2292
le A-	103 Continued			10 E2						

Social Institutional Cost per Graduate, College of Arts, University of Baghdad, 1981/82-1986/87, (In 1987 Iraqi dinars). Table A-103

		1981	1/85 Grad	uates*	1985/	/86 Gradue	ites*	1986	/87 Gradua	ates*
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1977/78 1978/79 1978/79 1979/80 1980/81 1981/82 1981/82 1984/85 1985/86 1985/86 1985/86	750 (a) 833 (a) 933 (a) 933 (a) 731 (a) 428 (b) 428 (b) 423 (b) 437 (b) 375 (b) 375 (b)	2 10 171 753	12 51 51 222 975 975 975	1500 8796 50133 162282 485555 417330 392325 42173355 42173355 42173355 4217355 4217355 4217555 42175555 4217555 42175555 42175555 42175555 421755555 421755555 421755555 4217555555 421755555 4217555555 4217555555 421755555555 421755555555 4217555555555555555555555555555555555555	1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	2932 19660 48246 40318524 403176 379626 411654 350424 350424	2 35 601 601	427 427 9111 9111 9111 9111	1966 1966 107030 367130 367133 398107 338892 342536
Total		975		1944561	942		1734242	116		1581667
Social 1	[nstitutional Cost/Graduate	ID 19445	61÷975 =	ID 1994	ID 17342	242+942 =	ID 1841	ID 15816	567÷911 =	ID 1736

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to law Wo. 532 (1983), Baghdad University, Baghdad University, Baghdad Variational Cost per student-year for year 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-49.

	TIN TAO' TERGT GTUGES)									
		1981	1/82 Gradu	lates *	1982,	/83 Gradua	ites*	1983/	'84 Gradu	ites*
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1974/75 1975/76	553 (a) 462 (a)	12	180	3318 8316				1	-	462
1976/77	471 (a)	œ	26	12246	12	12	5652	4	ŝ	2355
1977/78	516 (a)	5	50 0 1	49020	32	55	22704	23	28	14448
61/8/6T	(P) T00	C16	0101	667610	12	116	16616	80	99	43626
1979/80	846 (a)		1010	854460	1043	1159	980514	191	257	217422
1980/81	(a) 658 (a)		1010	664580		1159	762622	1055	1312	863296
1981/82	405 (b)		1010	409050		1159	469395		1312	531360
1982/83	319 (b)					1159	369721		1312	418528
1983/84	349 (b)								1312	457888
Total		1010		2668600	1159		2687284	1312		2549385
Social	Institutional Cost/Graduate	ID 266860	$0 \div 1010 =$	ID 2642	ID 268728	4÷1159 =	ID 2319	ID 254938	:5÷1312 =	ID 1943
able A-	104 Continued									

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1981/82-1986/8	
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Cost p	- 0
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Social	(In 1987
A-104	
Table	

-	ID 2549385÷1312	
	ID 2687284÷1159 = ID 2319	
	ID 2668600÷1010 = ID 2642	
	ocial Institutional Cost/Graduate	ble A-104 Continued

tes*	Cost 1987 ID	7614 22372 49410 134613 426821 426821 426821 572221 572364 572364	2192828	ID 1793
'87 Gradua	Number Enrolled	9 34 1222 1223 1223 1223 1223 1223		8÷1223 =
1986/	Number Admitted	255 255 800 801 801	1223	ID 219282
ates *	Cost 1987 ID	1548 4949 43146 43146 28700 3874680 3874680 4236866 4236866 4236866 42368780 4287878	2116389	ID 1743
'86 Gradu	Number Enrolled	33 9 150 150 1514 1214 1214 1214 1214 1214 1214		9-1214 =
1985/	Number Admitted	1 0 0 0 0 0 1 1 0 0 0 7 2 0 0 0 0 3 0 0 0 0 1 0 0 0 1 0 0 0 0	1214	ID 211638
lates*	Cost 1987 ID	2580 13881 148050 342160 780696 494131 5406131 579326	2748074	ID 1774
/85 Grad	Number Enrolled	21 21 175 175 1549 1549 1549 1549		4÷1549 =
1984	Number Admitted	1029 116 1029 1029	1549	ID 274807
	Social Institutional cost per Student (1987ID)	8 516 (a) 10 846 (a) 658 (a) 846 (a) 11 658 (a) 23 3195 (b) 349 (b) 349 (b) 4 27 (b) 658 (b) 468 (b)		Institutional Cost/Graduate
	Year	1977/7 1978/7 1979/8 1980/8 1981/8 1982/8 1983/8 1984/8 1985/8	Total	Social

Source: (a)

 $\vec{k} = \vec{\mu} = \vec{\alpha}_{i}$

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Haw Wo. 532 (1983), Baghdad University, Baghdad-Iraq. Social Institutional Cost per student-year for year 1981/82 to 1986/87 are derived from Table A-92. Number of Graduates by year of admission from Table A-50.

(a.€

	CT TTY 110 100/T 70 170/T		- /							
		1981	l/82 Gradu	lates *	1982/	'83 Gradua	tes	1983/	84 Gradua	tes [*]
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1977/78 1978/79	751 (a) 880 (a)	209	4 213	3004 187440	18	18	15840	2	8	1760
1979/80	1057 (a)		213	225141	265	283	299131	44	46	48622
1980/81	733 (a)		213	156129		283	207439	203	249	182517
1981/82	(P) 605 (P)		213	128865		283	171215		249	150645
1982/83	487 (b)					283	137821		249	121263
1983/84	505 (b)								249	125745
Total		213		700579	283		831446	249		630552
Social	Institutional Cost/Graduate	ID 7005	579 : 213 =	ID 3289	ID 8314	46-283 =	ID 2938	ID 6305	52÷249 =	ID 2532
able A-	105 Continued									

Table A-105 Social Institutional Cost per Graduate, College of Physical Education, University of Baghdad, 1981/82-1986/87, (In 1987 Tradi dinars).

		7861	1/85 Gradu	lates [*]	1985,	/86 Gradua	ates*	1986/	/87 Gradua	ites [*]
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1978/79 1979/80 1980/81 1981/82 1982/83 1982/83 1984/85 1985/86 1985/86	880 (Å) 1057 (Å) 733 (Å) 603 (Å) 487 (Å) 487 (Å) 487 (Å) 581 (Å) 581 (Å) 789 (Å) 789 (Å)	2 17 109	19 106 215 215 215 215 215	1760 20083 77698 130075 104705 108575 124915	14 50 66	14 64 130 130 130 130	10262 38720 63310 65650 75530 78650	ଓ ଓ ଜ ଜ ଓ	6 172 171 171 171 171 171	3630 49674 86355 99351 103455 134919
Total		215		567811	130		332122	171		477384
Social	Institutional Cost/Graduate	ID 5676	311÷215 =	ID 2641	ID 3321	122÷130 =	ID 2555	ID 4773	384÷171 =	ID 2792

Source: (a) Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Law No. 532 (1983), Baghdad University, Baghdad-Iraq.
(b) Social Institutional Cost per student-year for year 1981/82 to 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-51.

e

		1981	/82 Gradu	lates *	1982	/83 Gradua	ates *	1983,	84 Gradua	tes *
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1976/77 1977/78	721 (a) 1293 (a)	00	нo	721 11637	1	- 8	721 10344	m	m	3879
1978/79	992 (a)	105	TTT	113088	35	43 1 1 1 1 1	42656	10	n ⊨	12896
1979/80	1409 (a)		114	160626	126	169	238121	28	41	57769
1980/81	943 (a)	1.000	114	107502		169	159367	121	162	152766
1981/82	675 (b)		114	76950		169	114075		162	109350
1982/83	561 (b)					169	94809		162	90882
1983/84	484 (P)								162	78408
Total		114		470524	169		690093	162		505950
Social	Institutional Cost/Graduate	ID 4705	24-114 =	ID 4127	ID 690(093÷169 =	ID 3906	ID 2026)50÷162 =	ID 3123
Table A-	106 Continued									

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er Graduate,	radi dinare)
Cost p	1987 7
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Social 3	1981 / 82

4	lates	Cost 1987 ID		3772	8100	24123	85668	87438	79296	116820	405217	ID 2289
	/87 Gradu	Number Enrolled		Ŧ	12	43	177	177	177	177		217÷177 =
	1986,	Number Admitted		Ŧ	80	31	134				177	ID 4052
*	ates	Cost 1987 ID	2976	34891	68850	133518	115192	117572	106624		590895	ID 2483
	86 Gradu	Number Enrolled	mœ	37	102	238	238	238	238			395÷238 =
	1985/	Number Admitted	юю	29	65	136					238	ID 5908
*	/85 Graduates [*]	Cost 1987 ID	2976 39452	88642	137700	114444	98736	100776			582726	ID 2857
		Number Enrolled	82 8	94	204	204	204	204				126÷204 =
	1981	Number Admitted	3 25	66	110					- 427	204	ID 5827
		Social Institutional cost per Student (1987ID)	992 (a) 1409 (a)	943 (a)	675 (b)	561 (b)	484 (b)	494 (D)	448 (b)	660 (b)		Institutional Cost/Graduate
		fear	1978/79 979/80	1980/81	1981/82	1982/83	1983/84	1984/85	985/86	1986/87	lotal	Social 1

Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Taw No. 532 (1983), Baghdad University, Baghdad University, Baghdad Vara et al. (b) Social Institutional Cost per student-year for year 1986/87 are derived from Table A-92. (*) Number of Graduates by year of admission from Table A-52.

ates*	Cost 1987 ID	2520 2520 113035 77515 63640 68635	347617	ID 1879
84 Gradua	Number Enrolled	11200 800 11200 1120 1200 1120 1200 1200		317÷185 =
1983/	Number Admitted	25 156 156	185	ID 3476
ates *	Cost 1987 ID	2272 10080 190464 151528 103912 85312	543568	ID 2192
83 Gradu	Number Enrolled	16 16 248 248 248 248 248 248 248		68÷248 =
1982	Number Admitted	4 12 232 232	248	ID 5435
uates*	Cost 1987 ID	2600 16472 114660 139776 111202 76258	460968	ID 2533
./82 Grad	Number Enrolled	182 182 182 182 182		68÷182 =
186 I	Number Admitted	153 153 153	182	ID 4609
	Social Institutional cost per Student (1987ID)	520 (a) 568 (a) 568 (a) 630 (a) 611 (a) 419 (b) 344 (b) 371 (b)		nstitutional Cost/Graduate
	Year	1976/77 1977/78 1978/79 1979/80 1979/80 1980/81 1982/83 1982/83 1983/84	Total	Social I

Social Institutional Cost per Graduate, College of Alsharia, University of Baghdad, 1981/82-1986/87, (In 1987 Iraqi dinars). Table A-107

Table A-107 Continued

		198	4/85 Gradı	lates *	1985,	/86 Gradua	ates *	1986	/87 Gradua	ates *
Year	Social Institutional cost per Student (1987ID)	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID	Number Admitted	Number Enrolled	Cost 1987 ID
1979/80	768 (a)	20	20	15360	15	15	11520			
1980/81	611 (a)	53	73	44603	35	50	30550			
1981/82	(q) 618	122	195	81705	43	<i>ლ</i> б	38967	34	34	14246
1982/83	344 (b)		195	67080	155	248	85312	56	06	30960
1983/84	371 (b)		195	72345		248	92008	115	205	76055
1984/85	409 (P)		195	79755		248	101432		205	83845
1985/86	381 (P)					248	94488		205	78105
1986/87	264 (b)								205	115620
Total		195		360848	248		454277	205		398831
Social]	Institutional Cost/Graduate	ID 3605	348÷195 =	ID 1851	ID 4542	277÷248 =	ID 1832	ID 3988	331÷205 =	ID 1946

Source: (a) Social Institutional Cost per student-year for years 1974/75 to 1980/81 are derived from the unpublished study of institutional cost for graduate in Iraq by group was consist to that purpose according to Law No. 532 (1983), Baghdad University, Baghdad-Iraq.
(b) Social Institutional Cost per student-year for year 1981/82 to 1986/87 are derived from Table A-92.
(*) Number of Graduates by year of admission from Table A-53.

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				10000		Handhal - and an										
Cost per	уеаг	945	1002	1311	780	1350	1661	1564	1411	372	702	556	501	702	756	508
Length of	Program	Ţ	4	9	5	ŝ	7	5	ъ	Ŧ	ъ	Ť	ъ	Ť	7	ъ
1981/82-1986/87	Weighted Average	3780	4006	7867	3900	6752	6645	7820	5642	1486	2809	2223	2004	2807	3022	2032
1986/87	Graduates	3201	4013	6297	3676	5986	7116	7641	5016	1197	3093	1736	1793	2792	2289	1946
1985/86	Graduates	3310	3866	6666	3494	5830	6752	7074	4755	1150	2883	1841	1743	2555	2483	1832
1984/85	Graduates	3431	3793	7562	3241	6071	5370	6966	4940	1011	2791	1994	1774	2641	2857	1851
1983/84	Graduates	3724	4006	8580	3926	7256	5387	7414	5314	1449	2814	2292	1943	2532	3123	1879
1982/83	Graduates	4492	4293	9361	4439	7756	6992	1048	6211	1852	2751	2812	2319	2938	3906	2192
1981/82	Graduates	5137	4163	9763	4643	8286	7973	9149	7047	2095	2552	3070	2642	3289	4127	2533
	College		2	m	ъ	ŝ	Q	7	80	ଚ	10	11	12	13	Т₫	15

Source: From tables A-93 to A-107.

APPENDIX B SUPPLEMENT TO CHAPTER 6

Years Since High School Graduation	Size of Sample	Total Gross Salaries(ID)	Average Gross Salary (ID)	Average Gross Salary1987(ID)
1 High School Graduation 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Size of Sample 1708 802 1807 2561 3213 1152 6274 6343 4164 3966 5086 6025 6388 2114 1843 1416 1485 1183 1110 295	Total Gross Salaries(ID) 686,844 366,156 858,792 1,319,004 1,708,704 622,416 3,841,224 4,140,816 2,704,680 2,655,924 3,481,908 4,458,372 5,125,212 1,716,636 1,539,109 1,245,396 1,471,164 1,224,108 1,231,650	Average Gross Salary (ID) 402 457 475 515 532 540 612 653 650 670 685 740 802 812 835 880 991 1,035 1,110 1 47	Average Gross Salary1987(ID) 972 1,027 1,045 1,085 1,102 1,110 1,182 1,223 1,220 1,240 1,255 1,310 1,372 1,382 1,405 1,450 1,450 1,561 1,605 1,680 1,680
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	$ \begin{array}{r} 1233\\ 992\\ 838\\ 543\\ 492\\ 654\\ 397\\ 433\\ 378\\ 321\\ 241\\ 153\\ 90\\ 53\\ 322\\ 44\\ 37\\ 15\\ 11\\ 6\\ 10\\ \end{array} $	1,404,148 $1,144,284$ $995,340$ $664,740$ $617,604$ $898,440$ $515,364$ $569,208$ $502,260$ $435,024$ $321,720$ $200,388$ $113,772$ $75,288$ $45,408$ $59,940$ $54,780$ $24,852$ $15,948$ $10,812$ $16,800$	1,147 1,154 1,224 1,255 1,374 1,298 1,315 1,329 1,355 1,335 1,335 1,330 1,264 1,419 1,362 1,481 1,657 1,450 1,802 1,680	1,717 1,724 1,758 1,794 1,825 1,944 1,868 1,885 1,899 1,925 1,905 1,880 1,834 1,991 1,989 1,932 2,051 2,227 2,020 2,372 2,250

Table B-1 Annual Gross Salaries of High School Graduates Employed in Public Sector in Iraq, by Number of Years Since High School Graduation, 1986/1987.

Source: Prepared by the Computer Center of Central Statistical Organization, Ministry of Planning, Baghdad. The data are derived from the national survey of public employees in Iraq conducted by the Ministry of Planning 1972. Notes: Total size of sample for all years = 2985

Years Since High School Graduation	Size of Sample	Total Gross Salaries(ID)	Average Gross Salary (ID)	Average Gross Salary1987(ID)
1	188	100 680	536	1 106
2	448	237,612	530	1,100
3	730	435,936	597	1 167
4	367	233,472	636	1,206
5	658	419,496	638	1,208
6	381	244,104	641	1,211
7	695	458,148	659	1,229
8	670	489,600	731	1,301
9	573	469,824	820	1,390
10	467	367,944	788	1,358
11	493	398,256	808	1,378
12	589	498,816	847	1,417
13	764	709,332	928	1,498
14	419	415,488	992	1,562
15	419	437,916	1,045	1,615
16	270	288,240	1,068	1,638
17	346	390,480	1,129	1,699
18	250	322,140	1,289	1,859
19	247	336,276	1,361	1,931
20	236	330,600	1,401	1,971
21	201	271,764	1,352	1,922
22	125	181,380	1,451	2,021
23	94	137,772	1,466	2,036
24	85	129,504	1,524	2,094
25	76	132,648	1,745	2,315
26	60	99,456	1,658	2,228
27	73	115,848	1,587	2,157
28	50	82,680	1,654	2,224
29	34	54,804	1,612	2,182
30	19	35,292	1,858	2,428
31	12	21,228	1,769	2,439
34	12	16,620	1,385	1,955
33		9,636	1,606	2,176
24 2E	5	12,228	2,440	3,016
30	5	17,291	1,459	2,029
30	ש ש	1 060	1 960	2,54/
37	1	1,000	1,000	4,430 2,226
39	1	3 264	3 264	2,340
40		2 726	1 268	5,054 1 /99
40	2	4,150	T ²⁰⁰	L,400

Table B-2 Annual Gross Salaries of College of Arts Graduates Employed in Public Sector in Iraq, by Number of Years Since High School Graduation, 1986/1987.

Source: Prepared by the Computer Center of Central Statistical Organization, Ministry of Planning, Baghdad. The data are derived from the national survey of public employees in Iraq conducted by the Ministry of Planning 1972. Notes:

Total size of sample for all years = 10089.
 ** Average salary in this Table is also used for Colleges Physical Education, Academy of Fine Arts, and Alsharia.

Participant and a second secon				
Years Since High School Graduation	Size of Sample	Total Gross Salaries(ID)	Average Gross Salarv (ID)	Average Gross Salarv1987(ID)
	E			
1	63	34.212	543	1.113
$\overline{2}$	157	87.612	558	1,128
3	168	109.020	649	1,219
4	111	78,708	709	1.279
5	141	96,924	687	1,257
6	160	104.088	651	1.221
7	152	104.100	685	1,255
8	238	185.148	778	1.348
9	200	166.586	834	1,330
10	194	162.912	840	1.410
11	141	120.168	852	1,422
12	130	111.792	860	1,430
13	134	132,288	987	1.557
14	113	118,116	1.045	1,605
15	113	129,984	1,150	1,720
16	66	77,424	1,173	1,743
17	123	148,200	1,205	1,775
18	86	119,340	1,388	1,958
19	97	143,556	1,480	2,050
20	89	126,636	1,423	1,993
21	86	128,628	1,496	2,066
22	47	68,952	1,467	2,037
23	38	59,016	1,553	2,123
24	33	52 , 092	1,579	2,149
25	25	42,276	1,691	2,261
26	20	33,972	1,699	2,269
27	20	34,704	1,735	2,305
28	18	30,168	1,676	2,246
29	9	23,712	2,635	3,125
30	4	7,824	1,956	2,526
31	4	8.088	2,022	2,592
32	1	1,584	1,584	2,154
33			n.a.	n.a.
34	2	2,172	1,086	1,656
35	1	1,980	1,980	2,550
36			n.a.	n.a.
37	1	2,064	2,064	2,634
38			n.a.	n.a.
39			n.a.	n.a.
40			n.a.	n.a.

Table B-3 Annual Gross Salaries of College of Science Graduates Employed in Public Sector in Iraq, by Number of Years Since High School Graduation, 1986/1987.

Source: Prepared by the Computer Center of Central Statistical Organization, Ministry of Planning, Baghdad. The data are derived from the national survey of public employees in Iraq conducted by the Ministry of Planning 1972. Notes:

* Total size of sample for all years = 2985 ** Average salary in this Table is also used for Colleges Education and Nursing.

Years Since High School Graduation	Size of Sample	Total Gross Salaries(ID)	Average Gross Salary (ID)	Average Gross Salary1987(ID)
Graduation	Sample 54 46 74 128 114 73 68 56 50 54 66 45 62 44 29 24 27 21 30 18 15 10 12 10 10 10 6 6 10 4 3 6 2 2 1	Salaries(ID) 36,636 34,428 59,088 103,548 99,684 65,688 69,288 59,832 54,696 63,888 75,636 54,240 81,420 57,924 43,368 40,332 44,052 33,708 47,772 30,240 28,704 19,308 25,236 22,620 18,864 14,676 10,860 16,056 8,400 7,380 13,248 4,524 4,032 2,064	Salary (ID) 678 748 799 809 874 900 1,019 1,019 1,068 1,094 1,183 1,146 1,205 1,313 1,317 1,495 1,687 1,632 1,605 1,592 1,680 1,914 1,931 2,103 2,262 1,886 2,446 1,810 1,606 2,100 2,262 2,016 n.a. 2,064	Salary1987(ID) 1,350 1,427 1,481 1,493 1,564 1,592 1,722 1,776 1,804 1,911 1,871 1,936 2,054 2,054 2,047 2,254 2,403 2,374 2,360 2,456 2,712 2,731 2,920 3,094 2,683 3,296 2,599 2,375 2,917 3,312 3,035 3,095 2,825 n.a. 2,877
36 37 38 39 40	3 1 2	7,344 2,436 4,800	2,448 2,436 2,400 n.a. n.a.	3,298 3,285 3,246 n.a. n.a.

Table B-4 Annual Gross Salaries of College of Medicine Graduates Employed in Public Sector in Iraq, by Number of Years Since High School Graduation, 1986/1987.

Source: Prepared by the Computer Center of Central Statistical Organization, Ministry of Planning, Baghdad. The data are derived from the national survey of public employees in Iraq conducted by the Ministry of Planning 1972. Notes: * Total size of sample for all years = 1186

Years Since High School Graduation	Size of Sample	Total Gross Salaries(ID)	Average Gross Salary (ID)	Average Gross Salary1987(ID)
High School Graduation 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Size of Sample 78 82 125 219 151 133 98 145 78 50 59 66 103 56 46 35 32 44 49 45 33	Total Gross Salaries(ID) 57,024 70,116 117,840 203,004 146,232 136,416 98,496 186,072 90,048 63,312 72,072 95,196 153,324 85,728 81,960 53,688 58,800 78,456 80,628 80,796 60,924	Average Gross Salary (ID) 731 855 943 927 968 1,026 1,005 1,283 1,155 1,266 1,222 1,442 1,489 1,531 1,782 1,534 1,838 1,783 1,646 1,796 1,846	Average Gross Salary1987(ID) 1,301 1,425 1,513 1,497 1,538 1,596 1,575 1,853 1,725 1,853 1,725 1,836 1,792 2,012 2,059 2,101 2,059 2,101 2,352 2,104 2,353 2,216 2,366 2,416
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	21 24 18 22 13 15 8 9 10 5 3 2 2 2	42,612 48,564 32,292 41,268 26,400 24,600 14,616 17,748 18.024 9,168 3,864 n.a. 4,380 4,332 n.a. n.a. n.a. n.a. 2,736	2,029 2,024 1,794 1,876 2,031 1,640 1,827 1,972 1,802 1,834 1,288 n.a. 2,190 2,166 n.a. n.a. n.a. n.a. 2,736	2,416 2,599 2,364 2,446 2,601 2,210 2,397 2,397 2,542 2,372 2,404 1,858 n.a. 2,760 2,736 n.a. n.a. n.a. n.a. 3,306

Table B-5 Annual Gross Salaries of College of Engineering Graduates Employed in Public Sector in Iraq, by Number of Years Since High School Graduation, 1986/1987.

Source: Prepared by the Computer Center of Central Statistical Organization, Ministry of Planning, Baghdad. The data are derived from the national survey of public employees in Iraq conducted by the Ministry of Planning 1972. Notes: * Total size of sample for all years = 1880

l			I	
Years Since				
High School	Size of	Total Gross	Average Gross	Average Gross
Graduation	Sample	Salaries(ID)	Salary (ID)	Salary1987(ID)
1	68	35,100	516	1,089
2	24	12,696	529	1,099
3	28	16,668	595	1,165
4	93	60,300	648	1,218
5	57	37,572	659	1,229
6	56	40,548	724	1,294
7	29	21,120	728	1,298
8	44	34,044	774	1,344
9	76	64,188	845	1,415
10	31	25,476	822	1,392
11	43	40,452	941	1,511
12	42	39,300	936	1,506
13	53	54,840	1,035	1,605
14	33	40,212	1,218	1,789
15	23	25,056	1,089	1,659
16	21	24,948	1,188	1,758
17	20	23,232	1,162	1,732
18	18	21,696	1,205	1 , 775
19	10	12,408	1,241	1,811
20	13	18,048	1,388	1,958
21	4	4,500	1,125	1,695
22	2	2,928	1,464	2,034
23	10	13,224	1,322	1,892
24	7	11,832	1,690	2,260
25	7	12,948	1,850	2,420
26	5	7,260	1,452	2,022
27	3	4,836	1,612	2,182
28	1	1,548	1,548	2,118
29			n.a.	n.a.
30			n.a.	n.a.
31	1	1,584	1,584	2,154
32	1	1,512	1,512	2,082
33			n.a.	n.a.
34	1		n.a.	n.a.
35			n.a.	n.a.
36	1		n.a.	n.a.
37			n.a.	n.a.
38	l		n.a.	n.a.
39		1	n.a.	n.a.
40			n.a.	n.a.
1		1	1	

Table B-6Annual Gross Salaries of College of Agriculture GraduatesEmployed in Public Sector in Iraq, by Number of Year Since HighSchoolGraduation,1986/1987.

Source:

Source: Prepared by the Computer Center of Central Statistical Organization, Ministry of Planning, Baghdad. The data are derived from the national survey of public employees in Iraq conducted by the Ministry of Planning 1972. Notes: * Total size of sample for all years = 823

Table B-7	Annual (Gross	Salaries	s of	Colleg	e of	Dentistry
Graduates	Employed in	Public	Sector	in Ir	aq, by	Number	of Years
Since High	School Grad	uation,	, 1986/1	987.			

Years Since High School Graduation	Size of Sample	Total Gross Salaries(ID)	Average Gross Salary (ID)	Average Gross Salary1987(ID)
High School Graduation 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34	Size of Sample 56 42 48 39 35 30 11 36 18 23 28 16 10 17 12 15 11 21 16 10 17 12 15 11 21 16 10 4 3 10 4 3 1 1 1	Total Gross Salaries(ID) 65,689 50,618 67,246 59,713 51,948 42,130 16,263 60,456 32,635 42,318 51,510 29,700 21,300 38,374 29,801 37,998 28,620 62,921 51,135 30,727 25,830 28,509 20,110 47,714 29,212 18,336 11,239 36,179 16,760 12,670 4,366 4,275	Average Gross Salary (ID) 1,173 1,205 1,401 1,531 1,484 1,404 1,479 1,679 1,813 1,840 1,840 1,840 1,840 1,840 1,840 1,856 2,130 2,257 2,483 2,533 2,602 2,996 3,196 3,073 3,229 3,168 3,352 3,408 3,651 3,667 3,746 3,618 4,190 4,223 4,366 n.a. 4,275 n.a.	Average Gross Salary1987(ID) 1,743 1,775 1,971 2,101 2,054 1,974 2,048 2,249 2,483 2,410 2,410 2,426 2,700 2,827 3,053 3,103 3,172 3,566 3,766 3,643 3,798 3,737 3,921 4,078 4,221 4,237 4,316 4,187 4,860 4,793 4,936 n.a. 4,395 n.a.
36 37 38 39 40			n.a. n.a. n.a. n.a. n.a. n.a.	n.a. n.a. n.a. n.a. n.a. n.a.

Source: Prepared by the Computer Center of Central Statistical Organization, Ministry of Planning, Baghdad. The data are derived from the national survey of public employees in Iraq conducted by the Ministry of Planning 1972. Notes: Notes:

* Total size of sample for all years = 566.
** Average salary in this Table is used for Colleges Pharmacy and
Veterinary as well.

Annual Nominal Salary Range ID	Cost of Living Allowance ID	Annual Gross Salary Range ID					
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	690 702 714 716 726 726 732 738 738 738 738 738 738 738 738 738 738	822 - 846 858 - 906 918 - 954 954 - 1014 1026 - 1050 1050 - 1146 1152 - 1272 1278 - 1398 1398 - 1506 1506 - 1638 1638 - 1758 1758 - 1842 1842 - 1938 1962 - 2022 2022 - 2202 2226 - 2406 Over 2454					
Source: Annual Nominal Salary Range and Cost of Living Allowance From Civil Service No. 24 (See Republic Iraq Government Gazette No. 300, February 6th, 1960); Annual Gross Salary range = Colum (1) + Colum (2).							

Table B-8 Schedule of cost of living allowances corresponding to annual nominal salary scales in the public sector in Iraq.

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Notes: Cost of living data quoted in this table are applicable to a single person with no dependent.

	Year							
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87		
Indirect Revenue	81820	37475	45901	48947	56669	151301		
College						88886668		
Science Engineering Medicine Pharmacy Dentistry Nursing Veterinary Medicine Agriculture Economics & Admin. Law and Politics Arts Education Physical Education Academy of Fine Arts Alsharia	6439 10014 4688 2046 1759 859 3469 6006 10571 10571 15628 2643 2111 2062	2889 3733 2361 1004 881 281 3032 4876 1390 4594 7731 1177 1061 1034	3745 5632 2915 1175 1088 271 1551 3066 5522 1579 6064 8863 1281 1726 1423	3769 6647 3128 1238 1209 318 1522 2834 5883 1669 6241 9261 1361 2105 1762	4250 6047 2884 1241 1207 300 1377 3661 7163 1666 9719 10540 1847 2596 2171	11151 14464 7278 3344 1195 3631 9396 20093 4176 28626 28127 5628 6430 4448		
Total	81820	37475	45901	48947	56669	151301		

Allocation Indirect Revenue of Administration Office to Various Colleges, University of Baghdad, 1981/82–1986/87, (In ID).

Source: * Compiled from audited financial statement, Accounting Office of Colleges, University of Baghdad, 1981/82 - 1986/87; ** Allocation criteria are according to percent of student by college (see Table A-7).

Table B-9

			Ye	ear		
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Indirect Revenue	24722	60819	181088	86983	113345	153637
College						
Science Engineering Medicine Pharmacy Dentistry	1525 1834 920 512 195	3059 4944 2202 1101 353	8928 17004 7388 3767 1376	3967 8437 3218 1627 652	6574 8546 3400 1530 714	8588 13366 5316 2289 1045
Nursing Veterinary Medicine Agriculure Economics & Admin. Law and Politics Arts Education Physical Education	235 1231 996 2032 1921 3120 6999 1385	645 2122 4136 5285 4379 7621 16469 2871	2119 7153 13328 14070 13763 24447 42882 7117	678 3418 5289 6150 6672 13221 21920 2723	930 3004 7662 9850 8535 21966 24675 4160	937 4456 8696 13966 12844 29037 34691 6099
Academy of Fine Arts Alsharia	660 1157	2086 3546	7497 10249	3331 5680	4160 7639	4379 7928
Total	24722	60819	181088	86983	113345	153637

Source: * Compiled from audited financial statement, Accounting Office of Colleges, University of Baghdad, 1981/82 - 1986/87. ** Allocation criteria are According to percent of dormitory students by college, (see Table A-8).

Table B-11						
Allocation	Indirect I	Revenue of	Central	Library t	o Various	Colleges,
University	of Baghdad,	, 1981/82 –	1986/87,	(In Iraqi	Dinars).	

			Ye	ear		
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Indirect Revenue	493	542	820	1936	2258	6342
College						
Science Engineering Medicine Pharmacy Dentistry Nursing Veterinary Medicine Agriculure Administration And Economics Law and Politics Arts Education Physical Education Academy of Fine Arts Alsharia	39 60 28 12 11 5 21 36 64 18 64 94 16 13 12	42 54 34 15 13 4 21 44 70 20 66 112 17 15 15	67 101 52 21 19 5 28 55 28 55 99 28 108 158 23 31 25	149 263 124 49 48 12 60 112 233 66 247 366 247 366 54 83 70	169 241 115 50 48 12 55 146 66 387 420 74 103 86	468 606 305 140 139 50 152 394 842 175 200 179 236 270 186
Total	493	542	820	1936	2258	6342

Source: * Compiled from audited financial statement, Accounting Office of Colleges, University of Baghdad, 1981/82 – 1986/87. ** Allocation criteria are according to percent of student by college (see Table A-7).

Table B-12 Total Revenue and Institutional Revenue per Student, College of Science, University of Baghdad, 1981/82-1986/87,(Iraqi Dinars).

		Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a) Allocation Indirect revenue	9768	8451	29938	16033	50810	96218	
Administration Office (b) Central library (c) Dormitory Office (d)	6439 39 1526	2889 42 3059	3745 67 8928	3769 149 3967	4250 169 6574	11151 468 8588	
Total revenue	17771	14441	42678	23918	61803	116425	
Number of student enrolled (e) Institutional revenue per student (to nearest ID)	2632 7	2577 6	2722 16	2535 9	3009 21	3152 37	

Source: (a) Compiled from audited financial records, Accounting Office, College Science, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-13Total Revenue and Institutional Revenue per Student, College Engineering,University of Baghdad, 1981/82-1986/87 (In Iraqi Dinars).

	Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Annual revenue (a) Allocation Indirect revenue	53860	143317	20876	40972	89462	101912
Administration Office (b) Central library (c)	10014 60	3733 54	5632 101	6647 263	6047 241	14464 606
Dormitory Office (d)	1834	4944	17007	8437	8546	13366
Total revenue Number of student	65768	152048	43613	56319	104296	130348
enrolled (e)	4092	3328	4092	4474	4282	4092
student (to nearest ID)	16	46	11	13	24	32

Source:

Source: (a) Compiled from audited financial records, Accounting Office, College of Engineering, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-14

Total Revenue	and II	nstitutional	Revenue	per	Student,	College	Medicine.
University of	Baghdad,	1981/82-1986	/87 (Iraq	í Dir	nars).	0	,

		Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a) Allocation Indirect revenue	4348	8580	12799	17704	25993	124523	
Administration Office(b)Central library(c)Dormitory Office(d)	4688 28 920	2361 34 2202	2915 52 7388	3128 124 3128	2884 15 3400	7278 305 5316	
Total revenue	9985	13177	23154	24084	32392	137422	
Number of student enrolled (e) Institutional revenue per	1917	2106	2118	2106	2044	2056	
student (to nearest ID)	5	6	11	11	16	67	

Source: (a) Compiled from audited financial records, Accounting Office, College of Medicine, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

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 Table B-15

 Total Revenue and Institutional Revenue per Student, College of Pharmacy, University of Baghdad, 1981/82-1986/87 (In Iraqi Dinars).

		Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a) Allocation Indirect revenue	5333	2881	7541	8441	7067	50314	
Administration Office (b) Central library (c) Dormitory Office (d)	2046 12 512	1004 15 1101	1175 21 3767	1238 49 1627	1241 50 1530	3344 140 2289	
Total revenue	7903	5001	12504	11355	9981	56087	
Number of student enrolled (e) Institutional revenue per	836	894	854	834	877	944	
student (to nearest ID)	9	6	15	14	11	59	

Source: (a) Compiled from audited financial records, Accounting Office, College of Pharmacy, University of Baghdad; (b) Allocation of indirect revenue, (see Table A-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-16 Total Revenue and Institutional Revenue per Student, College of Dentistry, University of Baghdad,1981/82-1986/87 (In Iraqi Dinars).

		Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a) Allocation Indirect revenue	29517	3588	29723	35851	39956	58395	
Administration Office (b) Central library (c)	1759	881	1088	1209	1207	3314	
Dormitory Office (d)	195	353	1376	652	714	1045	
Number of student	31402	3/120	32200	37700	41920	02895	
Institutional revenue per	/19	785	/91	813	854	939	
student (to nearest ID)	44	47	41	46	49	67	

Source: (a) Compiled from audited financial records, Accounting Office, College of Dentistry, University of Baghdad; (b) Allocation of indirect revenue, (see Table A-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

 Table B-17

 Total Revenue and Institutional Revenue per Student, College of Nursing,

 University of Baghdad, 1981/8-1986/87, (In Iraqi Dinars).

		Year						
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87		
Annual revenue (a) Allocation Indirect revenue	737	3134	2032	16400	1911	16868		
Administration Office (b) Central library (c)	859	281 4	271 5	318 12	300 12	1195 50		
Dormitory Office (d)	235	645	2119	678	930	937		
Total revenue	1836	4064	4427	17408	3153	19050		
Number of student enrolled (e) Institutional revenue per	350	250	198	212	214	338		
student (to nearest ID)	5	16	22	82	15	56		

Source: (a) Compiled from audited financial records, Accounting Office, College of Nursing, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-18 Total Revenue and Institutional Revenue per Student, College of Veterinary Medicine, University of Baghdad, 1981/8-1986/87, (In Iraqi Dinars).

					Year	
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Annual revenue (a Allocation Indirect revenu) 75627 e	63471	28232	38551	29926	78009
Administration Office (b Central library (c Dormitory Office (d) 3469 21 1231	1431 21 2122	1551 28 7153	1522 60 3418	1377 55 3004	3631 152 4456
Total revenue	80348	67045	36964	43551	34362	86248
Number of student enrolled (e Institutional revenue per) 1417	1276	1126	1023	977	1025
student (to nearest ID)	57	53	33	43	34	84

Source: (a) Compiled from audited financial records, Accounting Office, College of Veterinary Medicine, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table 10); (e) Number of students enrolled, (see Table A-7).

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Table B-19 Total Revenue and Institutional Revenue per Student, College of Agriculture, University of Baghdad, 1981/82-1986/87 (In Iraqi Dinars).

	Year						
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a) Allocation Indirect revenue	83860	92875	111803	106342	71032	249926	
Administration Office (b) Central library (c) Dormitory Office (d)	6006 36 996	3032 44 4136	3066 55 13328	2834 112 5289	3661 146 7662	9396 394 8696	
Total revenue	90898	100087	128252	114577	82501	268412	
Number of student enrolled (e) Institutional revenue per	2455	2702	2227	1907	2594	2657	
student (to nearest ID)	37	18	58	60	32	101	

Source:

source: (a) Compiled from audited financial records, Accounting Office, College of Agriculture, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-20 Total Revenue and Institutional Revenue per Student, College of Administration and Economics, University of Baghdad, 1981/82-1986/87 (In Iraqi Dinars).

		Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a Allocation Indirect revenue	3895	25740	13199	45633	79226		
Administration Office (b Central library (c Dormitory Office (d) 10571 64 2032	4876 70 5286	5522 99 14070	5883 233 6150	7163 286 9850	20093 842 13966	
Total revenue	16562	13569	45431	25465	62932	114127	
Number of student enrolled (e Institutional revenue per	4318	4345	4013	3960	5076	5683	
student (to nearest ID)	4	3	11	6	12	20	

Source: (a) Compiled from audited financial records, Accounting Office, College of Administration and Economics, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-21 Total Revenue and Institutional Revenue per Student, College OF Law and Politics, University of Baghdad,1981/82-1986/87 (In Iraqi Dinars).

	Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Annual revenue (a) Allocation Indirect revenue	1796	13535	12069	8793	90861	65199
Administration Office(b)Central library(c)Dormitory Office(d)	2954 18 1921	1390 20 4379	1579 28 13763	1669 66 6672	1666 66 8535	4176 175 12844
Total revenue	6689	19324	27439	17200	101428	82394
Number of student enrolled (e) Institutional revenue per	1206	1238	1148	1124	1182	1182
student (to nearest ID)	6	16	24	15	86	70

Source: (a) Compiled from audited financial records, Accounting Office, College of Law and Politics, University of Baghdad; (b) Allocation of indirect revenue, (see Table A-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table 10); (e) Number of students enrolled, (see Table A-7).

 Table B-22

 Total Revenue and Institutional Revenue per Student, College of Arts

 University of Baghdad,1981/82-1986/87 (In Iraqi Dinars).

	Year						
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a) Allocation Indirect revenue	3993	5536	21192	29192	29755	14053	
Administration Office (b)	10571	4594	6064	6241	9719	28626	
Dormitory Office (d)	3120	7621	108 24447	13221	21966	29037	
Total revenue	17748	17817	51811	49464	46125	145685	
Number of student enrolled (e) Institutional revenue per	4317	4095	4404	4200	6886	8093	
student (to nearest ID)	4	4	12	12	7	18	

Source: (a) Compiled from audited financial records, Accounting Office, College of Arts, University of Baghdad; (b) Allocation of indirect revenue, (see Table A-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table 10); (e) Number of students enrolled, (see Table A-7).

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Table B-23 Total Revenue and Institutional Revenue per Student, College of Education, University of Baghdad,1981/82-1986/87 (In Iraqi Dinars).

	Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Annual revenue (a) Allocation Indirect revenue	7688	29479	23940	32471	170982	152305
Administration Office (b) Central library (c) Dormitory Office (d)	15628 94 6999	7731 112 16469	8863 158 42882	9261 366 21920	10540 420 24675	28127 1179 63997
Total revenue	30409	53791	75843	64018	206617	216302
Number of student enrolled (e) Institutional revenue per student (to pearect ID)	6383	6889	6441	6233	7468	7955
student (to hearest ib)		0	12	10	20	21

Source: (a) Compiled from audited financial records, Accounting Office, College of Education, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-24

Tota	il Revenu	e and	Insti	itutional	Revenue	per	Studen	t. Co	llege	of	Physical
Educ	ation, U	iversi	ity of	Baghdad,	1981/82-	·1986/	'87 (In	Íraqi	Dinar	:s).	•

	Year						
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a) Allocation Indirect revenue	3536	10995	2558	4474	6885	38404	
Administration Office (b) Central library (c) Dormitory Office (d)	2643 2111 1385	1177 1061 2871	1281 1726 7117	1361 2105 2723	1847 2596 4160	5628 6430 6099	
Total revenue	9675	16104	12682	10663	15488	56561	
Number of student enrolled (e) Institutional revenue per	1080	1049	931	915	1308	1591	
student (to nearest ID)	9	15	14	14	12	35	

Source:

Source: (a) Compiled from audited financial records, Accounting Office, College of Physical Education, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

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Total Revenue and Institutional Revenue per Student, College of Academy of Fine Arts, University of Baghdad, 1981/82–1986/87 (In Iraqi Dinars).

					Year	
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Annual revenue (a) Allocation Indirect revenue	580	2586	3597	12918	20067	32187
Administration Office (b) Central library (c) Dormitory Office (d)	2111 13 660	1061 15 2086	1726 31 7497	2105 83 3331	2596 103 4160	6430 270 4379
Total revenue	3364	5748	12851	18437	7120	43266
Number of student enrolled (e) Institutional revenue per student (to pearest ID)	863	944	1255	1416	1839	1820
student (to hearest ib)	4	4	10	13	1.7	24

Source: (a) Compiled from audited financial records, Accounting Office, College of Academy of Fine Arts, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

Table B-26 Total Revenue and Institutional Revenue per Student, College of Alsharia, University of Baghdad, 1981/82-1986/87 (ID).

		Year					
Description	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	
Annual revenue (a Allocation Indirect revenue	585	1592	2846	6877	10509	24858	
Administration Office (b) Central library (c)	2069 12	1034 15	1423 25	1762 70	2171 86	4448 186	
Dormitory Office (d	1157	3546	10249	5680	7639	28628	
Total revenue	3823	6187	14544	14389	20405	37420	
Number of student enrolled (e) Institutional revenue per	843	921	1033	1186	1536	1257	
student (to nearest ID)	5	7	14	12	13	30	

Source: (a) Compiled from audited financial records, Accounting Office, College of Alsharia, University of Baghdad; (b) Allocation of indirect revenue, (see Table B-9); (c) Allocation of Indirect revenue, (see Table B-11); (d) Allocation of indirect revenue, (see Table B-10); (e) Number of students enrolled, (see Table A-7).

						_											
	17	Adjusted Revenue	37	32	67	60	67	56	84	101	20	70	18	27	35	24	30
	1986/8	Actual Revenue	37	32	67	65	67	20	84	101	20	70	18	27	35	24	30
		Adjusted Revenue	16	19	12	ຄ	80 M	12	26	25	ດ	67	5 C	22	ຄ	12	10
	1984/86	Actual Revenue	21	24	16	11	49	15	34	32	12	86	7	28	12	15	13
	35	Adjusted Revenue	7	10	œ	10	34	61	32	45	4	11	ຄ	7	ຄ	10	ຄ
	1984/8	Actual Revenue	6	13	11	14	97	82	43	60	ە	15	12	10	12	13	12
	184	Adjusted Revenue	12	ø	œ	11	31	17	25	44	œ	18	ດ	ຄ	11	œ	11
	1983,	Actual Revenue	16	11	11	72	41	22	33	58	11	24	12	12	14	10	14
	2/83	Adjusted Revenue	ß	35	ŝ	ъ	36	12	41	14	2	12	m	6	12	m	ŝ
ars)	198	Actual Revenue	ى	46	ს	9	47	16	53	18	m	16	Ť	œ	15	T T	7
ITAGI UIN	31/82	Adjusted Revenue	و	14	4	œ	38	ų	6 ফ	32	m	ъ	m	đ	00	m	Ŧ
F UT)	198	Actual Revenue	7	16	ഹ	໑	57	ഗ	57	37	Ţ	ە	Ť	ŋ	മ	Ţ	ŋ
		College	1	2	m	বা	ഹ	6	7	80	g	10	11	12	13	14	15

Source: Actual Revenue from Tables B-12 to B-26.

Table B-27 Institutional Revenue Per Student According to College, University of Baghdad, 1974/75-1986/87,

B-19

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	1981/82-1986/87, (In Iraqi	Dinars)								
		1981/82	Graduates	*	1982/83	Graduates	*	1983/84	l Graduate	* v
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1976/77	L L	20 67	20 87	140	17	17	119	υĵ	ŝ	35
1978/79	7	211	298	2086	110	127	889	53	58	406
1979/80	7		298	2086	277	404	2828	104	162	1134
1980/81	7		298	2086		404	2828	324	486	3402
1981/82	7		298	2086		404	2828		486	3402
1982/83	Q					404	2424		486	2916
1983/84	16				ininate				486	7776
Total		298		5003	404		91611	486		19071
Social 1	Institutional Income/Graduate	ID 9093	÷ 298 =	ID 14	ID 11916	- 404 - I	D 29	LD 19071	÷ 486 =	ID 39
able B-2	28 Continued									
				*			~			4

Table B-28 Institutional Revenue per Graduate, College of Science, University of Baghdad,

		1984/85	Graduates	* "	1985/86	Graduate	* v	1986/8	7 Graduate	* 0
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Wumber Admitted	Number Enrolled	Income 1987ID
1977/78	7	2	2	14						
1978/79	7	21	23	161	80	80	56			
1979/80	7	74	97	679	23	31	217			
1980/81	7	151	248	1736	69	100	700	25	25	175
1981/82	7	285	533	3731	118	218	1526	47	72	504
1982/83	S		533	3198	222	440	2640	133	205	1230
1983/84	16		533	8528		440	7040	263	468	7488
1984/85	6		533	4797		440	3960		468	4212
1985/86	21					440	9240		468	9828
1986/87	37								468	17316
Total		533		22844	440		25379	468		40753
Social I	nstitutional Income/Graduate	ID 226	344 ÷ 533=	- ID 43	ID 253	79 ÷ 440 =	= ID 58	ID 407	153 ÷ 468=	1D 87

Source:

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". Number of graduate by year of admission from Table A-39; Institutional revenue per student - year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

Table B-29 Institutional Revenue per Graduate, College of Engineering, University of Baghdad,

		1984/85	Graduates	ده ۲	1985/86	Graduates	{1 _0	1986/8	7 Graduate	* S
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1978/79	14 14	6 62	9 11	126 994	17	L	238	7	L	80
1980/81	14	318	389	5446	116	133	1862	26	33	462
1981/82	14	443	832	11648	279	412	5768	06	123	1722
1982/83	35		832	29120	376	788	27580	248	371	12985
1983/84	8		832	6656		788	6304	279	650	5200
1984/85	10		832	8320		788	7880		650	6500
1985/86	19					788	14972		650	12350
1986/87	32								650	20800
Total		832		62310	788		64604	650		60117
Social I	institutional Income/Graduate	ID 6231	0 ÷ 832 =	= ID 75	TD 646	.04 ÷ 788 =	· ID 82	TD 60117	1 ÷ 650 =	= ID 92

Source:

4 4

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Number of graduate by year of admission from Table A-40. Institutional revenue per student-year from Table B-27. Prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure. *

B-21

	1981/82-1986/87, (In Iradi	i Dinars).								
		1981/82	Graduates	*	1982/83	Graduates	* 20	1983/84	1 Graduate	41 OJ
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1974/75 1975/76 1976/77 1977/78 1978/79	বা বা বা বা বা ব	243 243	७ ७ ७ ७ ७ ९ ४ ४ ४ ८ २ २ २ २ २	N दा दा दा दा द त 80 80 80 80 60 60 60 60 60 60 60 60	2 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1961 1967 1977 1977	ଙ୍କ ଏ ଓ ଓ ଓ ଓ ୯୦୦ ଓ ୦୦୦ ୦୦୦୦	ศ ค ค ค ค ด ผ	ー サ ト の 9 9 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22288 2228 2228 72 72 72 72 72 72 72 72 72 72 72 72 72
1980/81 1981/82 1982/83 1983/84	اه مي دي دي			ा म 0 00 0 00 0 00		247 247 247	12888 12888 12888		00000 00000 00000 00000	1224 1224 1224 1530 2448
Total		246		5916	247		6279	306		8974
Social 1	Institutional Income/Graduate	ID 5916	÷ 246 = I	D 24	ID 6279	÷ 247 = ID	25	ID 8974	i ÷ 306 =	ID 29
Table B-5	30 Continued									
		1984/85	Graduates	*	1985/86	Graduates	÷.,	1986/87	Graduate	ري ان

Table B-30 Institutional Revenue per Graduate, College of Medicine, University of Baghdad,

		1984/85	Graduates	*	1985/86	Graduates	*	1986/8.	7 Graduat€	4° 01
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1977/79 1978/79 1978/79 1978/79 1980/81 1981/82 1981/82 1983/84 1984/85 1985/86 1985/86	47 47 47 47 47 50 80 80 で しの	8 I E 3 I E 8 I	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	12 88 1412 1412 1412 1765 2824 2824 2824	325 325 323	ଓ ଓ ମ ସଂସଂସଂସଂସଂସ ମ ସଂଓ ଓ ଓ ଓ ଓ ଓ ଓ ୯୮ ୩ ୯୦୦ ଓ ଓ ଓ ଓ ଓ ୯୮ ୯ ୯ ୯ ୯ ୯ ୯ ୯	24 1456 368 2912 2912 2912 2912 2912 2912	10 29 285	4 10 10 10 10 10 10 10 10 10 10 10 10 10	40 156 156 1620 2592 2592 3888 2592 2592 2592 2592 2592 2592 21708
Total		353		11749	364		15176	324		33892
Social I	institutional Income/Graduate	ID 11745) ÷ 353= I	D 33	ID 15176	÷ 364 = I	D 42	ID 33892	:÷324 =	ID 105

Source:

1.180 3 13

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2.0 , 1

Number of graduate by year of admission from Table A-41. Institutional revenue per student-year from Table B-27. * Prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

40	1982/83 Graduates 1983/84 Graduates	umber Number Income Number Number Income dmitted Enrolled 1987ID Admitted Enrolled 1987ID	21 21 168 12 168 12 96 177 1416 12 12 96 177 1416 139 151 1208 177 1416 139 151 1208 177 1416 139 151 1208 177 885 151 1208	177 6717 151 6136	ID 6717 ÷ 177 = ID 38 ID 6136 ÷ 151 = ID 41		1985/86 Graduates [*] 1986/87 Graduates [*]	mber Number Income Number Number Income	umber Number Income Number Number Income Maitted Enrolled 1987ID Admitted Enrolled 1987ID	mber Number Income Number Income Sumber Number 1987ID admitted Enrolled 1987ID
	1981/82 Grad	ial Institutional Income Number Number Student (1987ID)	۵۵۵۵۵۵۵۵۵ 2138 2328	225	tutional Income/Graduate ID 9064 ÷ 22	ntinued	1984/85 Grad	ial Institutional Income Number Numb	ial Institutional Income Number Numb Student (1987ID) Admitted Enro	ial Institutional Income Number Numb Student (1987ID) Admitted Enro
-		Year per 1	1976/77 1977/78 1978/79 1979/80 1970/80 1982/83 1982/83	Total	Social Institu	lable B-31 Cont		Socie	Year per S	Year per S

Baghdad,	
οĘ	
University	
Pharmacy,	
ο£	
College	
Graduate,	Dinarel
рег	aqi
Revenue	. (In Ir
Institutional	1981/82-1986/87
Table B-31	

Continued cocial Instituti er Student (198 8 8 8 8 8 8 8 8 8 11 10 10 10 10 5 5 5 5 5 5 5 5 5 5 5 5

16 296 296 1980 1980 1820 1620

17328 96 ID li

÷ 180

ID 17328 180

ID 7207 ÷ 157 157

ID 5724 ÷ 134 = ID 43

5724

134

7207 46 = ID

Source:

1 11 1

Total

Social Institutional Income/Graduate

Number of graduate by year of admission from Table A-42. Institutional revenue per student-year from Table B-27. prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure. *

		1981/82	Graduates	*	1982/83	Graduates	*	1983/8	4 Graduate	»+ א
Year	<pre>social Institutional Income per Student (1987ID)</pre>	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1974/75 1975/76 1976/77 1976/77 1978/79 1978/79 1978/79 1982/83 1982/83 1982/83 1982/83	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	य' य' य' 80	4" 8 N O O O O O 4" 8 N O O O O O O 7" 8 N O O O O O O O	152 304 456 4564 3648 3648 3648 3648 3648 3648	11 11 12 8 8 3 1	1 124 127 127 127 127 127	152 152 152 152 152 152 152 152 152 152	112 112 112	2 6 1333 1333 1333 1333	76 76 798 5054 5054 4788 4123
Total		96		19152	127		24522	133		25175
Social	Institutional Income/Graduate	ID 19152	I = 96 ÷ 3	D 200	ID 24522	÷ 127 = 1	D 193	ID 2517:	5 ÷ 133 =	ID 189
Table B-	32 Continued									

Table B-32 Institutional Revenue per Graduate, College of Dentistry, University of Baghdad, 1981/82-1986/87, (In Iragi Dinars).

		1984/85	Graduates	۰ ۵	1985/86	5 Graduates	• ,,	1986/87	/ Graduate	s,
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1977/79 1978/79 1978/79 1980/81 1981/82 1981/82 1982/83 1984/85 1985/86 1985/86	-7 ∞ # 3 ∞ ∞ ∞ ∞ ∞ ∞ ∞ ∞ ∞ ∞ 0 % ∞ 0 % ∞ 0 % ∞ 0 % ∞ 0 % 0 %	11 126 126	140 140 140 140 140 140	114 5320 5320 5320 5320 4340	6 129	11 140 140 140 140 140	228 418 5320 5320 4340 4760	1 6 146	153 153 153 153 153	38 5506 4743 5202 5814 10251
Total		140		25986	140		25426	153		31822
Social I	nstitutional Income/Graduate	25986 ÷	140 = ID	186	ID 25426	1 = 140 = 1	D 182	ID 31822	: ÷ 153 =	ID 208

Source: Number of graduate by year of admission from Table A-43. Institutional revenue per student-year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure. B.24

	TART/RZ-TARR/R// (IN TIGT	. (signification).								
		1981/82	Graduates	** ₆₀	1982/83	8 Graduates	* ,,	1983/84	d Graduate	* 0
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1977/79 1978/79 1979/80 1980/81 1981/82 1981/82 1982/83	びぢぢぢぢとL F	ଓ ୠ ଓ	75 75 75	24 3000 3000 3000	1007	8800 800 800 800 800 800 800 800 800 80	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C C M	ល ស ល ល ហ ល ស ល ល ហ	80000 8000 8000 8000 8000 8000 8000 80
Total		75		1224	80		1964	55		2047
Social]	Institutional Income/Graduate	ID 12	24 ÷ 75 =	= ID 16	ID 1	964 ÷ 80 =	= ID 25	ID 20	J⊈7 ÷ 55 =	ID 37
Table B-	33 Continued									
		1984/85	Graduates	* ,0	1985/86	Graduates	-14	1986/87	/ Graduate	*°0

Table B-33 Institutional Revenue per Graduate, College of Wursing, University of Baghdad,

		1984/85	Graduates	*	1985/86	Graduate:	** <i>0</i> 0	1986/8.	7 Graduate	* 0
Year	Social Institutional Income per Student (1987ID)	e Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1978/79 1979/80 1980/81 1981/82 1982/83 1982/83 1984/85 1985/86	र् <i>ष प व व व</i> ८८ न ८७ न न ७ न	2 ° 2 1	80000 mm	12 12 364 792 11222 4026	ひ す ら ー す	000110 00017 000017	8 64 1037 3721 732	ო ს ს ო	ମ ର ଜ ଜ ସଂ ସଂସଂସ ଜ	12 108 765 2745 540
1986/87 Total	56	99		6256	61		6294	45	45	2520 6690
Social I	nstitutional Income/Graduate	5 ID 6:	256 ÷ 66 =	ID 95	ID 62	94 ÷ 61 =	ID 103	ID 6690) ÷ 45 = 1	D 149

Source:

Number of graduate by year of admission from Table A-44. Institutional revenue per student-year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

		1981/82	Graduates	* ,0	1982/83	Graduates	** **	1983/84	<pre>Graduate</pre>	* vi
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1974/75 1975/76 1976/77	6 व व	18 2 3	w ro w	147 245 1127	N 4 M	ุ ง ७ ต	98 294 741			
1977/78	ର ସ	225	248	12152	501	45	2205	500	7	343
1979/80	छ र ग		248 248	12152	C777	200	14210	216	251 251	12299
1980/81	छ य		248 248	12152		290	14210		251 251	12299
1982/83 1983/84	41 25					290	11890		251	10291 6275
Total		248		62279	290		71768	251		55521
Social :	Institutional Income/Graduate	ID 62279) ÷ 248 =	ID 251	ID 71768	÷ 290 = 1	CD 247	ID 55523	÷ 251 =	ID 221
Table B-	34 Continued									

Table B-34 Institutional Revenue per Graduate, College of Veterinary Medicine, University of Baghdad, 1981/82-1986/87, (In Iradi Dinars).

		1984/85	Graduates	** 00	1985/86	5 Graduates	**	1986/8.	<i>]</i> Graduate	es *
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1976/77 1977/78 1977/78 1978/79 1978/79 1978/79 1978/79 1980/81 1982/83 1983/84 1984/85 1985/86 1986/87	ର ର ର ର ର ମ ମ ୟ ର ଓ ସଂ ବ ସଂସଂସଂସଂସଂସ ର ର ର 8	220 220 220	15 12 287 287 287 287 287 287 287	245 245 245 288 588 588 3283 14063 114663 11767 9184 9184	а а 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1988 1988 1988 1988 1988 1988	98 98 97 97 97 97 98 97 98 97 98 97 98 97 98 97 98 97 98 97 98 97 98 97 98 97 98 97 98 98 98 98 98 98 98 98 98 98 98 98 98	1 1 1 1 30 0 1 1 30	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	49 49 147 147 147 147 135 135 135 135 135 1376 13776 13776
Tôtal		287		60417	198		38419	164		37150
Social	Institutional Income/Graduate	ID 60417	÷ 287 =	ID 211	ID 38419	I = 86I ÷ (D 194	ID 37150) ÷ 164 =	ID 227

Source: Number of graduate by year of admission from Table A-45; Institutional revenue per student-year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

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		1981/82	Graduates	÷t	1982/83	: Graduates	*,,	1983/8	4 Graduate	ф м
Хеаг	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1977/78 1978/79 1979/80 1980/81 1981/82 1982/83	322 322 44 1322 142 142 142 142 142 142 142 142 142 1	110	110 551 551 551 551	3520 17632 17632 17632 17632	2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	16 82 610 610 610 610	512 2624 19520 19520 19520 8540	13 110 425	128 128 553 553 553 553 553	160 576 17696 17696 17696 24332
Total		551		74048	610		70236	553		72298

Table B-35 Institutional Revenue per Graduate, College of Agriculture, University of Baghdad, 1981/82-1986/87, (In Iragi Dinars).

Social Institutional Income/Graduate ID 74048 ÷ 551 = ID 134 ID 70236 ÷ 610 = ID 115 Table B-35 Continued

ID 72298 ÷ 553 = ID 131

		1984/85	Graduates	***	1985/86	6 Graduates	40	1986/81	Graduate	* v
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1978/79 1979/80 1980/81 1981/82 1982/83	0 0 0 0 E	3 2 4 3 1 3 3 3 88 3 88 3 88 3 88 3 88 3 88 3	2233 160 248 248 248	96 864 17536 17536	16 136 252	409 153 153	160 160 672 5726	11 12	11 108	352
1983/84 1984/85 1985/86 1986/87	44 45 101		2 7 8 2 7 8 2 2 8	24660	1	000 000 7	17996 18405 10225	200	88888 0080 0080 0080 0080 0080 0080 00	13552 13860 7700 31108
Total		548		80060	409		58368	308	5	6808₫
Social 1	Institutional Income/Graduate	ID 80060) ÷ 548 =	ID 146	ID 58368	± 409 = 1	D 143	ID 68084	÷ 308 =	ID 221

Source:

h

. Number of graduate by year of admission from Table A-46. Institutional revenue per student-year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

	* s	Income 1987ID	3 9 87 357 357 2595 1730 6920 6920	11 17	
	g Graduate	Number Enrolled	8 8 8 8 9 1 7 8 8 8 8 8 1 7 8 9 9 9 8 8 8 7 9 9 9 9 9 9 8 8 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9) ÷ 865 =	
	1983/8	Number Admitted	746 746	zo2 ID 14320	
	* ,	Income 1987ID	12 156 483 2646 2646 1764	CCCUL	
	Graduates	Number Enrolled	5 4 5 1 8 8 2 8 8 2 8 8 2 8 8 2 8 8 2 8 8 2	3 ÷ 882 =	
	1982/83	Number Admitted	48 109 721 003	ID 1035	
	*.	Income 1987ID	15 90 974 2514 2514 2514 2514 2514	ID 13	
	Graduates	Number Enrolled	∞ ∞ ∞ ∞ ∞ ⇔ Ω Ω ∞ ∞ ∞ ∞ ∞ ∞ ⊕ Ω ∞ ∞ ∞ ∞ ∞ ∞ ⊕	= 838 + 838	
	1981/82	Number Admitted	25 128 680 680	820 ID 1063	
LO LOOF TO LEOFE LEADING		Social Institutional Income per Student (1987ID)	ო ო ო ო ო ო ო ა დ	nstitutional Income/Graduate	
	200 7 - 192 0	Year	1975/76 1976/77 1976/77 1978/79 1978/79 1978/79 1978/79 1982/81 1982/82 1983/84	TOTAL Social IN	

Table B-36 Institutional Revenue per Graduate, College of Administration and Economics, University of Bachdad, 1981/82-1986/87, (In Iradi Dinars).

Table B-36 Continued

		1984/85	Graduates	* 10	1985/86	Graduates	* 0	1986/8	7 Graduate	* S
stitutional Income Wumber it (1987ID) Admit	Admit	r ted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987II
		мu	ოთ	9 27						
3	Ŧ	m	52	156	ຄ	ŋ	27			
3 13	130	~	191	573	54	63	189	'n	ŝ	15
3 70	70	໑	006	2700	219	282	846	65	70	210
2	,		006	1800	608	890	1780	127	197	394
8			006	7200		890	7120	552	749	5992
5			006	3600		890	3560		749	2996
0						890	8010		749	6741
20									749	14980
006	006			16065	890		21532	749		31328
1 Income/Graduate ID 16	ID 10	20 61	= 006 ÷ 9	ID 18	ID 21532	÷ 890 = I	CD 24	ID 3132	3 ÷ 749 =	ID 42

Source:

. Number of graduate by year of admission from Table A-47. Institutional revenue per student-year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

uates	r Income led 1987ID	1 1 3 3 3 3 4 6 9 8 9 1 3 1 3 0 5 1 1 3 0 5 1 1 3 0 5 1 3 1 3 0 5 1 1 3 1 3 0 5 1 1 3 1 3 0 5 1 1 3 1 3 0 5 1 1 3 1 3 0 5 1 1 3 1 3 0 5 1 1 1 3 1 3 0 5 1 1 1 1 1 1 1 1 1 1 3 0 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10740	1 = ID 41
4 Grad	Rumbe Enrol	00004H 8880		0 = 26.
1983/8	Number Admitted	11 32 216 216	261	ID 1074
	Income 1987ID	70 325 1375 1375 1375 3300 3300	7820	LD 28
3 Graduate:	Number Enrolled	14 65 275 275 275 275) ÷ 275 =]
1982/8	Number Admitted	14 51 210	275	ID 782(
* 00	Income 1987ID	215 975 975 975	4115	CD 21
Graduates	Number Enrolled	43 195 195 195		÷ 195 = 1
1981/82	Number Admitted	43 152	195	ID 4115
	Income			aduate
	itutional (1987ID)	11 822555555 1822		Income/Gr
	Social Insti per Student			Institutional
	Хеаг	1977/79 1979/80 1980/81 1980/81 1982/83 1982/83	Total	Social

Institutional Revenue per Graduate, College of Law and Politics, University of Baghdad, 1981/82-1986/87, (In Iragi Dinars). Table B-37

Table B-37 Continued

		1984/85	Graduates	*,,	1985/86	5 Graduate:	* <i>0</i>	19867	7 Graduate	* 0
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1978/79 1979/80 1980/81 1981/82 1982/83	רא א א א א א א א א א א א א א א א א א א	1 10 172 172	210 210 210 210	190 190 1050 2520 3780	146 144 171	21 22 45 45 75 21 20 0 1 21 20 1 21 21	10 20 20 320 2820 4230	н ба 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 88 7 7 7 0 8 7 7 7 1 7	5 20 456 3240
1984/85 1985/86 1986/87	11 67 70		210	2310		235 235	2585 15745		180 180 180	1980 12060 12600
Total		210		0166	235		25820	180		30366
Social 1	Institutional Income/Graduate	DI06 UI	$\div 210 = I$	D 47	ID 25820	1 ÷ 235 = 1	ED 110	ID 3036(5 ÷ 180 =	ID 169

Source:

4 ź

Number of graduate by year of admission from Table A-48. Institutional revenue per student-year from Table B-27. * Prior to 1981/82 the institutional revenue per student-year data are not available, and are * estimated at the 1981/82 figure.
		1981/82	Graduates	*	1982/83	Graduates	*	1983/87	Graduate	** v)
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1977/78 1979/80 1979/80 1980/81 1981/82 1982/83 1983/83	m m m m m m m m	110 549	10000 00000 00000	330 1977 1977 1977 1977	111 553 553	60001 8888 8888 8999 8999 89999 89999 89999 89999 89999 80999 80999 80999 80999 80999 80999 80999 80999 80999 80999 80999 80999 8000 80000 80000 80000 80000 8000000	75 408 2067 2067 2067 2067	1 35 1 35 1 0 8 1 0 8	8 〒 9 寸 寸 寸 寸 ず へ 2 8 8 8 〒 8 8 8 8 8	123 123 528 2652 2652 2652 2652 2652
Total		659		8238	689		8751	884		16572
Social 1	Institutional Income/Graduate	ID 8238	÷ 659 = 1	D 13	ID 8751	÷ 689 = ID	13	ID 16572	÷ 884 =	CD 19
Table B-5	38 Continued								и 1 ст.	

Table B-38 Institutional Revenue per Graduate, College of Arts, University of Baghdad, 1981/82-1986/87, (In Iragi Dinars)

		1984/85	Graduates	* ,,	1985/86	Sraduate:	* ₀	1986/8.	7 Graduate	* 0
Year	Social Institutional Incom per Student (1987ID)	e Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1977/78	m	~	~	0						
1978/79 1	m	10	12	36	ব	Ţ	12			
1979/80	κ	68	51	153	16	20	60	2	2	0
1980/81	m	171	222	666	46	66	198	S	2	21
1981/82	m	753	975	2925	172	238	714	35	42	126
1982/83	m		975	2925	704	942	2826	208	250	750
1983/84	ຄ		975	8775		942	8478	661	911	8199
1984/85	Ø		975	8775		942	8478		511	8199
1985/86	ъ					942	4710		911	4555
1.986/87	18								513	16398
Total		975		24261	942		25476	911		38254
Social I	nstitutional Income/Graduat	e ID 2426	1 ÷ 975= I	D 25	ID 2547	[=242 ÷ 9,	CD 27	ID 382	54 ÷ 91= 1	D 42

Source:

Number of graduate by year of admission from Table A-49. Institutional revenue per student-year from Table B-27. * Prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

B.30

		1981/82	Graduates	*,,	1982/83	Graduates	÷.,,	1983/8	l Graduate	۵ [*]
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1974/75	7	120	6 18	24 72				1	F.	7
1976/77	4	0	26	104	12	12	48	4	Ŋ	20
1977/78	4	69	95	380	32	44	176	23	28	112
1978/79	4	915	1010	4040	72	116	464	38	90	264
1979/80	й		1010	4040	1043	1159	4636	191	257	1028
1980/81	4		1010	4040		1159	4636	1055	1312	5248
1981/82	Ŧ		1010	4040		1159	4636		1312	5248
1982/83	9					1159	6954		1312	7872
1983/84	ຄ								1312	11808
Total		1010		16740	1159		21550	1312		31604
Social	Institutional Income/Graduate	ID 16740	= 0101 ÷ (TD 17	ID 21550	÷ 1159 =	ID 19	ID 31604	÷ 1312 =	ID 24
	30 Continuod									

Table B-39 Institutional Revenue per Graduate, College of Education, University of Baghdad, 1981/82-1986/87, (In Iraqi Dinars).

Table B-39 Continued

		1984/85	Graduate:	** oo	1985/86	Graduates	* o	1986/8.	/ Graduate	* s
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1977/78 1978/79	ব ব	9 CL 1	5 21	20 84	тo	mo	12 36			
1979/80	4	154	175	700	42	51	204	a	ຄ	36
1980/81	4	345	520	2080	6 6	150	600	25	34	136
1981/82	4	1029	1549	6196	306	456	1824	88	122	488
1982/83	Q		1549	9294	758	1214	7284	300	422	2532
1983/84	ອ		1549	13941		1214	10926	801	1223	11007
1984/85	7		1549	10843		1214	8498		1223	8561
1985/86	22					1214	26708		1223	26906
1986/87	27								1223	33021
Total		1549		43158	1214		56092	1223		82687
Social I	Institutional Income/Graduate	ID 43158	- 1240 =	= ID 28	ID 56092	: ÷ 1214 =	ID 46	ID 82687	1 ÷ 1223 =	ID 68

Source:

Number of graduate by year of admission from Table A-50. Institutional revenue per student-year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

B.31

Graduates *	Number Snrolled 1987ID	2 46 249 249 249 249 292 298 298 298 298	10095	÷ 249 = ID 41
1983/84	Number Admitted	2 44 203	249	ID 10095
*	Income 1987ID	144 2264 3396	10332	CD 37
3 Graduate:	Number Enrolled	18 283 283 283 283 283		: ÷ 283 =]
1982/83	Number Admitted	18 265	283	ID 10332
*	Income 1987ID	32 1704 1704 1704 1704	6848	CD 32
Graduates	Number Enrolled	213 213 213 213 213		÷ 213 = 1
1981/82	Number Admitted	209 209	213	ID 6848
	Social Institutional Income per Student (1987ID)	8 8 8 8 8 8 8 1 1 1 1		Institutional Income/Graduate
	Year	1977/79 1979/80 1979/80 1980/81 1980/81 1981/82 1982/83 1983/84	Total	Social]

Table B-40 Institutional Revenue per Graduate, College of Physical Education, University of Baghdad, 1981/82-1986/87, (In Iragi Dinars)

Social Institutional Table B-40 Continued

		1984/85	Graduates	÷" رہ	1985/86	6 Graduates	-1¢ 00	1986/8	7 Graduate	* 0
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1978/79	ω ω ι	112	192	152						
1980/81	20 00	109	106 215	1720	14 50	14 9	512	و	ە	48
1982/83	12		215	2580	66	130	1560	96	102	1224
1983/84	11		215	2365		130	1430	69	171	1881
1984/85	11		215	2365		130	1430		171	1881
1985/86 1986/87	о Ж					130	1170		171	1539 5985
Total		215		10046	130		6214	171		12558
Social I	Institutional Income/Graduate	ID 10046	5 ÷ 215 =	ID 47	ID 6214	÷ 130 = ID	0 48	ID 12558	3 ÷ 171 =	ID 73

Source:

Number of graduate by year of admission from Table A-51. Institutional revenue per student-year from Table B-27. * Prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

в.32

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(WINGS OF TAXABLE IN COMPANY				-
* 20	Income 1987ID	1239 1239 1239 1286 1296 1296 1296 1296 1296	2925	(D 18
4 Graduat	Number Enrolled	13 13 162 162 162 162 162		- 162 = :
1983/8	Number Admitted	3 10 121	162	ID 2925
÷* ,0	Income 1987ID	24 1224 507 507	2184	13
S Graduates	Number Enrolled	6888 999 11999 111		÷ 169 = II
1982/83	Number Admitted	1 35 126	169	ID 2184
÷* ,0	Income 1987ID	342 342 342 342 342	1398	D 12
Graduates	Number Enrolled	1 9 114 114 114 114		÷ 114 = 1
1981/82	Number Admitted	1 8 105	114	ID 1398
	Social Institutional Income per Student (1987ID)	ო ო ო ო ო ო თ		Institutional Income/Graduate
	Year	1976/77 1977/78 1978/79 1979/80 1979/80 1980/81 1981/82 1982/83 1983/84	Total	Social 1

Table B-41 Institutional Revenue per Graduate, College of Academy of Fine Arts, University of Baghdad, 1981/82-1986/87, (In Iraqi Dinars).

Table B-41 Continued

		1984/85	Graduates	** ₁₀	1985/86	5 Graduates	** 00	1986/8.	7 Graduat	11 10
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1978/79	m	m	m	ð	m	m	6			
1979/80	m	25	28	84	5 C	80	24			
1980/81	m	99	7 6	282	29	37	111	Ţ	4	12
1981/82	m	110	204	612	65	102	306	80	12	36
1982/83	m		204	612	136	238	714	31	43	129
1983/84	80		204	1632		238	1904	134	177	1416
1984/85	10		204	2040		238	2380		177	1770
1985/86	12					238	2856		177	2124 4248
Total		204		5271	238		8304	177		9735
Social 3	Institutional Income/Graduate	ID 5271	÷ 204 = I	ID 26	ID 8304	÷ 238 = ID	35	ID 9735	$\div 177 = 1$	CD 55
		_		-						-

Number of graduate by year of admission from Table A-52. Institutional revenue per student-year from Table B-27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are * stimated at the 1981/82 figure. Source:

в.33

	1981/82-1986/81, (In Irad)	L DIDATS).								
		1981/82	Graduates	** ,0	1982/83	Graduates	*	1983/87	l Graduate	* 00
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1976/77 1977/78	4	5 24	20 2	20 116	Ŧ	Ţ	91			
1978/79	4	153	182	728	12	16 248	64	4	400	116
1980/81	7		182	728	4	248	992	156	185	740
1981/82	4		182	728		248	992		185	740
1982/83	11 5					248	1240		185	925 2035
	1 1									
Total		182		3048	248		4296	185		4572
Social :	Institutional Income/Graduate	ID 3048	÷ 182 =]	(D 17	ID 4296	÷ 248 = II	17	ID 4572	÷ 185 = 1	D 25
Table B-4	42 Continued									
		1084/85	Craduatos	**	1085/86	Gradnates	*	1986/87	Gradnate	* v

Table B-42 Institutional Revenue per Graduate, College of Alsharia, University of Baghdad,

		1984/85	Graduates	* ,	1985/86	Graduate:	* 0	1986/8.	7 Graduate	* s
Year	Social Institutional Income per Student (1987ID)	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID	Number Admitted	Number Enrolled	Income 1987ID
1979/80	4	20	20	80	15	15	60			
1980/81	4	53	73	292	35	50	200			
1981/82	Ŧ	122	195	780	43	63	372	34	34	136
1982/83	ŝ	_	195	975	155	248	1240	56	06	450
1983/84	11	_	195	2145		248	2728	115	205	2255
1984/85	9		195	1755		248	2232		205	1845
1985/86	10					248	2480		205	2050
1986/87	30	_				_			205	6150
Total		195		6027	248		9312	205		12886
Social	Institutional Income/Graduate	ID 6027	÷ 195 = I	D 31	ID 9312	÷ 248 = II	0 38	ID 1288(6 ÷ 205 =	ID 63

Source:

Number of graduate by year of admission from Table A-53. Institutional revenue per student-year from Table B.27. * prior to 1981/82 the institutional revenue per student-year data are not available, and are estimated at the 1981/82 figure.

B.34

Year of Graduation,	
and	
College	(area i(
Λq	5
ate	Tra
radu	(Tn
Ц Ц	187
ц Ц С	389
Revenue	1/82-3
Institutional	OF Ruchand 198
뜻 0	1+10
Summary	Thingre
Table B-43	

	28/T86T	1982/83	1983/84	1984/85	1985/86	1986/8/	1981/82-1986/87
abarron	sanonora	Salbusta	eraduares	eraduares	פדמתתקרפא	CD I D I D I D I D I D I D I D I D I D I	STATE DATES
Science	31	30	39	43	58	87	67
Encineering	59	60	17	75	82	92	75
Medicine	24	25	29	33	42	105	45
Pharmacy	07	38	17	41	46	90	51
Dentistry	200	193	189	186	182	207	193
Nursing	16	25	35	95	103	149	63
Veterinary Medicine	251	248	221	211	194	227	226
Agriculture	134	115	131	146	134	221	142
Administration and Economics	13	12	20	19	25	43	21
Law and Politics	21	28	41	47	110	169	65
Arts	13	13	19	25	27	42	24
Education	17	19	30	28	46	68	35
Physical Education	32	37	41	47	48	73	44
Academy of Fine Arts	12	13	18	26	35	35	28
Alsharia	17	17	25	31	38	63	32

Source: From Tables B-28 to B-42.

в.35

APPENDIX C SUPPLEMENT TO CHAPTER 7

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1**	2	3	4	5***	6	7	8	9	10	11	12
$18\\19\\20\\21\\22\\23\\24\\25\\26\\7\\33\\34\\35\\36\\37\\38\\940\\41\\42\\43\\44\\45\\55\\56\\55\\55\\55\\55\\55\\56\\60A$	1113 12128 1219 1257 1221 1255 1348 1410 1557 1720 1743 1773 2050 2037 2037 2037 2261 2269 2037 2261 2269 2312* 2411* 2460* 2359* 2609* 2757* 2800* 2009* 20	726 726 732 738 732 738 738 738 738 738 738 738 738 738 738	387 402 487 541 519 523 610 592 672 889 867 982 867 982 1005 1005 1005 1005 1037 1220 1288 1231 1304 1275 1361 1361 1364 1526 1577 1626 1676 1577 1824 1824 1824 1823 1973 2022 2072	240 240 240 240 240 240 240 240 240 240	1353 1368 1459 1519 1497 1495 1588 1570 1650 1652 1670 1797 1845 1960 1983 2015 2198 2290 2233 2306 2277 2332 2363 2389 2290 2233 2306 2277 2363 2389 2552 2552 2552 2552 2552 2552 2552 25	972 1027 1045 1102 11085 1102 1223 1220 1240 1240 1255 1310 1255 1310 1255 1372 1382 1405 1405 1685 1680 1561 1605 1680 1561 1717 1724 1774 1775 1944 1885 1885 1885 1885 1885 1905 1880 1834 1992 2255 1992 2255 12227 22250 2236 2250 22260 2236 2250 22250 2236 2250 2236 2250 22318 2351 1176	-972 -1027 -1045 -1085 251 258 277 296 277 221 240 278 268 268 257 220 236 240 280 266 291 240 280 266 291 240 286 291 266 291 280 266 291 280 266 291 280 266 291 280 266 291 280 280 280 280 280 280 280 280 280 280	$\begin{array}{c} -1026\\ -1064\\ -1061\\ -1139\\ 1172\\ 1139\\ 167\\ 172\\ 185\\ 197\\ 160\\ 185\\ 197\\ 160\\ 185\\ 179\\ 160\\ 187\\ 177\\ 194\\ 167\\ 187\\ 167\\ 187\\ 167\\ 187\\ 167\\ 187\\ 194\\ 293\\ 331\\ 2241\\ 273\\ 331\\ 2241\\ 273\\ 331\\ 2241\\ 273\\ 331\\ 244\\ 478\\ 448\\ 478\\ 448\\ 478\\ 448\\ 478\\ 440\\ 474\\ 4545\\ 545\\ 384\\ 449\\ 507\\ 519\\ 519\\ 519\\ 519\\ 519\\ 519\\ 519\\ 519$	$\begin{array}{c} 1026^{\pm} \\ 1064^{\pm} \\ 1101^{\pm} \\ 1101^{\pm} \\ 1139^{\pm} \\ 1136 \\ 1139^{\pm} \\ 1136 \\ 1274 \\ 1322 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1312 \\ 1438 \\ 1471 \\ 1523 \\ 1640 \\ 1685 \\ 1695 \\ 1073 \\ 1640 \\ 1685 \\ 1695 \\ 1095 \\$	$\begin{array}{c} -1037\\ -1077\\ -1126\\ -1159\\ 126\\ 139\\ 139\\ 148\\ 139\\ 139\\ 111\\ 120\\ 139\\ 99\\ 134\\ 120\\ 129\\ 129\\ 129\\ 129\\ 120\\ 140\\ 140\\ 120\\ 140\\ 140\\ 120\\ 129\\ 120\\ 140\\ 133\\ 146\\ 220\\ 248\\ 200\\ 248\\ 200\\ 248\\ 239\\ 248\\ 302\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 336\\ 359\\ 3374\\ 389\\ 389\\ 389\\ 389\\ 389\\ 389\\ 389\\ 397\\ 139\\ \end{array}$	$\begin{array}{c} 1037^{\pm}\\ 1077^{\pm}\\ 1077^{\pm}\\ 11189^{\pm}\\ 11289\\ 1228\\ 1239\\ 1321\\ 1371\\ 1359\\ 1351\\ 1351\\ 1351\\ 1351\\ 1375\\ 1351\\ 1375\\ 1351\\ 1375\\ 1375\\ 1351\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 2042\\ 2029\\ 2125\\ 2029\\ 2124\\ 2042\\ 2073\\ 2029\\ 2124\\ 2213\\ 2029\\ 2125\\ 2029\\ 2124\\ 2213\\ 2029\\ 2125\\ 2212\\$

Table C-1 Private Cost-Earning profiles and Private Internal Rate of return of College of Science Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Private Internal Rates of Return

Col. (2) from Table B-3; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col.(6) - Col. (7); Col. (9), for age 22 to 60A = Col.(6) + Col.(7); Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 12 to 60. Col. (11), for age 12 to 60A = Column 8 × 1/2; Col. (12); Col. (12); For age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

6.92%

4.44%

2.88%

I

Note

* Linear regression estimate.

** Graduates of the College of Science are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

Source:

1225 11836 1792 2002 2002 2101 2352 2104 2353 2104 2354 2354 2354 2354 2354 2354 2364 2599 2594 2364 2416 2599 2594 2364 2416 27895 2842# 2894# 2994# 2994# 2994# 2994# 2994# 2004#	$\begin{array}{c} 738\\ 738\\ 738\\ 738\\ 762\\ 762\\ 762\\ 762\\ 834\\ 834\\ 834\\ 834\\ 834\\ 834\\ 834\\ 834$	1215 987 1098 1054 1250 1297 1339 1566 1342 1574 1567 1342 1580 1582 1765 1760 1578 1612 1765 1765 1765 1765 1765 1765 1208 2008 2060 2013 2113 2165 2218 2218 2218 2275 2428 2480 2480 2480	$\begin{array}{r} 1215\\ 987\\ 11098\\ 1054\\ 1250\\ 1297\\ 1339\\ 1566\\ 1342\\ 1574\\ 1567\\ 1430\\ 1580\\ 1574\\ 1582\\ 1765\\ 1765\\ 1765\\ 1765\\ 1765\\ 1765\\ 1765\\ 2008\\ 2000\\ 2008\\ 2008\\ 2013\\ 2113\\ 2165\\ 2218\\ 2270\\ 2323\\ 2375\\ 2428\\ 2480\\ 2533\\ \end{array}$	2112 23168 2712 2934 2846 33262 33356 3440 3918 33446 3946 39946 39946 39946 39946 39946 39946 39946 39946 39946 3994 4354 4354 4354 4354 4354 4354 4354	$\begin{array}{c} 1255\\ 1310\\ 1372\\ 1382\\ 1450\\ 1450\\ 1561\\ 1561\\ 1561\\ 1724\\ 1728\\ 1794\\ 1778\\ 1794\\ 1788\\ 1794\\ 1825\\ 1904\\ 1880\\ 1885\\ 1885\\ 1905\\ 1834\\ 1899\\ 1925\\ 1905\\ 1880\\ 1834\\ 1991\\ 1982\\ 2051\\ 1992\\ 2227\\ 2020\\ 2372\\ 22260\\ 22372\\ 22250\\ 2286\\ 2318\\ 2351\\ 1176\\ \end{array}$	1157 1858 1340 1552 1441 1812 1452 1441 1812 2238 1729 2258 22162 2162 2162 2162 2162 2121 2054 2469 2469 2463 22760 2910 2463 22760 2910 2463 22760 2910 2463 2313 3042 3354 3107 3334 3334 3334 3476 3548	771 1239 893 961 1208 1197 1223 1492 1153 1505 11441 1441 1369 1441 1414 1366 1664 1646 1646 1642 1642 1642 1642 16	1641 1929 1819 1899 1899 2159 2159 2217 2426 2293 2477 2411 2532 2629 2700 2708 2580 2636 2726 2800 2804 2944 2977 2804 2977 2974 3089 3241 3138 3408 3361 3420	\$79 \$29 \$670 \$771 \$929 \$670 \$771 \$906 \$98 \$98 \$918 \$958 \$1119 \$865 \$1129 \$1061 \$1027 \$1061 \$1027 \$1061 \$1022 \$1067 \$1232 \$1062 \$1380 \$14429 \$14429 \$14429 \$1454 \$1554 \$1667 \$1738 \$1738 \$1774	1834 2239 2239 2128 2126 2356 2459 2523 2799 2582 2853 2839 2720 2886 2971 3116 3120 2921 2992 3137 3260 33289 3420 3472 3496 3608 3748 3496 3608 3748 3496 3697 3917 3988 4056 4125
1684	054	2333	2355	1684	1176	508	339	3334	254	4125
	L	J	L	I	J	I	I	·····		L
e Internal	Rates of	Return				21.30%	14.18%		10.95%	
	1752 2012 2012 20159 2101 2408 2353 22164 2416 2416 2599 2594 2364 2446 2601 2737* 2789* 2894* 2894* 2894* 2894* 2894* 2999* 3052* 23314* 3157* 3209* 3052* 2399* 2594 2595 2594 264 264 264 264 264 2737* 2737* 2894* 2894* 2894* 2999* 3052* 2894* 2894* 2999* 3052* 2999* 3052* 2999* 2010* 2	1100 128 11792 732 2012 762 2013 762 2101 762 2101 762 2104 762 2104 762 2104 762 2104 762 2105 786 2104 762 2105 786 2116 786 2416 834 2594 834 2594 834 2594 834 2601 834 2601 834 2604 834 2604 834 2604 834 2994* 834 2094* 834 3002* 834 3062* 834 3062* 834 3067* 834 1684	1792 738 1054 1792 738 1054 2012 762 1297 2013 762 1297 2101 762 1392 2101 762 1342 2352 786 1566 2104 762 1342 2353 786 1567 2106 786 1430 2354 786 1582 2354 786 1582 2354 786 1582 2364 786 1578 2364 786 1612 2364 786 1612 2364 834 1612 2059 834 1767 2737* 834 1903 2842* 834 2060 2947* 834 2060 2947*<834	1302 738 1054 1054 1792 738 1054 1054 2012 762 1297 1250 2059 762 1297 1297 2101 762 1339 1339 2352 786 1566 1566 2104 762 1342 1342 2408 834 1574 1574 2353 786 1567 1567 2364 786 1580 1580 2364 786 1578 1765 2364 786 1578 1578 2364 786 1678 1578 2364 784 1003 1903 2789* 834 1903 1903 2789* 834 1067 1767 2375 3367* 834 2068 2947* 834 2068 2060 2947* 834 2132 213 3104*	1302 738 1024 1054 2246 1292 738 1024 1054 2246 2012 762 1297 1297 3366 2101 762 1239 1339 3440 2352 786 1566 1566 3918 2104 762 1342 1342 3446 2408 834 1574 1574 3920 2353 786 1567 1950 3946 2366 786 1580 1580 3946 2364 786 1578 1578 3942 2364 786 1578 1578 3942 2364 786 1578 1578 3942 2446 834 1612 1612 4058 2601 834 1903 1903 4640 2737* 834 1903 1903 4640 2789* 344 1055 1955 4744	1302 138 1054 1054 2846 1405 2012 762 1250 1250 2846 1405 2012 762 1297 1297 3356 1561 2101 762 1297 1297 3356 1561 2101 762 1342 1339 3440 1605 2352 786 1566 1566 3918 1680 2104 762 1342 1342 3446 1717 2408 834 1574 1574 3920 1758 2216 786 1580 1580 3946 1825 2366 786 1580 1580 3948 1944 2599 834 1761 767 4354 1885 2364 786 1578 1578 3942 1899 2446 834 1612 1612 4058 1925 2737* 834 1903 1903 <td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td> <td>$\begin{array}{c c c c c c c c c c c c c c c c c c c$</td> <td>$\begin{array}{c c c c c c c c c c c c c c c c c c c$</td> <td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td>	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

Table C-2 Private Cost-Earning profiles and Private Internal Rate of return of College of Engineering Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

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per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 00A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, = Col. (6) - Column (9); Col. 10, for age 18 to 21, = Col. (6) - Column (9); Col. 10, for age 18 to 21, = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

Note ¹ Linear regression estimate.

** Graduates of the College of Engineering are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

**** The auxiliary income (100%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	ale ale	2	3	4	5 ⁴⁴⁴	6	7	8	9	10	11	12
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	8						972	-972	-1022	1022≑	-1024	1024≉
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	ğ I		1	1	1		1027	-1027	-1046	1093*	-1115	1115
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	ด์					1	1045	-1045	-1141	1163#	-1205	1205*
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	ĩ						1085	-1085	-1234	1234#	-1206	1206#
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	5						1102	-1102	-1305	1205#	-1386	1396=
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	2			1			1110	1110	1376	1376#	1476	14765
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4	1350	738	612	734	2084	1182	002	602	1/83	451	1623
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Ś	1427	738	680	827	2254	1223	1031	687	1567	515	1738
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	6	1481	738	743	892	2373	1220	1153	768	1604	576	1796
$ \begin{array}{ccccccccccccccccccccccccccccccccccc$	7	1403	738	755	906	2300	1240	1150	773	1626	580	1820
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Ŕ	1564	738	826	001	2555	1255	1300	867	1688	650	1005
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ä	1502	738	854	1025	2617	1310	1307	871	1746	653	1963
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ń	1722	738	084	1181	2003	1372	1531	1021	1997	765	2127
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	ĩ	1776	738	1038	1246	3022	1382	1640	1003	1002	820	2202
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2	1804	738	1066	1279	3083	1405	1678	1119	1964	830	2244
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1	1911	738	1173	1408	3319	1450	1869	1246	2073	034	2384
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	a	1871	738	1133	1360	3231	1561	1670	1113	2118	835	2396
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ŝ	1936	738	1198	1438	3374	1605	1769	1179	2105	884	2480
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	6	2054	732	1322	1586	3640	1680	1960	1307	2222	080	2660
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	7	2047	726	1321	1585	3632	1717	1915	1277	2355	958	2675
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	ģ	2254	786	1468	1762	4016	1724	2202	1528	2488	1146	2870
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ŏ	2457	834	1623	1048	1405	1758	2647	1764	2640	1222	2091
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ń	2403	786	1617	1040	4343	1794	2549	1700	2644	1275	3060
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	ĭ	2374	786	1588	1906	4280	1825	2455	1636	2643	1227	3052
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ż	2360	786	1574	1889	4249	1944	2305	1537	2712	1152	3096
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ฉี	2456	834	1622	1946	4402	1868	2534	1690	2713	1267	3135
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	4	2712	834	1878	2254	4966	1885	3081	2054	2912	1540	3425
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Ś	2731	834	1897	2276	5007	1899	3108	2072	2935	1554	3453
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	6	2920	834	2086	2503	5423	1925	3498	2332	3091	1749	3674
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	7	3094	834	2260	2712	5806	1905	3901	2601	3205	1951	3856
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Ŕ	2683*	834	1849	2219	4902	1880	3022	2015	2887	1511	3391
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ğ	3296*	834	2462	2954	6250	1834	4416	2944	3306	2208	4042
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0	3092≉	834	2258	2710	5802	1991	3811	2540	3261	1905	3896
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ĭ	3162*	834	2328	2794	5956	1989	3967	2644	3311	1983	3972
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2	3232*	834	2398	2878	6110	1932	4178	2785	3325	2089	4021
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	3	3302*	834	2468	2962	6264	2051	4213	2808	3455	2106	4157
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4	3372*	834	2538	3046	6418	2227	4191	2794	3624	2095	4322
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	5	3442≉	834	2608	3130	6572	2020	4552	3034	3537	2276	4296
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	6	3512*	834	2678	3214	6726	2372	4354	2902	3823	2177	4549
8 3652* 834 2818 3382 7034 2286 4748 3165 3869 2374 9 3722* 834 2888 3466 7188 2318 4870 3246 3941 2435	7	3582*	834	2748	3298	6880	2250	4630	3086	3793	2315	4565
9 3722* 834 2888 3466 7188 2318 4870 3246 3941 2435	8	3652*	834	2818	3382	7034	2286	4748	3165	3869	2374	4660
	9	3722*	834	2888	3466	7188	2318	4870	3246	3941	2435	4753
0 3792 834 2958 3550 7342 2351 4991 3327 4015 2495	0	3792	834	2958	3550	7342	2351	4991	3327	4015	2495	4846
A 1896 1176 720 480 360	Ā	1896		1	1	1896	1176	720	480	1	360	1

Source: Col. (2) from Table B-4; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 24 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 23 = Col. (6) - Col. (10); Col. (10), for age 24 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 23, estimated by linear regression of data for age 24 to 60(Col. (11), for age 24 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 23, = Col. (6) - Col. (12); Col. (12) for age 18 to 23, estimated by linear regression of data for age 24 to 60; Col. (12), for age 24 to 60 = Col (6) - Column (11).

Note ^{Tr} Linear regression estimate.

** Graduates of the College of Medicine are estimated to complete their college education four years after high school graduation, Column (1) therefore is simply six years plus "number of years since college graduation".

*** The auxiliary income (120%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

22						1102	-1102	-1247	1247≉	-1303	1303*
23	1290	738	552	331	1621	1110	511	341	1280	256	1366
24	1362	738	624	374	1736	1182	554	370	1367	277	1459
25	1415	738	677	406	1821	1223	598	399	1422	299	1522
26	1426	738	688	413	1839	1220	619	413	1426	309	1529
27	1494	738	756	454	1948	1240	708	472	1476	354	1594
28	1520	738	782	469	1989	1255	734	489	1500	367	1622
29	1644	738	906	544	2188	1310	878	585	1603	439	1749
30	1695	738	957	574	2269	1372	897	598	1671	449	1821
31	1712	738	974	584	2296	1382	914	610	1687	457	1839
32	1814	738	1076	646	2460	1405	1055	703	1757	527	1932
33	1775	738	1037	622	2397	1450	947	631	1766	474	1924
34	1837	738	1099	659	2496	1561	935	624	1873	468	2029
35	1949	738	1211	727	2676	1605	1071	714	1962	535	2140
36	1942	738	1204	722	2664	1680	984	656	2008	492	2172
37	2137	762	1375	825	2962	1717	1245	830	2132	623	2340
38	2329	786	1543	926	3255	1724	1531	1021	2234	765	2489
39	2278	786	1492	895	3173	1758	1415	943	2230	708	2466
40	2251	786	1465	879	3130	1794	1336	891	2239	668	2462
41	2238	786	1452	871	3109	1825	1284	856	2253	642	2467
42	2328	786	1542	925	3253	1944	1309	873	2380	655	2599
43	2571	834	1737	1042	3613	1868	1745	1163	2450	873	2741
44	2588	834	1754	1052	3640	1885	1755	1170	2470	878	2763
45	2766	834	1932	1159	3925	1899	2026	1351	2574	1013	2912
46	2931	834	2097	1258	4189	1925	2264	1509	2680	1132	3057
47	2542	834	1708	1025	3567	1905	1662	1108	2459	831	2736
48	2663*	834	1829	1097	3760	1880	1880	1254	2507	940	2820
49	2853≉	834	2019	1211	4064	1834	2230	1487	2577	1115	2949
50	2915*	834	2081	1248	4163	1991	2172	1448	2715	1086	3077
51	2976*	834	2142	1285	4262	1989	2273	1515	2747	1136	3125
52	3038*	834	2204	1322	4360	1932	2428	1619	2741	1214	3146
53	3100*	834	2266	1359	4459	2051	2408	1605	2854	1204	3255
54	3161*	834	2327	1396	4558	2227	2331	1554	3004	1165	3392
55	3223*	834	2389	1433	4657	2020	2637	1758	2899	1318	3338
56	3285*	834	2451	1470	4755	2372	2383	1589	3166	1192	3564
57	3347#	834	2513	1508	4854	2250	2604	1736	3118	1302	3552
58	3408*	834	2574	1545	4953	2286	2667	1778	3175	1333	3619
59	3470*	834	2636	1582	5051	2318	2733	1822	3229	1367	3685
60	3532*	834	2698	1619	5150	2351	2799	1866	3284	1400	3751
60A	1766	}		ļ	1766	1176	590	393		295	
		L	L						[]	L	[]
Daire	to Internel	Potes of	Dotum				12 100	0 5407		7 500	
Priva	te memai	Rates of	Ketuin				13.1270	9.54%		1.39%	
ource											
51. (2	from Tab	le B-7: 0	Col. (3) d	lerived fr	om Table B	-8, Col. (4) from Col.	(2) - Col. (3)	: Col. (5) (I)	D 240) const	ant allowand
er vea	r; Col. (6)	from co	1.(2) + 1	Col. (5);	Col. (7) from	n Table B	1; Col $(8) =$	= Col.(6) - C	ol. (7); Col.	(9), for age	23 to 60A =
01. (8) x 2/3, Co	ol. (9) for	age 18 1	1022 = 0	Col. (6) - Co	l. (10); Co	d. (10), for a	age 23 to 60	= Col. (6) -	Column (9)	; Col. 10, fc

Table C-4 Private Cost-Earning profiles and Private Internal Rate of return of College of Pharmacy Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars)

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1033* 1087* 1140* 1194*

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 $\begin{array}{c} -1046 \\ -11174 \\ -11174 \\ -1238 \\ 257 \\ 299 \\ 309 \\ 309 \\ 307 \\ 439 \\ 449 \\ 367 \\ 474 \\ 448 \\ 457 \\ 527 \\ 474 \\ 448 \\ 457 \\ 527 \\ 474 \\ 448 \\ 457 \\ 527 \\ 474 \\ 448 \\ 642 \\ 655 \\ 708 \\ 668 \\ 668 \\ 668 \\ 668 \\ 668 \\ 668 \\ 673 \\ 878 \\ 873 \\ 878 \\ 871 \\ 1136 \\ 1116 \\ 1136 \\ 1116 \\ 1136 \\ 1136 \\ 11302 \\ 13302 \\ 1337 \\ 1367 \\ 13$

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1046≄ 1110≄ 1174≎

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 $\begin{array}{c} 972\\ 1027\\ 1045\\ 1085\\ 1085\\ 1102\\ 1110\\ 1122\\ 1220\\ 1225\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1372\\ 1450\\ 1774\\ 1754\\ 1885\\ 1885\\ 1885\\ 1885\\ 1880\\ 1899\\ 1925\\ 1880\\ 1891\\ 1980\\ 1880\\ 1891\\ 1982\\ 2051\\ 1880\\ 1991\\ 2051\\ 1880\\ 1991\\ 2051\\ 1980\\ 22277\\ 20202\\ 22270\\ 22250\\ 2286\\ 22318\\ 1880\\ 1885\\ 1$

 $\begin{array}{c} -972\\ -1027\\ -1045\\ -1085\\ 554\\ 558\\ 619\\ 734\\ 897\\ 788\\ 897\\ 898\\ 914\\ 1055\\ 947\\ 1055\\ 947\\ 1055\\ 1071\\ 1245\\ 1251\\ 1336\\ 1284\\ 1309\\ 984\\ 1245\\ 1284\\ 1284\\ 1284\\ 1284\\ 1284\\ 1284\\ 22273\\ 2428\\ 2408\\ 2$

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ş ice for x_{01} , x_{02} , x_{01} , x_{01} , x_{01} , x_{01} , x_{02} , x_{01} , x_{01} , x_{02} , x_{01} , x_{02} , x_{02} , x_{01} , x_{02} , x_{0

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Note ¹ Linear regression estimate.

⁴⁹⁶ Graduates of the College of Pharmacy are estimated to complete their college education five years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (60%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

Source:	
Col. (2) from Table B-7; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant all	lowance
per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 23 to	60A =
Col. (8) x $2/3$, Col. (9) for age 18 to $22 = $ Col. (6) - Col. (10); Col. (10), for age 23 to $60 = $ Col. (6) - Column (9); Col.	. 10, for
age 18 to 22, estimated by linear regression of data for age 23 to 60; Col. (11), for age 23 to $60A = Column 8 \times 1/2$; Co	ol. (11),
for age 18 to 22, $=$ Col. (6)- Col. (12); Col. (12) for age 18 to 22, estimated by linear regression of data for age 23 to 6	50; Col.
(12), for age 23 to $60 = \text{Col}(6)$ - Column (11).	

Note * Linear regression estimate.

** Graduates of the College of Dentistry are estimated to complete their college education five years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

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Table C-5 Private Cost-Earning profiles and Private Internal Rate of return of College of Dentistry Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars) ------1-T Т Т Т T

1**	2	3	4	5 ⁴⁰⁴⁴⁴	6	7	8	9	10	11	12
1^{**} 18^{*} 119 20 22 223 224 226 277 229 30 322 333 333 339 40 423 444 456 477 449 501 522 551 552 553 551 552 553 554 551 552 553 554 551 552 553 554 551 552 554 551 552 554 551 552 554 551 552 554 55	2 1290 1362 1415 1426 1494 1520 1645 1712 1837 1837 1949 1949 1949 1949 1949 2278 22328 2378 2251 2238 2756 2328 2758 2251 2238 2758 2251 22328 2758 2251 22328 2758 2254 2254 2254 2051 2653 2051 2653 2051 2653 2051 2653 2051 2655 2051 2655 2051 2056 2051 2076	3 738 738 738 738 738 738 738 738 738 73	4 552 624 677 678 906 782 905 782 957 974 1037 1039 1211 1204 1375 1543 1452 1542 1542 1542 1542 1542 1542 1542	442 499 542 550 605 725 626 725 726 726 726 726 726 726 726 726 729 861 830 879 969 963 1100 1234 1172 1162 4134 1394 1194 1172 1164 1346 1366 1463 1615 1714 1763 1813 1862	6 1732 1861 1957 1976 2146 2369 2146 2491 2461 2491 2099 2099 2146 2491 2908 2461 2491 2918 2909 2016 2918 2909 2016 2918 2937 3562 3991 3908 4126 4468 4468 4468 4468 44690 4401 4468 44500 4690 4913 3502 2015 2015 2015 2015 2015 2016 2017 2018 2	7 972 1027 1045 1085 1102 1220 1240 1255 1310 1255 1310 1255 1310 1255 1310 1255 1310 1255 1310 1255 1310 1255 1310 1255 1310 1450 1451 1605 1660 1561 1717 1724 1758 1794 1885 1899 1925 1885 1899 1925 1885 1899 1925 1885 1885 1899 1925 1885 1899 1925 1885 1899 1925 1899 1932 2051 1899 1932 2051 1932 2051 1932 2051 1932 2051 1934 1935 1935 1935 1935 1935 1935 1935 1935	8 -972 -1025 -1045 -1085 -1085 -1025 622 679 734 756 859 891 1059 1059 1059 1105 1155 1155 1155 11	9 -1049 -1106 -1164 -1221 -1278 414 453 489 504 573 594 706 726 739 847 770 770 875 817 1026 1142 1086 1050 1078 1395 1395 1395 1395 1404 1608 1726 1236 1497 1756 1726 1726 1913 1908 1800	10 1049* 1106* 1164* 1221* 1221* 1221* 1277 1408 1472 1526 1552 1663 1735 17	$\begin{array}{c} 11\\ &-1069\\ -1139\\ -1209\\ -1279\\ -1349\\ 340\\ 367\\ 378\\ 429\\ 445\\ 529\\ 544\\ 555\\ 635\\ 577\\ 578\\ 656\\ 613\\ 760\\ 920\\ 857\\ 877\\ 878\\ 809\\ 1046\\ 1342\\ 1002\\ 1123\\ 1206\\ 1342\\ 1002\\ 1123\\ 1294\\ 1350\\ 1435\\ 1431\\ 1398\\ \end{array}$	12 1069* 1139* 1279* 1279* 1279* 1349* 1429* 1522 1598 1669 1700 1839 1937 2047 2027 2139 2027 2261 2027 2261 2293 2477 2644 2615 2609 2612 2612 2614 2609 2612 2614 2609 2612 2615 2615 2615 2615 2615 2615 2615
55 56 57 58 59 60 60A	3223** 3285* 3347* 3408* 3470* 3532* 1766	834 834 834 834 834 834 834	2389 2451 2513 2574 2636 2698	1911 1961 2010 2059 2109 2158	5134 5246 5357 5467 5579 5690 1766	2020 2372 2250 2286 2318 2351 1176	3114 2874 3107 3181 3261 3339 590	2076 1916 2072 2121 2174 2226 393	3058 3330 3286 3346 3405 3464	1557 1437 1554 1591 1630 1670 295	3577 3809 3804 3877 3948 4021

1**	2	3	4	5***	6	7	8	9	10	11	12
18	1113	726	387	194	0000	972	-972	-968	968*	-949	940\$
10	1128	726	402	201	0000	1027	-1027	-1013	1013*	-1001	1001*
20	1210	732	487	244	0000	1045	-1045	-1059	1059*	-1054	1054#
21	1279	738	541	271	0000	1085	-1085	-1104	1104*	-1106	1106*
22	1257	738	519	260	1307	1102	205	136	1170	102	1204
22	1221	732	480	245	1329	1110	219	146	1183	110	1204
24	1255	732	523	262	1463	1182	281	197	1276	140	1220
25	1348	738	610	305	1550	1223	327	218	1332	163	1386
26	1330	738	502	206	1517	1220	207	108	1310	149	1369
20	1410	738	672	336	1466	1240	226	150	1315	113	1353
28	1422	738	684	342	1517	1255	262	174	1342	131	1386
20	1/30	739	607	346	1653	1310	3/3	220	1424	172	1492
30	1557	739	810	410	1626	1372	254	160	1457	107	1400
31	1605	738	867	434	1746	1382	364	243	1503	187	1564
32	1720	739	082	/01	1764	1405	350	245	1575	190	1595
32	17/3	728	1005	502	1776	1450	376	217	1550	162	1612
34	1775	739	1005	510	1067	1561	406	270	1606	202	1015
25	1059	720	1007	610	2020	1605	424	220	1750	203	1004
36	1950	762	1220	644	2039	1690	521	209	1957	211	1022
27	1003	762	1200	616	2211	1717	520	334	1007	200	1940
20	1995	762	1204	652	2240	1774	570	332	1095	204	2000
20	2000	762	1075	620	2294	1759	210	540	1914	205	2009
10	2037	762	12/3	691	2500	1704	000	540	2020	405	2105
40	2123	762	1201	604	2094	1/94	900	522	2094	450	2244
41	2247	702	1307	720	2009	1025	704	516	2000	392	2217
42	2201	700	14/3	730	2/10	1944	114	510	2202	367	2331
45	2209	700	1403	762	2075	1000	010	530	2157	405	22/1
44	2312	786	1520	700	2004	1005	919	620	2191	439	2244
45	2301*	100	1520	700	2045	1099	1074	029	2214	412	23/1
40	2411*	034	1676	012	2999	1925	10/4	710	2203	53/	2462
4/	2400*	034	1020	013	2076	1905	1100	131	2274	505	2458
40	2510*	0.54	10/0	030	3075	1000	1195	191	2276	598	24/8
49	2559*	634	1725	803	3149	1854	1315	8/0	22/2	057	2491
50	2009*	854	1//5	000	3200	1991	1209	800	2394	604	2595
51	2058*	034	1074	912	32/3	1989	1284	850	2417	042	2031
52	2700*	0.54	10/4	957	2400	1952	1410	944	2404	708	2040
55	2/5/*	834	1923	952	3422	2051	13/1	914	2508	085	2736
54	2807~	834	1973	987	3497	2221	12/0	840	2650	035	2862
55	2850*	854	2022	1011	3570	2020	1550	1033	2537	115	2795
56	2905*	834	2072	1030	3645	2372	1273	849	2796	637	3009
57	1455	1			5/19	2250	1409	9/9	2/40	/34	2984
58			1		3/94	2200	1508	1005	2/89	754	3040
29		1			2010	2318	1549	1033	2854	1/5	3093
00					3942	2351	1591	1061	2881	796	5147
OUA					1453	1176	278	185]	1.39	J
											
Priva	te Internal	Rates of	Return				9.32%	7.01%		5.58%	

 Table C-6

 Private Cost-Earning profiles and Private Internal Rate of return of College of Nursing Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Source:

Col. (2) from Table B-3; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col.(6) - Col. (7); Col. (9), for age 22 to 60A = Col. (6) + Col. (7); Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to $60A = Column 8 \times 1/2$; Col. (12); Col. (12) for age 18 to 21, = Col. (6) - Column (9); Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col. (6) - Column (11).

Note

* Linear regression estimate.

** Graduates of the College of Nursing are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (50%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross earning, carnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and carnings foregone (adjusted for a=1/2), respectively.

 $t = 1s = r^{2}$

Source: Col. (2) from Table B-7; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 23 to 60 =Col. (8) x 2/3, Col. (9) for age 18 to 22 = Col. (6) - Col. (10); Col. (10), for age 23 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 22, estimated by linear regression of data for age 23 to 60; Col. (11), for age 23 to 60 = Column 8 x 1/2; Col. (11), for age 18 to 22, = Col. (6) - Col. (12); Col. (12) for age 18 to 22, estimated by linear regression of data for age 23 to 60; Col. (12), for age 23 to 60 = Col (6) - Column (11). Note * Linear regression estimate.

** Graduates of the College of Veterinary Medicine are estimated to complete their college education five years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

**** The auxiliary income (75%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

					-						
1**	2	3	4	5 ⁴⁰⁴⁴⁴	6	7	8	9	10	11	12
$18\\19\\20\\21\\22\\23\\24\\25\\26\\27\\33\\34\\35\\36\\37\\38\\39\\40\\41\\42\\43\\44\\45\\55\\56\\55\\55\\55\\55\\55\\56\\60\\60\\$	1290 1362 1415 1426 1494 1520 1644 1695 1712 1814 1775 1837 1949 1942 22137 2329 2278 2238 2328 2571 2542 2238 2328 2573 2588 2573 2588 2573 2588 2573 2583 2593 2593 2593 2915 [±] 2935 [±] 293	738 738 738 738 738 738 738 738 738 738	552 624 677 688 756 782 906 782 957 974 1039 1211 1204 1452 1465 1442 1737 1492 1445 1445 1445 1445 1445 1445 1445 144	414 468 508 516 567 680 718 731 807 778 824 903 1031 1157 1303 11157 1303 11157 1306 1449 11573 1281 1372 1514 1573 1281 1372 1514 1573 1281 1372 1514 1573 1281 1372 1514 1573 1281 1372 1514 1573 1281 1372 1514 1573 1281 1372 1514 1573 1281 1372 1514 1573 1281 1372 1574 1575 1575 157 157 157 157 157 157 157 1	1704 1830 1923 1942 2061 2107 2324 2413 2443 2621 2553 2857 2845 3168 3486 3397 3350 3357 3485 3397 3357 3485 3397 3397 3485 3397 3485 3397 3485 3397 3485 3491 4501	972 1027 1045 1085 1102 1223 1220 1240 1255 1310 1372 1382 1450 1561 1405 1450 1561 1405 1455 1680 1561 1685 1680 1717 1724 1885 1885 1885 1885 1885 1885 1905 1925 1925 1932 1932 1932 1932 1932 1932 1932 1932	-972 -1027 -1045 -1085 -1102 594 648 700 722 821 852 1014 1061 1252 1165 1103 1100 1252 1316 1451 1762 1451 1762 1566 1502 1541 2019 2316 2579 1918 2155 2533 2485 2594 2759 2759 2759 2759 2759 2759 2759 2759	$\begin{array}{c} -1045\\ -1102\\ -1158\\ -1124\\ -1271\\ 396\\ 432\\ 457\\ 467\\ 467\\ 467\\ 467\\ 467\\ 467\\ 467\\ 46$	1045* 1102* 1158* 1214* 1271* 1308 1398 1456 1456 1539 1648 1719 1736 1818 1928 2022 2068 2201 2311 2304 2313 2326 2458 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2558 2678 2698 2678 2558 2678 2558 2678 2558 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2698 2678 2854 2852 2967 3120 3018 3289 3244 3304 3319	$\begin{array}{c} -1064\\ -1132\\ -1201\\ -1269\\ -1338\\ 297\\ 324\\ 350\\ 350\\ 361\\ 411\\ 426\\ 507\\ 520\\ 530\\ 608\\ 551\\ 550\\ 608\\ 551\\ 550\\ 626\\ 881\\ 820\\ 778\\ 770\\ 1003\\ 1009\\ 1158\\ 1289\\ 959\\ 1077\\ 1267\\ 1242\\ 1297\\ 1267\\ 1242\\ 1297\\ 1380\\ 1374\\ 1340\\ 1497\\ 1376\\ 1497\\ 1376\\ 1491\\ 1526\\ 1602\\ 295\\ \end{array}$	1064* 1132* 1201* 1269* 1338* 1407 1556 1581 1651 1651 1651 1651 1651 1651 1651 1651 1651 1651 1651 1651 1253 2013 2003 2013 2003 2013 2003 2014 2854 3057 3121 3233 3567 3741 3812 3853 3953 2054 2055 2055 2074 2074 2074 2074 2075 2074 2075 2074 2075 2074 2075 2076 2077 2
rriva	e mernai	Rates or	Return				14.36%	10.44%		0.55%	

 Table C-7

 Private Cost-Earning profiles and Private Internal Rate of return of College of Veterinary Medicine Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Source: Col. (2) from Table B-6; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A =Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60 = Col. (6) - Col. (11); for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

8.93%

6.53%

5.08%

0

Note * Linear regression estimate.

Private Internal Rates of Return

** Graduates of the College of Agriculture are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation".

the auxiliary income (50%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

1**	2	3	4	5****	6	7	8	9	10	11	12
$1^{\texttt{W}\texttt{W}}$	2 10866 10999 11655 1218 12294 1294 1294 1294 1394 1394 1391 1511 1501 1605 1789 1758 1755 1785 1775 1811 1775 1811 1775 1811 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1775 1815 1958 1605 2034 2036 2034 2036 2034 2036 2034 2036 205 2036	3 726 732 732 732 738 738 738 738 738 738 738 738 738 738	4 360 373 433 486 497 556 560 606 677 654 560 606 677 654 1021 1020 1921 1037 1020 1924 1037 1020 1037 1020 1027 11586 1220 1586 1440 1440 1440 1457 1586 1586 1586 1586 1586 1586 1586 1586 1586 1586 1586 1021 1020 1222 1586 1586 1021 1020 1220 1272 1586 1586 1586 1586 1021 1020 1220 1272 1586 1586 1586 1220 1220 1220 1220 1220 1220 1577	5**** 180 187 217 243 243 243 248 303 339 327 887 387 387 387 387 387 387 38	6 1266 1286 1382 1461 1478 1572 1578 1647 1759 1754 1759 1890 2039 2315 2120 2268 2229 2294 2348 22568 2174 2369 2299 2358 2174 2669 2997 3213 2652 2294 3081 3125 3081 3125 3260 3277	7 972 1027 1045 1045 1102 1110 1182 1220 1240 1255 1310 1240 1255 1310 1405 1450 1450 1450 14561 1680 1717 1724 1758 1794 1758 1885 1899 1925 1925 1925 1925 1880 1838 1880 1880 1880 1880 1880 1880	8 -972 -1027 -1085 164 176 200 238 258 332 333 337 382 338 337 382 337 382 337 382 382 337 382 337 382 382 337 382 382 337 382 382 382 382 382 382 382 382 382 382	9 -990 -1034 -1077 -1120 109 117 133 159 172 221 215 225 224 225 224 225 224 225 224 225 224 225 224 225 224 225 224 225 224 225 224 225 225	10 990* 1034* 1077* 1120* 1157 1120* 1302 1306 1301 1363 1422 1306 1351 1363 1422 1397 1499 1494 1569 1597 1720 1842 1827 1901 1937 1979 2073 2021 2135 2080 2265 22354 22354 22354 22354 22354 22354 2354 2354 2354 2354 2354 2354 2354 2355 2235 22354 2354 2354 2355 2235 22354 2354 2355 2235 22354 2355 2235 22354 2354 2355 2235 22354 2354 2355 2235 22354 2354 2355 2235 22354 2354 2355 2235 2235 22354 2354 2355 2235 22354 2355 2235 22354 2354 2355 2235 2235 22354 2354 2355 2354 2355 2354 2355	$\begin{array}{c} 11 \\ \hline -984 \\ -1033 \\ -1082 \\ -1131 \\ 82 \\ 88 \\ 100 \\ 119 \\ 129 \\ 166 \\ 162 \\ 166 \\ 162 \\ 166 \\ 161 \\ 191 \\ 169 \\ 191 \\ 169 \\ 191 \\ 169 \\ 246 \\ 220 \\ 239 \\ 355 \\ 220 \\ 276 \\ 253 \\ 227 \\ 253 \\ 268 \\ 277 \\ 115 \\ 401 \\ 292 \\ 549 \\ 644 \\ 374 \\ 353 \\ 590 \\ 545 \\ 568 \\ 630 \\ 664 \\ 655 \end{array}$	12 984* 1032* 1082* 1082* 1131* 1134* 1134* 1134* 11342 1349 1282 1349 1342 1353 1653 1653 1653 1993 1997 1997 2026 2077 2448 2259 2413 2424 2536 2557 2448 2556 2556 2557 2652 2555 255 2555 2
54 55 56 57 58 59 60 60A	2496* 2541* 2587* 2632* 2677* 2722* 2767* 1384	834 834 834 834 834 834 834 834	1662 1707 1753 1798 1843 1888 1933	831 854 876 899 921 944 966	3327 3395 3463 3530 3598 3666 3733 1384	2227 2020 2372 2250 2286 2318 2351 1176	1100 1375 1091 1280 1312 1348 1382 208	734 917 727 854 875 898 922 139	2594 2478 2736 2677 2723 2767 2812	550 688 545 640 656 674 691	2777 2708 2917 2890 2942 2992 3042

Table C-8 Private Cost-Earning profiles and Private Internal Rate of return of College of Agriculture Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

je aje	2	3	4	5 ⁴⁰⁴⁰⁴	6	7	8	9	10	11	12
8					1	972	-972	-945	945≑	-915	915
ŏ		1	1			1027	-1027	-086	086#	1.060	060*
ó	í	1	1	í –	(1045	-1045	-1027	1027#	-1006	1006#
1						1095	-1095	1069	1069#	1052	1052=
12	1106	726	200	0.5	1201	11005	1-1005	-1000	1126	-1032	1052~
24	1100	720	300	95	1201	1102	99	00	1155	50	1152
	1100	/20	3/4	94	1194	1110	84	50	1138	42	1152
4	1167	732	435	109	12/6	1182	94	63	1213	47	1229
15	1206	732	474	119	1325	1223	102	68	1257	51	1274
26	1208	732	476	119	1327	1220	107	71	1256	54	1274
27	1211	732	479	120	1331	1240	91	61	1270	45	1285
28	1229	732	497	124	1353	1255	98	66	1288	49	1304
29	1301	738	563	141	1442	1310	132	88	1354	66	1376
30	1390	738	652	163	1553	1372	181	121	1432	91	1463
31	1358	738	620	155	1513	1382	131	87	1426	66	1448
32	1378	738	640	160	1538	1405	133	89	1449	67	1472
33	1417	738	679	170	1587	1450	137	91	1496	68	1518
34	1498	738	760	190	1688	1561	127	85	1603	64	1625
35	1562	738	824	206	1768	1605	163	100	1659	82	1687
36	1615	738	877	210	1834	1680	154	103	1721	77	1757
27	1629	730	000	225	1962	1717	146	105	1766	1 42	1700
27	1600	730	900	225	1005	1704	140	9/	1700	100	1/90
20	1959	730	901	240	1939	1724	215	144	1/90	108	1832
29	1039	1/30	1121	260	2139	1/58	381	254	1885	191	1949
40	1931	738	1193	298	2229	1794	435	290	1939	218	2012
41	1971	762	1209	302	2273	1825	448	299	1974	224	2049
42	1922	738	1184	296	2218	1944	274	183	2035	137	2081
43	2021	762	1259	315	2336	1868	468	312	2024	234	2102
44	2036	762	1274	319	2355	1885	470	313	2042	235	2120
45	2094	762	1332	333	2427	1899	528	352	2075	264	2163
46	2315	786	1529	382	2697	1925	772	515	2182	386	2311
17	2228	786	1442	361	2589	1905	684	456	2133	342	2247
18	2247*	786	1461	365	2612	1880	732	488	2124	366	2246
49	2295*	786	1509	377	2672	1834	838	559	2113	419	2253
50	2344*	786	1558	390	2734	1991	743	495	2239	371	2362
51	2392*	786	1606	402	2794	1989	805	536	2257	402	2391
52	2440*	834	11606	402	2842	1932	910	606	2235	455	2387
33	2489*	834	1655	414	2903	2051	852	568	2335	426	2477
34	2537#	834	1703	426	2963	2227	736	401	2472	368	2505
55	25850	834	1751	438	3023	2020	1003	660	2354	501	2521
5	2634	834	1800	450	3023	2372	712	475	2600	356	2321
10	2054*	0.04	10/0	460	2144	23/2	112	4/5	2009	330	2/28
1	2002*	0.04	1040	402	3144	2250	019	590	2548	44/	2697
00	2/30*	854	1890	4/4	5204	2280	918	612	2592	459	2745
99	2//8	834	1944	486	3264	2518	946	0.31	2633	473	2791
50	2827≕	834	1993	498	3325	2351	974	650	2676	487	2838
0A	1414				1414	1176	238	159		119	
				J	-l						
riva	te Internal	Rates of	Return				5.60%	3.99%		2.95%	

Table C-9 Private Cost-Earning profiles and Private Internal Rate of return of College of Administration and Economics Graduates Private Cost-Earning profiles and Private Internal Rate of return of College of Administration and Economics Graduates

Private Internal Rates of Return

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A =Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (6) - Col. (10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60A = Column (9); Col. (12), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

Note Tinear regression estimate.

** Graduates of the College of Administration and Economics are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation".

*** The auxiliary income (25%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

 1**	2	3	4	5 արտե	6	7	8	9	10	11	12
18 19 20 21 223 24 25 26 27 28 29 30 31 225 26 27 28 29 30 31 23 33 34 435 56 57 58 59 60 A P	1106 1100 1167 1206 1208 1211 1229 1301 1358 1417 1458 1562 1615 1638 1859 1859 1931 1615 1639 1859 1931 1971 1922 2021 2034 2034 2094 2247* 22440* 22440* 22440* 22440* 22440* 22585* 2682* 2682* 2682* 2778* 2682* 2778* 2778* 2827* 1414	726 726 732 732 732 738 738 738 738 738 738 738 738 738 738	380 374 475 474 476 477 975 652 652 652 640 679 760 824 877 900 961 1121 1193 1129 1124 1129 1124 1129 11274 1332 1529 1274 1359 1274 1359 1529 1461 1558 1606 1655 1703 1751 1848 1894 1993	$\begin{array}{c} 133\\ 131\\ 152\\ 166\\ 167\\ 174\\ 197\\ 228\\ 217\\ 224\\ 238\\ 224\\ 238\\ 226\\ 288\\ 307\\ 336\\ 392\\ 418\\ 392\\ 418\\ 441\\ 446\\ 535\\ 505\\ 511\\ 528\\ 562\\ 562\\ 562\\ 562\\ 562\\ 562\\ 562\\ 562$	1239 1231 1319 1372 1375 1403 1618 1575 1662 1655 1662 1655 1662 1655 2035 2251 1764 1850 2394 2336 2251 2349 2356 2251 2349 2356 2250 2850 2850 2850 2850 2850 2850 2850	972 1027 1025 1045 1085 1102 1110 1182 1223 1220 1255 1310 1223 1220 1255 1310 1255 1310 1405 1405 1405 1405 1405 1405 1405 14	-972 -1027 -1027 -1085 137 121 137 149 155 139 148 188 246 193 197 205 203 245 242 236 311 493 197 205 203 245 245 242 236 311 493 5569 392 559 594 597 661 925 828 878 989 898 965 1070 1017 906 1178 892 1070 1070 1017 882 205 205 205 205 205 205 205 205 205 20	-949 -991 -1034 -1076 91 92 99 99 92 92 99 92 125 164 129 129 164 129 129 164 131 133 164 161 135 164 161 135 164 161 157 208 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 329 370 262 370 275 370 262 370 275 370 262 370 275 370 262 370 370 275 370 370 370 370 370 370 370 370 370 370	949* 991* 1034* 1076* 1148 1150 1228 1272 1286 1304 1373 1272 1286 1304 1373 1454 1446 1471 1518 1629 1687 1766 1796 1828 1922 1979 2015 2075 2075 2066 2084 2119 2233 2181 2173 2164 2290 2311 2289 2390 2329 2329 2329 2413 2669 2655 2698 2742	-920 -968 -1016 -1064 69 60 69 74 77 74 99 102 123 97 99 102 123 121 118 156 247 277 298 331 128 196 297 298 331 463 444 439 495 449 483 535 509 453 554 554 557 587 118	920* 968* 1016* 1064* 1170 1251 1297 1297 1297 1297 1297 1309 1329 1404 1475 1479 1479 1479 1479 1479 1479 1479 1479
rnva	e memai	Mates Of	Neturn				0.03%	5.04%		3.90%	

 Table C-10

 Private Cost-Earning profiles and Private Internal Rate of return of College of Law and Politics Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

1 日 月 1 日

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A =Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

Note Thear regression estimate.

** Graduates of the College of Law and Politics are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (35%) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is the reward of the end service.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A =Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60 = Col. (6) - Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

6.09%

Note * Linear regression estimate.

Private Internal Rates of Return

1** 2 3

4

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6

** Graduates of the College of Arts are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1501 1490 1512 1554 1650 1704 1768 1798 1983 2018 2053 2065 2081 2117 2240 2187 2187 2187 2187 2187 2187 2187 2187
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Table C-11 Private Cost-Earning profiles and Private Internal Rate of return of College of Arts Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

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3.81%

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11

2.47%

12

7

C.12

Source:

1** 2 3

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6

* Linear regression estimate.

** Graduates of the College of Science are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Groess Earing, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

$\begin{array}{c} 18\\ 19\\ 20\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 29\\ 30\\ 31\\ 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 950\\ 51\\ 52\\ 25\\ 33\\ 44\\ 55\\ 56\\ 57\\ 7\\ 58\\ 99\\ 60\\ A\end{array}$	1113 1128 1279 1257 1221 1221 1348 1330 1410 1422 1430 1422 1430 14557 1557 1958 2050 1743 2050 1743 2050 1793 2060 2037 2123 2149 2269 2312* 2411* 2460* 2559* 2510* 2559* 2609* 2669* 2669* 2775* 2609* 2659* 2775* 2807* 2856* 2906*	$\begin{array}{c} 726\\ 726\\ 738\\ 738\\ 732\\ 732\\ 738\\ 738\\ 738\\ 738\\ 738\\ 738\\ 738\\ 738$	387 402 487 541 519 489 523 610 592 672 684 692 819 867 982 1005 1280 1281 1307 1220 1281 1307 1220 1281 1367 1361 1275 1577 1626 1577 1626 1577 1626 1577 1626 1577 1626 1577 1626 1577 1627 1874 1874 1874 1874 1874 1874 1874 187	240 240 240 240 240 240 240 240 240 240	1353 1368 1459 1519 1497 1461 1495 1538 1570 1650 1662 1670 1797 1845 1960 1983 2015 2198 2290 2233 2306 22750 2233 2306 2277 2363 2399 2552 2552 2552 2552 2552 2552 255	972 1027 1045 1045 11045 1102 1110 1182 1223 1220 1250 1372 1450 1372 1450 1372 1450 1372 1450 1561 1561 1561 1561 1561 1561 1774 1758 1794 1758 1885 1885 1885 1885 1885 1885 1885	$\begin{array}{c} -972\\ -1027\\ -1045\\ -1085\\ 251\\ 258\\ 277\\ 296\\ 277\\ 296\\ 277\\ 296\\ 277\\ 198\\ 268\\ 257\\ 220\\ 236\\ 240\\ 268\\ 266\\ 291\\ 440\\ 498\\ 266\\ 266\\ 291\\ 440\\ 498\\ 266\\ 291\\ 440\\ 498\\ 362\\ 409\\ 478\\ 408\\ 362\\ 878\\ 576\\ 600\\ 471\\ 8118\\ 748\\ 660\\ 711\\ 818\\ 748\\ 576\\ 604\\ 672\\ 718\\ 878\\ 576\\ 747\\ 747\\ 761\\ 778\\ 528\\ 878\\ 576\\ 747\\ 778\\ 528\\ 878\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 576\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 576\\ 576\\ 747\\ 778\\ 795\\ 278\\ 878\\ 576\\ 576\\ 576\\ 576\\ 576\\ 576\\ 576\\ 576$	$\begin{array}{r} -1026\\ -1064\\ -1064\\ -1101\\ -1139\\ 167\\ 172\\ 185\\ 197\\ 185\\ 132\\ 177\\ 160\\ 132\\ 177\\ 160\\ 177\\ 160\\ 177\\ 160\\ 177\\ 160\\ 177\\ 160\\ 177\\ 160\\ 177\\ 160\\ 132\\ 172\\ 293\\ 331\\ 272\\ 241\\ 273\\ 319\\ 327\\ 384\\ 440\\ 474\\ 585\\ 384\\ 440\\ 474\\ 585\\ 384\\ 499\\ 414\\ 585\\ 384\\ 498\\ 507\\ 519\\ 530\\ 185\\ \end{array}$	$\begin{array}{c} 1026^{*}\\ 1064^{*}\\ 1101^{*}\\ 1139^{*}\\ 1186\\ 1196\\ 1274\\ 1322\\ 1312\\ 1314\\ 1335\\ 1403\\ 1438\\ 1471\\ 1491\\ 1523\\ 1491\\ 1223\\ 1205\\ 2300\\ 2211\\ 22104\\ 2073\\ 2211\\ 2226\\ 2205\\ 2300\\ 2211\\ 2226\\ 2205\\ 2300\\ 2211\\ 2226\\ 2205\\ 2300\\ 22434\\ 2313\\ 2564\\ 2499\\ 2540\\ 2577\\ 2616\\ \end{array}$	$\begin{array}{c} -1037\\ -1077\\ -1077\\ 1226\\ -1129\\ 129\\ 129\\ 139\\ 148\\ 139\\ 148\\ 139\\ 148\\ 139\\ 148\\ 139\\ 129\\ 110\\ 111\\ 120\\ 129\\ 129\\ 110\\ 118\\ 120\\ 248\\ 220\\ 248\\ 204\\ 181\\ 120\\ 248\\ 204\\ 181\\ 120\\ 245\\ 228\\ 336\\ 359\\ 336\\ 359\\ 3374\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 3574\\ 380\\ 357\\ 374\\ 380\\ 357\\ 374\\ 380\\ 357\\ 374\\ 380\\ 357\\ 374\\ 380\\ 397\\ 371\\ 39\\ 397\\ 39\\ 397\\ 39\\ 397\\ 39\\ 397\\ 39\\ 397\\ 39\\ 397\\ 39\\ 397\\ 39\\ 397\\ 39\\ 397\\ 39\\ 39\\ 39\\ 39\\ 39\\ 39\\ 39\\ 39\\ 39\\ 39$	$\begin{array}{c} 1037^*\\ 1077^*\\ 1077^*\\ 11118^*\\ 1159^*\\ 1228\\ 1239\\ 1321\\ 1337\\ 1335\\ 1375\\ 1335\\ 1375\\ 1375\\ 1375\\ 1375\\ 1375\\ 1449\\ 1471\\ 1516\\ 1534\\ 1560\\ 1679\\ 1725\\ 1820\\ 1850\\ 1870\\ 1978\\ 2042\\ 2029\\ 1225\\ 1870\\ 1978\\ 2042\\ 2029\\ 2125\\ 2073\\ 2124\\ 2144\\ 2213\\ 2207\\ 2216\\ 2193\\ 2321\\ 2345\\ 2207\\ 22216\\ 2193\\ 2321\\ 2345\\ 2234\\ 2459\\ 2341\\ 2425\\ 2234\\ 2459\\ 2660\\ 2624\\ 2666\\ 2707\\ 2748\\ \end{array}$
Privat	e Internal	Rates of	Return		J		6.92%	4.44%		2.88%	L

 Table C-12

 Brivate Cost-Earning profiles and Private Internal Rate of return of College of Education Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

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1:4:4:	2	3	4	5****	6	7	8	9	10	11	12
1** 18 19 201 22 23 24 25 26 277 28 29 30 31 32 33 36 37 38 39 40 41 45 46 47 48 49 50 51 52 53 54 55	2 1106 1100 1208 1211 1229 1301 1390 1358 1378 1378 1378 1378 1378 1378 1378 1378 1378 1378 1378 1379 2021 2021 2024 2024 2024 2024 2024 2228 22440° 22344° 22357° 2337° 257	3 726 722 732 732 732 732 738 738 738 738 738 738 738 738 738 738	4 380 374 435 477 477 477 563 562 620 640 679 760 824 877 900 1121 1193 11209 1184 1209 1193 1229 1234 1229 1258 1229 1258 1558 1606 1655 1703 1558 1606 1655 1703 1800	240 240 240 240 240 240 240 240 240 240	6 1346 1340 1407 1446 1448 1451 1451 1541 1630 1541 1598 1618 1657 1738 1618 1657 1738 1855 1878 1855 1878 1878 1939 2099 2171 2211 2162 2276 2334 2555 2468 2487 2555 2468 2487 2554 2584 2777 2825 2874 2875 287	7 972 1027 1045 1045 1102 1110 1112 11232 1220 1240 1255 1310 1372 1450 1561 1680 17724 1758 1944 1825 1948 1880 1839 1991 1991 1992 2051 2227 20201 2227 20201 2227 20201	8 -972 -1027 -1045 223 223 223 223 223 224 230 223 223 211 214 231 258 213 207 177 197 197 197 197 197 197 193 341 377 386 218 393 391 435 630 563 607 701 593 643 748 678 500 8005	9 -1016 -1054 -1091 -1159 163 153 150 141 143 154 172 141 143 131 134 135 141 143 131 107 138 131 107 262 261 262 290 405 395 429 452 395 429 452 395 429 452 334	10 1016* 1054* 1091* 1129* 1129* 11297 1295 1297 1296 1310 1326 1310 1326 1310 1326 1310 1326 1310 1326 1377 1297 1296 1310 1326 1377 1297 1296 1310 1327 1297 1296 1310 1326 1377 1297 1297 1296 1310 1326 1377 1297 1297 1296 1310 1326 1377 1296 1200 1671 1778 1771 1995 2015 2044 2135 2082 2082 2082 2082 2083 2189 2240 2240 2288 2240 2288 2590 2590 2500 2440 2580 2590 2500 2440 2580 2590 2440 2580 2590 2500 2500 2410 2500 2440 2580 2590 2500 2500 2500 2410 2500 2410 2500 2410 2500 2410 2410 2410 2500 2410 2410 2410 2500 2410 2410 2410 2500 2410 2410 2410 2500 2410 2500 2410 2410 2500 2410 2500 2410 2500 2410 2500 2410 2500 2410 2500 2410 2500 2500 2500 2410 2500 25	$\begin{array}{c} 11\\ \hline 1\\ -1022\\ -1062\\ -1102\\ -1142\\ 122\\ 115\\ 112\\ 114\\ 106\\ 107\\ 106\\ 107\\ 106\\ 107\\ 106\\ 107\\ 106\\ 108\\ 107\\ 106\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 171\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 171\\ 189\\ 193\\ 109\\ 197\\ 196\\ 218\\ 315\\ 282\\ 304\\ 351\\ 226\\ 322\\ 324\\ 339\\ 2275\\ 403\\ 251\\ 107\\ 106\\ 106\\ 107\\ 106\\ 106\\ 107\\ 106\\ 106\\ 106\\ 106\\ 106\\ 106\\ 106\\ 106$	$\begin{array}{c} 12 \\ 1022^{\pm} \\ 1062^{\pm} \\ 1162^{\pm} \\ 1122^{a} \\ 1224 \\ 1225 \\ 1335 \\ 1346 \\ 1362 \\ 1501 \\ 1346 \\ 1362 \\ 1501 \\ 1346 \\ 1362 \\ 1512 \\ 1426 \\ 1512 \\ 1554 \\ 1650 \\ 1704 \\ 1512 \\ 1554 \\ 1650 \\ 17768 \\ 1798 \\ 2018 \\ 2$
56 57 58 59 60 60A	2634* 2682* 2730* 2778* 2827* 1414	834 834 834 834 834 834	1800 1848 1896 1944 1993	240 240 240 240 240 240 240	2874 2922 2970 3018 3067 1414	2372 2250 2286 2318 2351 1176	502 672 684 700 716 238	334 448 456 467 476 159	2539 2474 2514 2551 2590	403 251 336 342 350 358 119	2623 2586 2628 2668 2709
Priva	te Internal	Rates of	Return		I	1	6.09%	3.81%	I	2.47%	J

Table C-13 Private Cost-Earning profiles and Private Internal Rate of return of College of Physical Education Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A =Col. (8) x (27, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (7); Col. (9), for age 18 to 21 - Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. (10), for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

Note * Linear regression estimate.

** Graduates of the College of Physical Education are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary. Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

1100	2	3	4	5 ^{alealeale}	6	7	8	9	10	11	12
$\begin{array}{c} 18\\ 19\\ 20\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 30\\ 31\\ 32\\ 33\\ 34\\ 35\\ 36\\ 37\\ 38\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 51\\ 52\\ 56\\ 56\\ 57\\ 58\\ 99\\ 60\\ 60\\ \\ 60\\ \\ \end{array}$	1106 11100 1167 1206 1201 13201 1358 1378 1417 1498 1562 1615 1638 1699 1931 1615 1638 1699 1931 1615 1638 1639 1931 1971 1922 2024 2034 2034 2034 2034 2034 2034 20	726 732 732 732 732 738 738 738 738 738 738 738 738 738 738	380 374 475 476 477 477 563 652 620 640 679 961 824 824 824 827 827 827 827 827 827 827 827 827 827	240 240 240 240 240 240 240 240 240 240	1346 1340 1407 1446 1448 1451 1469 1541 1630 1598 1637 1738 1802 1855 1855 1855 1878 1802 2039 2171 2261 2276 2334 2255 2468 2487 2535 2468 2584 2680 2779 2777 2874 2680 2779 2777 2874 2874 2874 2874 2874 2874 2874	972 1027 1045 1045 11045 1102 11102 11223 1220 1255 1310 1240 1255 1310 1405 1405 1405 1405 1405 1405 1405 14	-972 -1027 -1045 -1045 230 223 223 228 211 214 231 223 228 213 213 207 121 213 207 197 175 161 215 341 377 386 218 213 207 175 161 215 341 377 386 218 203 207 165 215 244 213 207 213 207 213 207 214 215 213 207 215 213 207 215 213 207 215 213 207 215 213 213 207 215 213 214 215 215 214 215 215 215 215 215 215 215 215 215 215	$\begin{array}{c} -1016\\ -1054\\ -1091\\ -1129\\ 163\\ 153\\ 150\\ 149\\ 152\\ 149\\ 152\\ 144\\ 143\\ 154\\ 172\\ 144\\ 138\\ 131\\ 117\\ 107\\ 143\\ 227\\ 251\\ 145\\ 2267\\ 145\\ 2261\\ 290\\ 420\\ 375\\ 468\\ 395\\ 429\\ 4405\\ 468\\ 395\\ 429\\ 452\\ 337\\ 334\\ 456\\ 467\\ 476\\ 159\\ \end{array}$	$\begin{array}{c} 1016^{\star}\\ 1054^{\star}\\ 1091^{\star}\\ 1129^{\star}\\ 1129^{\star}\\ 1187\\ 1257\\ 1296\\ 1310\\ 1326\\ 1387\\ 1458\\ 1458\\ 1458\\ 1458\\ 1458\\ 1454\\ 1476\\ 1519\\ 1620\\ 1671\\ 1771\\ 1796\\ 1620\\ 1671\\ 1778\\ 1277\\ 1299\\ 2015\\ 2044\\ 2017\\ 1999\\ 2015\\ 2044\\ 2017\\ 1999\\ 2015\\ 2044\\ 2017\\ 1999\\ 2015\\ 2044\\ 2135\\ 2093\\ 2082\\ 2003\\ 2181\\ 2277\\ 2410\\ 2288\\ 2539\\ 2474\\ 2514\\ 2551\\ 2590\\ 2590\\ 2590\\ 2500\\ 2590\\ 250$	$\begin{array}{c} -1022\\ -1062\\ -11062\\ -11102\\ 1122\\ 112\\ 113\\ 1112\\ 114\\ 106\\ 107\\ 116\\ 107\\ 116\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 109\\ 107\\ 109\\ 196\\ 218\\ 315\\ 282\\ 351\\ 296\\ 322\\ 374\\ 339\\ 275\\ 342\\ 356\\ 336\\ 336\\ 336\\ 336\\ 358\\ 119\\ \end{array}$	$\begin{array}{c} 1022^{\star}\\ 1062^{\star}\\ 1062^{\star}\\ 1102^{\star}\\ 1142^{\star}\\ 1224\\ 1225\\ 1295\\ 1333\\ 1334\\ 1335\\ 1334\\ 1362\\ 1426\\ 1362\\ 1426\\ 1362\\ 1426\\ 1362\\ 1426\\ 1362\\ 1426\\ 1362\\ 1426\\ 1362\\ 1426\\ 1362\\ 1426\\ 1382\\ 1426\\ 1382\\ 1426\\ 1382\\ 1490\\ 1288\\ 1288\\ 2081\\ 2018\\ 2081\\ 2018\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2081\\ 2082\\ 2081\\ 2287\\ 2380\\ 2287\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2390\\ 2386\\ 2688\\ 2668\\ 2628\\ 2668\\ 2709\\ 270$
Priva	te Internal	Rates of	Return				6.09%	3.81%		2.47%	

 Table C-14

 Private Cost-Earning profiles and Private Internal Rate of return of College of Academy of Fine Arts Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Private Internal Rates of Return

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. (10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60A = Column 8 x 1/2; Col. (12), for age 18 to 21 = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col (6) - Column (11).

Note * Linear regression estimate.

** Graduates of the College of Academic of Fine Arts are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

is β _4∞ ...

						-					
1**	2	3	4	5****	6	7	8	9	10	11	12
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 35 36 27 38 33 34 40 41 42 43 44 45 50 51 52 53 54 60 60 40 60 4	1106 1100 1167 1208 1211 1208 1211 1229 1300 1358 1417 1498 1417 1498 1417 1498 1417 1498 1417 1498 1417 1498 1417 2031 1638 1638 1638 1638 1638 1638 1638 16	726 726 732 732 732 738 738 738 738 738 738 738 738 738 738	380 374 475 479 477 563 652 620 640 679 760 824 877 900 961 1121 1193 1209 1184 1237 1193 1227 1184 1237 1184 1257 1184 1259 1442 1509 1559 1442 1509 1506 1606 1605 1605 1605 1703 1751 1808 1894 1993	240 240 240 240 240 240 240 240 240 240	1346 1340 1447 1448 1451 1469 1541 1630 1598 1657 1738 1802 1855 1878 1939 2099 2171 2216 2276 2334 2276 2276 2276 2334 2555 2468 2276 2276 2334 2555 2468 2555 2468 2555 2680 2729 2777 2825 2874 2970 3018 3067 1414	972 1027 1045 1102 1128 1220 1220 1220 1220 1220 1220	-972 -1027 -1045 -1085 244 230 225 223 228 211 214 231 238 216 213 207 177 175 161 215 341 377 186 218 391 435 630 563 607 701 593 643 391 435 643 664 374 850 563 664 876 701 593 664 877 850 502 664 877 850 502 672 668 672 668 672 668 716 238	$\begin{array}{c} -1016\\ -1054\\ -1054\\ -1051\\ 1054\\ -1091\\ 153\\ 153\\ 152\\ 141\\ 152\\ 143\\ 154\\ 172\\ 144\\ 142\\ 142\\ 138\\ 118\\ 117\\ 143\\ 131\\ 117\\ 143\\ 131\\ 117\\ 251\\ 261\\ 261\\ 261\\ 261\\ 261\\ 261\\ 261\\ 26$	$\begin{array}{c} 1016^{+}\\ 1054^{+}\\ 1054^{+}\\ 1051^{+}\\ 1129^{+}\\ 1183\\ 1257\\ 1297\\ 1296\\ 1310\\ 1326\\ 1310\\ 1326\\ 1387\\ 1458\\ 1454\\ 1476\\ 1519\\ 1620\\ 1458\\ 1454\\ 1476\\ 1519\\ 1620\\ 1671\\ 1738\\ 1771\\ 1796\\ 1872\\ 1920\\ 1954\\ 2017\\ 1999\\ 2015\\ 2044\\ 2017\\ 1999\\ 2015\\ 2044\\ 2017\\ 2017\\ 2017\\ 2017\\ 2017\\ 2017\\ 2017\\ 2017\\ 2017\\ 2017\\ 2018\\ 2032\\ 2082\\ 203\\ 2189\\ 2203\\ 2181\\ 2203\\ 2181\\ 2203\\ 2181\\ 2203\\ 2181\\ 2203\\ 2181\\ 2203\\ 2181\\ 2203\\ 2181\\ 2277\\ 2410\\ 2288\\ 2539\\ 2474\\ 2551\\ 2590\\ \end{array}$	$\begin{array}{c} -1022\\ -1062\\ -1102\\ 1062\\ -1102\\ 112\\ 112\\ 112\\ 113\\ 112\\ 114\\ 106\\ 107\\ 116\\ 107\\ 116\\ 109\\ 109\\ 109\\ 109\\ 109\\ 109\\ 109\\ 109$	$\begin{array}{c} 1022^{\diamond} \\ 1002^{\diamond} \\ 1102^{\diamond} \\ 1102^{\diamond} \\ 1142^{\diamond} \\ 1224 \\ 1225 \\ 1225 \\ 1335 \\ 1334 \\ 1334 \\ 1346 \\ 1362 \\ 1426 \\ 1354 \\ 1362 \\ 1426 \\ 1554 \\ 1650 \\ 1704 \\ 1768 \\ 1798 \\ 1832 \\ 1929 \\ 1983 \\ 2018 \\ 2003 \\ 200$
Priva	te Internal	Rates of	Return				6.09%	3.81%		2.47%	

Table C-15 Private Cost-Earning profiles and Private Internal Rate of return of College of Alsharia Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Private Internal Rates of Return

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) from Col. (2) + Col. (5); Col. (7) from Table B-1; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. (10, for age 18 to 21, estimated by linear regression of data for age 22 to 60; Col. (11), for age 22 to 60A = Column 8 x 1/2; Col. (12), for age 18 to 21, estimated by linear regression of data for age 18 to 21 estimated by linear regression of data for age 22 to 60; Col. (12), for age 22 to 60 = Col. (6) - Column (11).

Note $\frac{1}{2}$ Linear regression estimate.

** Graduates of the College of Alsharia are estimated to complete their college education four years after high school graduation. Column (1) therefore is simply four years plus "number of years since college graduation".

*** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq.

60A is a retirement bonuse.

Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone (a=1), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

to de

1 ⁻¹⁰⁻¹⁰⁻¹⁰	2	3	4	5****	6	7	8	9	10	11	12
$\begin{array}{c} 18\\ 18\\ 18\\ 19\\ 19\\ 19\\ 20\\ 20\\ 20\\ 21\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 20\\ 30\\ 31\\ 32\\ 33\\ 34\\ 35\\ 37\\ 39\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 7\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 55\\ 55\\ 55\\ 55\\ 55\\ 55\\ 55\\ 55\\ 55$	2 1113 1128 1279 1257 1257 1257 1257 1257 1257 1348 1330 1410 1422 1430 1457 1755 1958 2050 1775 1958 2050 2037 2123 2069 2312* 2269 2312* 2269 2312* 2269* 2510* 260* 270* 270* 260* 270* 280* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 290* 200*	3 726 723 732 733 738 762 762 762 786 834 834 834 834 834	4 387 402 487 541 519 523 610 592 672 684 692 672 684 692 684 692 1220 1228 1231 1204 1231 1205 1231 1367 1475 1367 1475 1475 1475 1577 1626 1676 1775 1775 1824 1824 1973 2022 2072	240 240 240 240 240 240 240 240 240 240	6 0000 1353 1368 1379 1461 1495 1383 2015 2198 2200 2233 2306 22509 2552 2651 2750 2948 2997 30046 3146 <	7 972 945 1027 945 1045 945 1045 945 1045 945 1102 1110 1182 1223 12240 1255 1310 1382 1450 1561 1680 17174 1724 1724 1724 1724 1724 1724 1724 1724 1724 1724 1880 1889 1991 1991 1992 2051 1880 1932 2227 2280 22818 2311 1176	8 -972 -945 -978 -945 -1045 -945 251 258 277 296 277 296 277 2206 236 240 268 257 220 236 240 266 291 440 408 362 291 440 406 409 576 660 711 818 748 672 776 576 747 751 7778 795 277	9 -1026 -945 -1015 -945 -1101 -945 167 172 185 147 160 185 132 171 147 160 185 132 179 157 160 187 177 180 293 331 272 241 273 344 440 440 440 440 444 519 530 185	10 1026** 945 1064** 945 11064** 945 11064** 945 1130* 945 1130* 11386 1136 1136 11322 1312 1314 1332 1314 1332 1314 1332 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1335 1314 1355 1360 1471 1360 1360 1373 1360 1360 1373 1360 1360 1373 1360 1360 1360 1360 1360 1360 1360 136	$\begin{array}{c} 11\\ \hline \\ -1037\\ -945\\ -945\\ -945\\ -945\\ 129\\ -945\\ 129\\ 139\\ 148\\ 139\\ 148\\ 139\\ 148\\ 139\\ 148\\ 139\\ 148\\ 139\\ 148\\ 139\\ 111\\ 120\\ 133\\ 129\\ 110\\ 111\\ 120\\ 248\\ 220\\ 248\\ 205\\ 239\\ 118\\ 120\\ 244\\ 181\\ 120\\ 244\\ 220\\ 239\\ 236\\ 336\\ 336\\ 336\\ 336\\ 336\\ 336\\ 336$	12 1037* 945 1077* 945 1118* 945 1228 1321 1371 1359 1321 1371 1351 1375 1371 1351 1375 1371 1351 1375 1371 1351 1375 1371 1351 1375 1371 1351 1375 1371 1351 1371 1351 1375 1371 1351 135

 Table C-16

 Social Cost-Earning profiles and Social Internal Rate of return of College of Science Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

 1.000 2 4 5**** 6 7 8 2 10 9 11

Social Internal Rates of Return 3.56% 1.67% 0.48%

Source: Col. (2) from Table B-3; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col.(6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) × 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (7); Col. (7); Col. (10), for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (11), for age 22 to 60 = Col. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12) for age 22 to 60 = Col. (6) - Col. (13) for age 18 to 21, estimated by linear for age 20 to 60 = Col. (6) - Col.

 Notes

 ** Linear regression estimate.

 ** Linear regression estimate.

 ** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43.

 **** Graduates of the College of Science are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation".

 ***** Graduates of the College of Science are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation".

 (B) Social institutional cost from Table A-108.

 (60A) is a retirement bonus/end of service award.

 # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary. Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=2/3), and earnings foregone (adjusted for a=1/2) respectively.

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Source: Col. (2) from Table B-5; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (7); for age 18 to 21, estimated by linear regression of data for age 22 to 60 - (12); Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 22 to 60 = Col (6) - Column (11).

$\begin{array}{c} 18\\ 18B\\ 19\\ 19B\\ 20B\\ 21B\\ 22\\ 23\\ 24\\ 25\\ 267\\ 28\\ 29\\ 31\\ 32\\ 33\\ 40\\ 41\\ 42\\ 44\\ 45\\ 467\\ 48\\ 490\\ 51\\ 253\\ 54\\ 55\\ 566\\ 60A \end{array}$	1301 1425 1513 1497 1438 1596 1575 1953 1725 1725 2012 2059 2101 2252 22164 2408 22353 2216 2416 2416 2599 2594 2264 2264 2264 22737* 22842* 2842* 2842* 2842* 2947* 2997* 3052* 2947* 2997* 3052* 2097* 2097* 2097* 2097* 2097* 200	$\begin{array}{c} 738\\ 738\\ 738\\ 738\\ 738\\ 738\\ 738\\ 738\\$	563 687 7759 700 858 837 1215 987 1098 1054 1257 1339 1566 1574 1567 1580 1582 1765 1760 1578 1612 1703 1903 2008 2010 2113 2165 2270 2323 2375 2480 2533	563 687 7759 700 858 837 1215 987 1098 1098 1207 1339 1567 1430 1577 1580 1766 1578 1612 1763 1903 1903 2008 2008 2008 2013 2165 2270 2323 2375 2480 2533	0000 0000 0000 0000 0000 0000 0000 2112 2288 2256 2138 2454 2256 2138 2256 2138 2256 2138 2256 2138 2256 2138 2256 2334 2262 3356 3446 3262 3356 3446 3998 4364 4354 3998 4364 4354 4354 4354 4354 4354 4568 4460 47744 44849 4954 5559 5164 5559 5164 5559 5164 55584 5559 5164 55589 5164 55584 5559 5164 55584 55584 5589 5164 55584 5589 55794 55884 5589 5794 5584	972 1002 1027 1002 1085 1002 1102 1102 11002 11002 1223 1220 1240 1223 1220 1240 1223 1310 1255 1310 1372 1382 1405 1456 1456 1456 1456 1455 1468 1855 1945 1955 1945 1925 1925 1925 1925 1925 1925 1925 192	$\begin{array}{r} -972\\ -1002\\ -952\\ -1045\\ -1002\\ -1085\\ -1002\\ $	$\begin{array}{c} -1205\\ -1002\\ -1018\\ -1018\\ -1012\\ -1118\\ -1002\\ -1315\\ -1002\\ -1315\\ -1002\\ -1315\\ -1002\\ 508\\ 612\\ 809\\ 612\\ 809\\ 612\\ 809\\ 611\\ 1239\\ 809\\ 611\\ 1239\\ 809\\ 611\\ 1239\\ 809\\ 611\\ 1239\\ 809\\ 1197\\ 1223\\ 1492\\ 1153\\ 1505\\ 1513\\ 1505\\ 1153\\ 1505\\ 1153\\ 1505\\ 1153\\ 1505\\ 1208\\ 1$	1205* 1002 1260* 1002 1315* 1002 1370* 1002 1356 1444 1551 1567 1526 1645 1645 1645 1641 1929 1899 1899 2159 2217 2426 2293 2477 2432 2636 2726 2800 2804 2977 2974 3089 3428 3408 3477 3534	$\begin{array}{c} -1305\\ -1002\\ -1296\\ -1002\\ -15002\\ -1505\\ -1002\\ -1505\\ -1002\\ -1505\\ -1002\\ -1505\\ -1002\\ -1505\\ -1002\\ -$	1305* 1002 1371* 1002 1505* 1002 1505* 1002 1505* 1002 1505* 1002 1505* 1002 1483 1002 1505* 1002 1505* 1002 1483 1002 1505* 1002 1483 1002 1483 1740 1679 1847 1834 1631 1740 1679 1847 1834 2239 2242 22459 2523 2720 2523 2720 2523 2720 2523 2729 2523 2729 2523 2729 2523 2729 2523 2720 2523 2729 2523 2729 2523 2729 2523 2729 2523 2720 2523 2729 2523 2729 2523 2729 2523 2729 2523 2720 2523 2729 2523 2729 2523 2729 2523 2729 2523 2720 2523 2729 2533 2729 2523 2720 2533 2729 2533 2720 2921 2922 3137 3126 3260 3289 2720 2921 2922 3137 3260 3260 3279 3420 3420 3420 3420 3420 3420 3420 3420
Conie!	Internal De	ton of Do					12 750	0 6067		7 070	}

TableC -17 Social Cost-Earning profiles and Social Internal Rate of return of College of Engineering Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

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C.18

Notes There is a second secon

Source: Col. (2) from Table B-4; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 24 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, 21B, 22B, and 23B from Table A-108; Col. (6) - Col. (7); Col. (9), for age 24 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 23 = Col. (6) - Col. (10); Col. (10), for age 24 to 60 - Col. (7); Col. (9), for age 24 to 60A = Col. (8) x 2/3, Col. (9) for age 72 to 60A = Col. (10); Col. (10), for age 24 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 23, estimated by linear regression of data for age 24 to 60, 18B, 19B, 20B, B21, B22, and 23B from Table A-108; Col. (11), for age 24 to 60A = Col. (12); Col. (12) for age 18 to 23, estimated by linear regression of data for age 24 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 24 to 60 = Col (6) - Column (1).

9.76%

7.04%

5.39%

4 1

Social Internal Rates of Return

Notes: * Linear regression estimate. * Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. ****Graduates of the College of Medicine are estimated to complete their college education six years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation". **** The auxiliary income 120% of nominal salary is derived from the allowance system of employees in the public sector, Republic of Iraq. (B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award. # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost from gale 10 a23), differential earnings (a=1), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2); and earnings foregone (adjusted for a=1/2) respectively. C1-19

Table C-18 Social Cost-Earning profiles and Social Internal Rate of return of College of Medicine Graduates (Relative to High school

\$ \$ \$	2	3	4	5****	6	7	8	9	10	11	12
8	•				0000	972	-972	-1022	1022*	-1024	1024
ŘB					0000	1379	-1379	-1379	1379	-1379	1370
õ					0000	1027	-1027	-1046	1046#	11115	11115
, D					0000	1270	1270	1270	1270	1270	1113
20					46.000	1045	-1379	-1379	1379	-13/9	13/9
0					45***	1045	-1000	-1096	1096*	-1160	1205
в					0000	1379	-1379	-1379	1379	-1379	1379
1					0000	1085	-1085	-1234	1234*	-1296	1296
в				1	0000	1379	-1379	-1379	1379	-1379	1379
2	1				0000	1102	-1102	-1305	1305*	-1386	1386
2B	1		1	1	0000	1379	-1379	-1379	1379	-1379	1379
3					0000	1110	-1110	-1376	1376*	-1476	1476
BB					0000	1379	-1379	-1379	1379	-1379	1379
4	1350	738	612	734	2084	1182	002	602	1483	451	1622
Ś	1427	738	689	827	2254	1223	1031	687	1567	515	1720
Ğ	1481	738	743	802	2272	1220	1153	769	1604	576	1700
7	1/03	738	755	006	2300	1240	1150	772	1626	570	1000
<i>'</i>	1495	730	155	900	2399	1240	1139	115	1620	560	1820
ö	1504	/38	820	991	2555	1255	1300	867	1688	650	1905
9	1592	738	854	1025	2617	1310	1307	871	1746	653	1963
0	1722	738	984	1181	2903	1372	1531	1021	1882	765	2137
1	1776	738	1038	1246	3022	1382	1640	1093	1929	820	2202
2	1804	738	1066	1279	3083	1405	1678	1119	1964	839	2244
3	1911	738	1173	1408	3319	1450	1869	1246	2073	934	2384
4	1871	738	1133	1360	3231	1561	1670	1113	2118	835	2396
5	1936	738	1198	1438	3374	1605	1769	1179	2195	884	2489
6	2054	732	1322	1586	3640	1680	1960	1307	2333	980	2660
7	2047	726	1321	1585	3632	1717	1915	1277	2355	958	2675
8	2254	786	1468	1762	4016	1724	2202	1528	2488	1146	2870
ŏ	2457	834	1623	1948	4405	1758	2647	1764	2640	1323	3081
ń	2403	786	1617	1040	1213	1704	2540	1700	2644	1075	2001
1	2403	786	1599	1006	4343	1925	2349	1636	2044	1275	3009
1	23/4	700	1500	1900	4200	1045	2455	1030	2045	1227	3052
2	2300	/00	1574	1009	4249	1944	2305	1537	2/12	1152	3096
3	2450	0.04	1022	1940	4402	1808	2534	1690	2713	1267	3135
4	2712	834	1878	2254	4966	1885	3081	2054	2912	1540	3425
5	2731	834	1897	2276	5007	1899	3108	2072	2935	1554	3453
6	2920	834	2086	2503	5423	1925	3498	2332	3091	1749	3674
7	3094	834	2260	2712	5806	1905	3901	2601	3205	1951	3856
8	2683*	834	1849	2219	4902	1880	3022	2015	2887	1511	3391
9	3296*	834	2462	2954	6250	1834	4416	2944	3306	2208	4042
0	3092*	834	2258	2710	5802	1991	3811	2540	3261	1905	3896
1	3162*	834	2328	2794	5956	1989	3967	2644	3311	1983	3977
2	3232*	834	2398	2878	6110	1932	4178	2785	3325	2089	4021
3	3302*	834	2468	2962	6264	2051	4213	2808	3455	2106	1157
4	3372*	834	2538	3046	6418	2227	1101	2704	3624	2005	413/
ž	3442*	834	2550	2120	6572	2020	4550	2024	2627	2095	4322
ć	1 3442"	034	2000	3130	0312	2020	4352	3034	3531	22/0	4296
0	35124	834	20/8	3214	0720	2372	4354	2902	3823	2177	4549
(3582*	834	2/48	3298	0880	2250	4630	3086	3793	2315	4565
ŏ	3652*	834	2818	3382	7034	2286	4748	3165	3869	2374	4660
9	3722*	834	2888	3466	7188	2318	4870	3246	3941	2435	4753
0	3792*	834	2958	3550	7342	2351	4991	3327	4015	2495	4846
A	1896	1	1	1	1896	1176	720	480		360	1

Source: Col. (2) from Table B-7; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 23 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, B22, and 22B from Table A-108; Col (8) = Col. (6) - Col. (7); Col. (7) for age 23 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 22 = Col. (6) - Col. (10); Col. (10), for age 23 to 60 = Col. (6) - Col. (7); Col. (7); Col. (10), for age 18 to 22, estimated by linear regression of data for age 23 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, estimated by linear regression of data for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 23 to 60A = Column 8 x 1/2; Col. (12); Col. (12); Col. (12); for age 23 to 60A = Column 11).

Notes:
** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43.
*** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43.
***Graduation. Column (1) therefor is simply five years plus "number of years since college graduation".
**** The auxiliary income 60% of nominal salary is derived from the allowance system of employees in the public sector, Republic of Iraq.
(B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award.
Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 22), differential earnings (a=1/2), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

C-20

1***	2	3	4	5****	6	7	8	9	10	11	12
18 18B 19 20 20B 21 21B 22 22B					0000 0000 0000 51** 0000 0000 0000 0000	972 780 1027 780 1045 780 1085 780 1102 780	-972 -780 -1027 -780 -994 -780 -1085 -780 -1102 -780	-1033 -780 -1087 -780 -1089 -780 -1194 -780 -1147 -780	1033* 780 1087* 780 1140* 780 1194* 780 1147* 780	-1046 -780 -1110 -780 -1123 -780 -1238 -780 -1303 790	1046 [#] 780 1110 [#] 780 1174 [#] 780 1238 [#] 780 1303 [#] 780
22B 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 45 51 52 53 53	1290 1362 1415 1426 1494 1520 1644 1695 1712 1814 1775 1814 1775 1844 1775 1844 1775 1844 1775 1837 1942 2329 2278 2329 2278 2328 2328 2328 2328 2328 2328 2328	$\begin{array}{c} 738\\ 738\\ 738\\ 738\\ 738\\ 738\\ 738\\ 738\\$	552 624 677 688 756 906 957 1076 1037 1099 1211 1204 1375 1452 1542 1452 1542 1452 1542 1452 1542 1452 1542 1452 1542 1452 2097 1708 1492 2019 2019 2019 2019 2021 2021 2021 20	331 374 406 413 454 574 584 574 584 574 584 574 584 662 659 727 722 825 879 871 925 879 871 925 1042 1159 1258 1025 11097 1211 1248 1225 1326	0000 1621 1736 1821 1839 1948 1989 2188 2269 22460 2397 2460 2397 2460 2397 2460 2397 2466 2664 2664 2664 2664 2662 33173 3109 3253 3109 3253 3109 3253 3109 3255 4189 3567 3760 4163 4459 4459 4459	780 1110 1182 1223 1220 12240 1255 1310 1372 1382 1405 1450 1450 1450 1450 1450 1450 1450	$\begin{array}{c} -780\\ -780\\ 511\\ 554\\ 598\\ 619\\ 708\\ 734\\ 897\\ 914\\ 1055\\ 947\\ 933\\ 1071\\ 984\\ 1245\\ 1336\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1309\\ 1745\\ 1284\\ 1282\\ 2203\\ 2264\\ 1880\\ 2230\\ 2273\\ 2428\\ 2403\\ 131\\ 180\\ 2331\\ 180\\ 2331\\ 180\\ 2331\\ 180\\ 2331\\ 180\\ 2331\\ 180\\ 2331\\ 180\\ 2331\\ 2428\\ 2403\\ 2331\\ 2428\\ 2403\\ 2331\\ 2428\\ 2403\\ 2331\\ $	-780 -780 341 370 399 413 472 489 585 598 610 703 624 703 624 714 624 714 624 714 624 714 830 1021 943 891 835 830 1021 943 851 1509 1108 1254 1487 1448 1555 1655 1556	780 1280 1367 1422 1426 1426 1476 1476 1476 1476 1476 1476 1476 147	$\begin{array}{r} -1303\\ -780\\ 256\\ 277\\ 299\\ 309\\ 354\\ 367\\ 439\\ 449\\ 457\\ 527\\ 474\\ 468\\ 535\\ 492\\ 623\\ 708\\ 668\\ 6642\\ 655\\ 873\\ 878\\ 1013\\ 1132\\ 831\\ 1940\\ 1115\\ 1086\\ 1136\\ 1214\\ 1204\\ 1165\end{array}$	1303** 780 1366 1459 1522 1529 1524 1524 1524 1524 1524 1524 1524 1524
54 55 56 57 58 59 60 60A	3161* 3223* 3285* 3347* 3408* 3470* 3532* 1766	834 834 834 834 834 834 834 834	2327 2389 2451 2513 2574 2636 2698	1396 1433 1470 1508 1545 1582 1619	4558 4657 4755 4854 4953 5051 5150 1766	2227 2020 2372 2250 2286 2318 2351 1176	2331 2637 2383 2604 2667 2733 2799 590	1554 1758 1589 1736 1778 1822 1866 393	3004 2899 3166 3118 3175 3229 3284	1165 1318 1192 1302 1333 1367 1400 295	3392 3338 3564 3552 3619 3685 3751
Social I	Internal Ra	ites of Re	turn			·	9.16%	6.47%	· · · · · · · · · · · · · · · · · · ·	4.90%	1

 Table C-19
 Social Tost-Earning profiles and Social Internal Rate of return of College of Pharmacy Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars)

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Social Internal Rates of Return	8.69%	6 .09%	4.54%	
ource: Col. (2) from Table B-7; Col. (3) derived from	m Table B-8; Col. (4) fro	om Col. (2) - C	ol. (3); Col. (5) (ID 240) const	ant
llowance per year; Col. (6) for age 23 to 60A from	col. (2) + Col. (5); Col.	(7) for age 18	to 60 from Table B-1; 18B, 19	9B.
0B, B21, and 22B from Table A-108; Col $(8) = Co$	1.(6) - Col. (7); Col. (9).	for age 23 to (50A = Col. (8) x 2/3, Col. (9)	for
ge 18 to 22 = Col. (6) - Col. (10); Col. 10, for age 1	8 to 22, estimated by line	ar regression o	f data for age 23 to 60, 18B, 19	9 Β.
0B, and 21B from Table A-108 (Col. (11), for age 2	$3 \text{ to } 60\text{A} = \text{Column } 8 \times 1$	/2: Col. (11), 1	or age 18 to 22. = Col. (6) - C	'ol
	1 0 1 . 0			

Solution Solutitaa Solution Solution Solution Solution Solution Solution So (12); Col. (12) for age 18 to 22, estimated by linear regression of data for age 23 to $60 + \text{Social Institutional Cost per graduate-year, Col. (12) for age 23 to <math>60 = \text{Col.}(6) + \text{Col.}(12)$

Notes: ** Linear regression estimate. ** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. ** The auxiliary income 80% of nominal salary is derived from the allowance system of employees in the public sector, Republic of Iraq. ****Graduates of the College of Dentistry are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply five years plus "number of years since college graduation". (B) Social institutional cost from Table A-108. (60A) is a retirement bonus/end of service award. # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 22), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively. C-21

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· 22· · - 2

Table C-20 Social Cost-Earning profiles and Social Internal Rate of return of College of Dentistry Graduates (Relative to High school

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	1***	2	3	4	50000	6	7	8	9	10	11	12
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1**** 18 18 19 19 20 20 21 21 22 22 23 24 25 26 27 28 29 30 31 32 33 34 35	2 1290 1362 1415 1426 1494 1520 1644 1520 1645 1712 1695 1712 1814 1775 1837 1849	3 738 738 738 738 738 738 738 738 738 73	4 552 624 677 688 756 957 957 974 1076 1037 1099 1211	500000 442 499 542 550 605 626 725 766 779 830 879 969	6 00000 00000 <	7 972 1350 1027 1350 1045 1350 1350 1350 1350 1350 1350 1350 135	8 -972 -1350 -1027 -1350 -852 -1350 -1350 -1350 -1350 -1350 -1350 -1350 -1025 -1350 -1025	9 -1049 -1350 -1106 -1350 -971 -1350 -971 -1221 -1350 -1221 -1350 -1221 -1278 -1350 -1278 -1278 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1350 -971 -1221 -1250 -971 -1221 -1250 -971 -1250 -1250 -971 -1250 -1250 -1250 -1250 -1250 -1250 -1250 -1250 -1250 -1251 -1250 -1251 -1250 -1251 -1250 -1251 -1250 -1251 -1251 -1250 -1251 -1250 -1251 -1250 -1251 -1250 -1251 -1250 -1251 -1250 -1251 -1250 -1251 -1250 -1278 -1250 -1278 -1250 -1278 -1250 -1278 -1250 -1278 -1250 -1278 -1250 -1278 -1250 -1278 -1250 -757 -1278 -1250 -757 -757 -757 -757 -757 -757 -757 -7	10 1049** 1350 1106** 1350 1164** 1350 1221** 1350 1278** 1350 1317 1408 1472 1526 1552 1663 1735 1752 1838 1835 1946 2043	11 -1069 -1350 -1350 -1350 -1016 -1350 -1279 -1350 -1279 -1349 -1350 -1349 -1349 -1350 351 311 340 367 378 378 378 378 378 378 378 378 378 37	12 1069* 1350 1139* 1350 1209 1350 1279* 1350 1421 1590 1421 1599 1700 1421 1599 1700 1898 1669 1700 1837 2040 2027 2139 2261
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	32 33 34 35 36 37 38 39 40 41 42 43	1814 1775 1837 1949 1942 2137 2329 2278 2251 2238 2328 2328 2571	738 738 738 738 738 738 762 786 786 786 786 786 786 834	1076 1037 1099 1211 1204 1375 1543 1492 1465 1452 1542 1542	861 830 879 969 963 1100 1234 1194 1172 1162 1234 1390	2675 2605 2716 2918 2905 3237 3563 3472 3423 3400 3562 3961	1405 1450 1561 1605 1680 1717 1724 1758 1794 1825 1944 1868	1270 1155 1313 1225 1520 1839 1714 1629 1575 1618 2093	847 770 875 817 1013 1226 1142 1086 1050 1078 1395	1828 1835 1946 2043 2088 2224 2337 2329 2337 2350 2483 2566	635 577 578 656 613 760 920 857 815 787 809 1046	2040 2027 2139 2261 2293 2477 2644 2615 2609 2612 2753 2914
	44 45 46 47 48 49 50 51 52 53	2588 2766 2931 2542 2663* 2853* 2915* 2976* 3038* 3100*	834 834 834 834 834 834 834 834 834 834	1757 1754 1932 2097 1708 1829 2019 2081 2142 2204	1403 1546 1678 1366 1463 1615 1665 1714 1763	3991 4312 4609 3908 4126 4468 4580 4690 4801 4013	1885 1899 1925 1905 1880 1834 1991 1989 1932	2106 2413 2684 2003 2246 2634 2589 2701 2869	1393 1404 1608 1789 1336 1497 1756 1726 1800 1913	2587 2703 2820 2573 2629 2712 2854 2889 2888 2888	1043 1053 1206 1342 1002 1123 1317 1294 1350 1435	2914 2938 3105 3267 2907 3003 3151 3285 3339 3367

1***	2	3	4	5****	6	7	8	9	10	11	12
18 18B					0000 0000	972 1661	-972 -1661	-968 -1661	968* 1661	-949 -1661	949* 1661
19					63**	1027	-964	-950	1013*	-938	1001*
196				ļ	0000	1001	-1001	-1001	1001	-1001	1061
20B					0000	1661	-1661	-1661	1661	-1034	1054*
21					0000	1085	-1085	-1104	1104*	-1106	1106*
21B					0000	1661	-1661	-1661	1661	-1661	1661
22	1113	726	387	194	1307	1102	205	136	1170	102	1204
23	1128	726	402	201	1329	1110	219	146	1183	110	1220
24	1219	732	487	244	1463	1182	281	187	1276	140	1322
25	1279	738	541	271	1550	1223	327	218	1332	163	1386
26	1257	738	519	260	1517	1220	297	198	1319	148	1368
27	1221	732	489	245	1466	1240	226	150	1315	113	1353
28	1200	732	525	202	1517	1255	262	174	1342	131	1386
30	1330	738	502	205	1626	1310	254	160	1424	127	1482
31	1410	738	672	336	1746	1382	364	243	1402	192	1499
32	1422	738	684	342	1764	1405	359	230	1525	180	1585
33	1430	738	692	346	1776	1450	326	217	1559	163	1613
34	1557	738	819	410	1967	1561	406	270	1696	203	1764
35	1605	738	867	434	2039	1605	434	289	1750	217	1822
36	1720	738	982	491	2211	1680	531	354	1857	266	1946
37	1743	738	1005	503	2246	1717	529	352	1893	264	1981
38	1775	738	1037	519	2294	1724	570	380	1914	285	2009
39	1958	738	1220	610	2568	1758	810	540	2028	405	2163
40	2050	762	1288	644	2694	1794	900	600	2094	450	2244
41	1995	762	1201	652	2009	1025	704	544	2080	392	2217
12	2000	762	1275	638	2675	1944	807	529	2202	307	2331
44	2123	762	1361	681	2804	1885	919	612	2101	403	22/1
45	2149	762	1387	694	2843	1899	944	629	2214	472	2371
46	2261	786	1475	738	2999	1925	1074	716	2283	537	2462
47	2269	786	1483	742	3011	1905	1106	737	2274	553	2458
48	2312*	786	1526	763	3075	1880	1195	797	2278	598	2478
49	2361*	786	1575	788	3149	1834	1315	876	2272	657	2491
50	2411*	834	1577	789	3200	1991	1209	806	2394	604	2595
51	2460*	834	1626	813	3273	1989	1284	856	2417	642	2631
52	2510*	834	1070	838	3348	1932	1416	944	2404	708	2640
55	2009*	034	1775	000	3422	2051	1371	914	2508	085	2/30
55	2009**	824	1824	000	3497	2020	1270	1022	2030	035	2802
56	2038*	834	1874	037	3645	2020	1273	840	2337	637	2795
57	2757*	834	1923	962	3719	2250	1469	979	2740	734	2984
58	2807*	834	1973	987	3794	2286	1508	1005	2789	754	3040
59	2856*	834	2022	1011	3867	2318	1549	1033	2834	775	3093
60	2906*	834	2072	1036	3942	2351	1591	1061	2881	796	3147
60A	1453				1453	1176	277	185		139	
		L		L	·					L	1

 Table C-21

 Social Cost-Earning profiles and Social Internal Rate of return of College of Nursing Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

C-22

Source: Col. (2) from Table B-3; Col. (3) derived from Table B-1; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) coll allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col. (6) - Col. (7); Col. (9), for age 23 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 22 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column 6 x 1/2; Col. (12) for age 22 to 60A = Column (11).

Social Internal Rates of Return

4.39%

2.66%

1.54%

14

$\begin{array}{c} 18\\ 18\\ 19\\ 19\\ 20\\ 221\\ 21\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 223\\ 24\\ 222\\ 233\\ 333\\ 3$	1290 1362 1415 1426 1494 1520 1644 1695 1712 1814 1775 2329 1942 2238 2328 2328 2328 2328 2328 2328 23	738 738 738 738 738 738 738 738 738 738	552 624 677 688 756 957 977 1099 1211 1204 1452 1543 1492 1543 1492 1543 1492 1543 1452 1543 1452 1543 1754 1932 1774 1932 2097 2097 2097 2097 2097 2097 2019 2081 2142 2266 2389 2081 2142 2266 2389 2451 2574 2574 2698	414 468 508 516 587 680 718 731 778 824 903 1031 1157 1089 1157 1303 1316 1449 1573 1316 1449 1573 1316 1449 1573 1281 1372 1514 1607 1792 1792 1792 1792 1792 1838 1885 19377 2024	0000 0000 0000 226*** 0000 0000 0000 000	$\begin{array}{c} 972\\ 1564\\ 1027\\ 1564\\ 1045\\ 1564\\ 1045\\ 1564\\ 1085\\ 1564\\ 1102\\ 1564\\ 1102\\ 1564\\ 1102\\ 1564\\ 1102\\ 1223\\ 1220\\ 1240\\ 1223\\ 1220\\ 1240\\ 1255\\ 1310\\ 1223\\ 1240\\ 1255\\ 1310\\ 1372\\ 1382\\ 1372\\ 1382\\ 1405\\ 1680\\ 1561\\ 1680\\ 1561\\ 1680\\ 1561\\ 1717\\ 1724\\ 1885\\ 1680\\ 1561\\ 1778\\ 1774\\ 1825\\ 1995\\ 1905\\ 1830\\ 1830\\ 1834\\ 1991\\ 1982\\ 22250\\ 2286\\ 2351\\ 1176\\ 22250\\ 2286\\ 2351\\ 2250\\ 2286\\ 2351\\ 22250\\ 2286\\ 2351\\ 22250\\ 2286\\ 2351\\ 2250\\ 2286\\ 2351\\ 2250\\ 2286\\ 2351\\ 2250\\ 2286\\ 2351\\ 2250\\ 2250\\ 2351\\ 2250\\ 2250\\ 2250\\ 2351\\ 2250\\ 2250\\ 2351\\ 23$	$\begin{array}{c} -972 \\ -1564 \\ -1026 \\ -1564 \\ -819 \\ -1564 \\ -819 \\ -1564 \\ -1085 \\ -1564 \\ -1085 \\ -1564 \\ -1002 \\ -1564 \\ -1102 \\ -1564 \\ -1102 \\ -1564 \\ -1002 \\ -1254 \\ -1002 \\ -1254 \\ -1002 \\ -1252 \\ -1004 \\ -1002 \\ -1$	$\begin{array}{c} -1045\\ -1102\\ -1564\\ -932\\ -1564\\ -932\\ -1564\\ -932\\ -1214\\ -1564\\ -1271\\ -1564\\ 432\\ 4432\\ 4432\\ 4481\\ 547\\ 568\\ 676\\ 694\\ 707\\ 811\\ 735\\ 735\\ 735\\ 737\\ 835\\ 777\\ 968\\ 1175\\ 1093\\ 1037\\ 1001\\ 1027\\ 1334\\ 689\\ 1037\\ 1001\\ 1027\\ 1334\\ 1689\\ 1037\\ 1001\\ 1027\\ 1334\\ 1689\\ 1175\\ 1279\\ 1279\\ 1334\\ 1689\\ 1657\\ 1729\\ 1832\\ 1786\\ 1997\\ 1832\\ 1988\\ 2035\\ 2086\\ 2136\\ 393\\ \end{array}$	1045 ^w 1364 1102 ^x 1564 1158 ^w 1564 1158 ^w 1564 1214 [*] 1564 1398 1398 1398 1398 1398 1398 1398 1398	$\begin{array}{r} -1064\\ -1064\\ -1564\\ -1201\\ -1564\\ -1201\\ -1564\\ -1201\\ -1564\\ -1269\\ -1564\\ 297\\ 324\\ 350\\ 361\\ 411\\ 426\\ 507\\ 520\\ 530\\ 608\\ 551\\ 550\\ 626\\ 583\\ 726\\ 8811\\ 820\\ 778\\ 770\\ 1003\\ 1009\\ 1158\\ 1289\\ 959\\ 1077\\ 1267\\ 1242\\ 1297\\ 1374\\ 1340\\ 1374\\ 1340\\ 1497\\ 1376\\ 1491\\ 1526\\ 1565\\ 1602\\ 295\\ \end{array}$	1064* 11564 1132¢ 1564 1201¢ 1564 1269¢ 1564 1269¢ 1564 1269¢ 1566 1566 1567 1568 11407 1506 11681 1681 1681 1681 1681 1681 1681 1
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 Table C-22

 Social Cost-Earning profiles and Social Internal Rate of return of College of Veterinary Medicine Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

8

9

10

11

12

7

5****

6

4

1***

2

3

Source: Col. (2) from Table B-7; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 23 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, B22, and 22B from Table A-108; Col (8) = Col.(6) - Col. (7); Col. (9), for age 23 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 22 = Col. (6) - Col.(10); Col. (10), for age 23 to 60A = Col. (6) - Column (9); Col. 10, for age 18 to 22, estimated by linear regression of data for age 23 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 23 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 22, = Col. (6) - Col. (2); Col. (2) for age 18 to 22, estimated by linear regression of data for age 23 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 23 to 60 = Col (6) - Column (11).

7.90%

5.45%

3.97%

Social Internal Rates of Return

Notes: * Linear regression estimate. * Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. ** The auxiliary income 75% of nominal salary is derived from the allowance system of employees in the public sector, Republic ** The auxiliary income 75% of nominal salary is derived from the allowance system of employees in the public sector, Republic

*** The auxiliary income 75% of nominal salary is derived from the anowarce system of competence in the present of trag. ***Graduates of the College of Veterinary Medicine are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply five years plus "number of years since college graduation". (B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award. # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 22), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

Table C-23
social Cost-Earning profiles and Social Internal Rate of return of College of Agriculture Graduates (Relative to High school
Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

8

9

10

11

12

7

5**** 6

Source: Col. (2) from Table B-6; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Col. (7); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 22 to 60 = Col (6) - Column (11).

4.48%

2.67%

1.50%

Social Internal Rates of Return

1***

2

3

4

Notes: * Linear regression estimate. ** Linear regression estimate. ** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. ****Graduates of the College of Agriculture are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation". (B) Social institutional cost from nominal salary is derived from the allowance system of employees in the public sector, REPUBLIC OF IRAQ. (B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award. # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost ffrom age 18 to 21), differential earnings, differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

1 strategy	2	3	4	5 de ale ale ale	6	7	8	9	10	11	12
$\begin{array}{c} 18\\ 18\\ 19\\ 20\\ 20\\ 20\\ 20\\ 21\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 29\\ 30\\ 31\\ 32\\ 33\\ 34\\ 35\\ 33\\ 34\\ 45\\ 46\\ 47\\ 48\\ 45\\ 46\\ 47\\ 48\\ 45\\ 46\\ 55\\ 55\\ 55\\ 55\\ 55\\ 55\\ 55\\ 56\\ 57\\ 58\\ 59\\ 60\\ 60\\ A\end{array}$	1106 1100 1208 1211 1221 1301 1390 1358 1378 1378 1378 1358 1378 1378 1378 1378 1358 1378 1378 1378 1378 1378 1378 1378 137	726 726 732 732 732 732 732 738 738 738 738 738 738 738 738 738 738	4 380 374 435 475 477 477 477 477 563 652 620 640 679 760 824 877 9061 1121 193 1259 1184 1193 1259 1254 1322 1529 1442 1505 1605 1605 1605 1605 1605 1703 1704 1703 1704 1705 1705 1705 1705 1705 1705 1705 17	95 94 95 94 95 94 95 95 94 119 119 120 124 141 163 155 160 206 219 225 240 288 302 298 302 298 302 298 303 3861 361 361 361 361 377 390 402 414 426 438 450 462 474 486 498	6 00000 1221 1331 1333 1433 1414	7 972 413 1027 413 1045 413 1085 413 1085 413 1102 1110 1112 1223 1220 1240 1255 1310 1332 1450 1561 16680 17724 1758 17724 1885 1880 1888 1888 1888 1889 1991 1992 2051 1830 1989 1932 22372 22266 2331 1176	$\begin{array}{c} 8\\ -972\\ -413\\ -1026\\ -413\\ -1045\\ -413\\ -1085\\ -413\\ 99\\ 84\\ 102\\ 107\\ 99\\ 84\\ 102\\ 107\\ 99\\ 84\\ 102\\ 107\\ 99\\ 84\\ 102\\ 107\\ 102\\ 1131\\ 133\\ 137\\ 127\\ 163\\ 131\\ 133\\ 137\\ 127\\ 163\\ 134\\ 146\\ 274\\ 448\\ 470\\ 528\\ 772\\ 448\\ 470\\ 528\\ 772\\ 448\\ 470\\ 528\\ 772\\ 448\\ 470\\ 528\\ 772\\ 684\\ 754\\ 843\\ 938\\ 881\\ 767\\ 754\\ 843\\ 938\\ 881\\ 767\\ 747\\ 930\\ 658\\ 688\\ 984\\ 238\\ \end{array}$	$\begin{array}{c} 9\\ -945\\ -413\\ -965\\ -413\\ -1027\\ -413\\ -1068\\ -413\\ -413\\ 66\\ 66\\ 56\\ 63\\ 68\\ 71\\ 61\\ 66\\ 68\\ 89\\ 91\\ 103\\ 97\\ 144\\ 254\\ 299\\ 299\\ 183\\ 312\\ 312\\ 312\\ 312\\ 312\\ 352\\ 515\\ 488\\ 488\\ 495\\ 536\\ 606\\ 568\\ 491\\ 669\\ 491\\ 669\\ 568\\ 491\\ 665\\ 612\\ 631\\ 650\\ 159\\ \end{array}$	10 945* 413 986* 413 1027* 413 1135 1138 1213 1257 1256 1270 1288 1354 1432 1449 1496 1603 1659 1731 1736 1766 1739 1939 1974 2035 2024 2042 2042 2042 2042 2042 2042 2042 2042 2133 2124 2133 22472 2354 2609 2592 2633 26676	$\begin{array}{c} 11 \\ -915 \\ -413 \\ -939 \\ -413 \\ -1006 \\ -413 \\ -413 \\ -1052 \\ -413 \\ 51 \\ 54 \\ 45 \\ 45 \\ 47 \\ 51 \\ 54 \\ 45 \\ 45 \\ 49 \\ 91 \\ 66 \\ 67 \\ 68 \\ 64 \\ 82 \\ 77 \\ 73 \\ 108 \\ 191 \\ 224 \\ 137 \\ 234 \\ 223 \\ 224 \\ 137 \\ 234 \\ 235 \\ 224 \\ 386 \\ 342 \\ 366 \\ 419 \\ 371 \\ 402 \\ 455 \\ 426 \\ 368 \\ 501 \\ 356 \\ 447 \\ 455 \\ 426 \\ 356 \\ 447 \\ 455 \\ 426 \\ 356 \\ 447 \\ 455 \\ 426 \\ 356 \\ 447 \\ 459 \\ 473 \\ 487 \\ 119 \\ \end{array}$	$\begin{array}{c} 12\\ 915^{\pm}\\ 413\\ 960^{\pm}\\ 413\\ 1006^{\pm}\\ 413\\ 1006^{\pm}\\ 413\\ 1052^{\pm}\\ 1152\\ 1152\\ 1229\\ 1274\\ 1274\\ 1274\\ 1274\\ 1274\\ 1285\\ 1306\\ 1376\\ 1468\\ 1472\\ 1518\\ 1472\\ 1518\\ 1472\\ 1518\\ 1475\\ 1687\\ 1468\\ 1472\\ 2049\\ 2081\\ 2012\\ 2049\\ 2081\\ 22102\\ 2102\\ 2102\\ 2102\\ 22477\\ 22595\\ 2521\\ 2728\\ 2675\\ 27791\\ 2838\\ 2775\\ 2791\\ 2838\\ 2775\\ 2791\\ 2838\\ 2775\\ 2791\\ 2838\\ 2775\\ 2791\\ 2838\\ 2775\\ 2791\\ 2838\\ 2755\\ 2791\\ 2838\\ 2755\\ 2755\\ 2755\\ 2755\\ 2755\\ 2755\\ 2755\\ 277$

Table C-24 Social Cost-Earning profiles and Social Internal Rate of return of College of Administration and Economics Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars). T T Т Т Т T Т Т

C-25

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col.(6) - Col. (7); Col. (9), for age 23 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - (10); Col. (10); Col. (10); for age 22 to 60 = Col. (6) - Col. (7); Col. (9), for age 18 to 21, setimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (10); for age 22 to 60 = Col. (6) - Col. (11), for age 24 to 60 = Col. (6) - Col. (7); Col. (12), for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12); Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60 = Col. (6) - Col. (12); Col. (12); for age 22 to 60 = Col. (6) - Col. (13); Col. (14); for age 22 to 60 = Col. (6) - Col. (6) - Col.

1

Social Internal Rates of Return

4.33%

2.87%

1.79%

11

Notes:
 ^{**} Linear regression estimate.
 ^{***} Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43.
 ^{***} Graduates of the College of Administration and Economics are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation".
 ^{******} The auxiliary income 25% from nominal salary is derived from the allowance system of employees in the public sector, Republic of Iraq.
 (B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award.
 #* Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=1/2), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

1***	2	3	4	50000	6	7	8	9	10	11	12
18				1	0000	072	-972	-040	940#	-020	020#
100					0000	702	702	702	702	702	702
10		1			65.00	1027	062	-702	001*	-702	060
19	J	J			03**	1027	-902	-920	991*	-903	908~
19B	1	1			0000	702	-702	-702	702	-702	702
20					0000	1045	-1045	-1034	1034*	-1016	1016≉
20B				1	0000	702	-702	-702	702	-702	702
21			1		0000	1085	-1085	-1076	1076*	-1064	1064*
IB					0000	702	-702	-702	702	-702	702
22	1106	726	380	100	1230	1102	137	01	11/18	60	1171
52	11100	726	274	133	1021	1110	121	01	1150	60	1170
23	1167	720	374	131	1231	1110	121	01	1000	00	1170
24	110/	752	435	152	1319	1102	137	92	1228	09	1251
25	1206	732	474	166	1372	1223	149	99	1273	74	1297
26	1208	732	476	167	1375	1220	155	103	1272	77	1297
27	1211	732	479	168	1379	1240	139	92	1286	69	1309
28	1229	732	497	174	1403	1255	148	99	1304	74	1329
29	1301	738	563	107	1498	1310	188	125	1373	94	1404
30	1390	738	652	1220	1618	1372	246	164	1454	123	1495
31	1358	738	620	220	1575	1382	103	120	1446	07	1/70
22	1279	738	640	21/	1602	1405	107	121	1471	00	1504
32	13/0	730	670	224	1602	1405	197	131	14/1	100	1504
33	1417	/38	0/9	238	1055	1450	205	130	1518	102	1552
34	1498	738	760	266	1764	1561	203	135	1629	102	1663
35	1562	738	824	288	[1850	1605	245	164	1687	123	1728
36	1615	738	877	307	1922	1680	242	161	1761	121	1801
37	1638	738	900	315	1953	1717	236	157	1796	118	1835
38	1699	738	961	226	2035	1724	311	208	1828	156	1880
30	1859	738	1121	330	2251	1758	493	320	1922	247	2005
10	1031	738	1103	592	23/0	1704	555	370	1070	277	2003
40	1071	760	1200	418	2204	1925	560	370	2016	211	2110
41	1971	702	1104	423	2394	1043	309	3/9	2015	205	2110
42	1922	730	1104	414	2330	1944	592	202	2075	190	2140
43	2021	/02	1259	441	2462	1868	594	396	2066	297	2165
44	2036	762	1274	446	2482	1885	597	398	2084	298	2183
45	2094	762	1332	466	2560	1899	661	441	2119	331	2230
46	2315	786	1529	535	2850	1925	925	617	2233	463	2388
47	2228	786	1442	505	2733	1905	828	552	2181	414	2319
48	2247*	786	1461	511	2758	1880	878	586	2173	439	2319
49	2295*	786	1509	570	2823	1834	989	659	2164	495	2329
50	2344*	786	1558	546	2889	1991	808	599	2290	449	2440
51	2392*	786	1606	545	2954	1989	965	643	2311	483	2472
52	2440*	1924	1606	562	2002	1022	1070	712	2220	525	2467
52	2440*	0.04	1666	562	1002	1952	1017	113	2200	535	2407
22	2469*	034	1055	579	5008	2031	1017	0/0	2390	509	2500
54	2537*	834	1703	596	3133	2227	906	604	2529	453	2680
55	2585*	834	1751	613	3198	2020	1178	785	2413	589	2609
56	2634*	834	1800	630	3264	2372	892	595	2669	446	2818
57	2682*	834	1848	647	3329	2250	1079	719	2610	539	2789
58	2730*	834	1896	664	3394	2286	1108	738	2655	554	2840
59	27784	834	1944	690	3458	2318	1140	760	2698	570	2888
60	2827*	834	1002	600	3525	2351	1174	782	2742	587	2038
KOA	1414	0.57	1,200	8 עס ן	1414	1176	228	150	-/72	110	2750
JUM	1414				1414	11/0	430	139		119	
Social	Internal R	lates of R	eturn				4.50%	2.87%		1.81%	

Table C-25 Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning profiles and Social Internal Rate of return of College of Law and Politics Graduates (Relative to High school Social Cost-Earning Politics Graduates (Relative to High school Social Cost-Earning Social Cost

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60A = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60A = Col. (6) - Col. (7); For age 18 to 21, estimated by linear regression of data for age 22 to 60A = B 22 to 60A = Col. (2) for age 18 to 21, estimated by 1102 (12); Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Col. (3) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Col. (6) - Col. (2); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Col. (6) - Col. (2); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Col. (6) - Col. (12); Col. (12); for age 18 to 21, estimated by linear regression of data for age 22 to 60A = Col. (6) - Col. (12); Col. (1

Notes: ** Linear regression estimate. *** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. ****Graduates of the College of Law and Politics are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation". ***** The auxiliary income 35% from nominal salary is derived from the allowance system of employees in the public sector, Republic of Iraq. (B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award. ##Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Barning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=1), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

1		5		5	0	/	0		10	11	12
$\begin{array}{c} 18\\ 18\\ 19\\ 20\\ 20B\\ 21\\ 21B\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 29\\ 30\\ 31\\ 32\\ 33\\ 33\\ 33\\ 33\\ 33\\ 33\\ 33\\ 33\\ 33$	1106 1100 1167 1206 1201 1211 1229 1301 1358 1378 1417 1498 1562 1615 1615 1638 1699 1931 1498 1562 1615 1638 1639 1931 1971 1922 2021 2036 2094 2037 2225 2247* 22315 22247* 2334* 2334* 2334* 2335* 2334* 2335* 2334* 2355* 2334* 2355* 2334* 2355* 2334* 2355* 2354* 2355* 2354* 2355* 235* 23	7 26 726 732 732 732 738 738 738 738 738 738 738 738 738 738	380 374 435 474 476 477 477 477 563 652 620 640 679 760 824 827 827 827 827 827 827 827 827 827 827	240 240 240 240 240 240 240 240 240 240	0000 1446 1448 1445 1630 1541 1630 1558 1638 1630 1878 1878 1878 1878 1839 2039 2111 2162 2334	972 972 556 1027 556 1045 1045 1045 1045 1045 1045 1045 1045 1102 1110 1182 1220 1223 1220 1223 1372 1382 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1372 1385 1680 1680 1717 1724 1885 1885 1885 1885 1991 1925 1938 2051 2227 22250 2236 2318 2251 176 1776 1776 1776 1776 1937 1938 1925 1932 2251 2257 2250 2250 2250 2251	-972 -556 -1003 -556 -1045 -556 244 230 223 223 223 223 214 231 258 214 231 258 213 207 197 175 161 215 341 377 393 435 630 563 607 701 550 805 502 672 684 700 716 238	-1016 -1056 -556 -1030 -556 163 153 153 153 153 153 154 172 144 143 154 172 144 143 154 172 144 138 131 107 143 227 251 2257 145 227 251 257 145 290 405 405 405 452 337 334 456 457 337 334 456 457 357 334 456 457 <	1016* 556 1054** 556 1054** 556 1129* 556 1129* 556 1187 1129* 556 1183 1187 1297 1296 1310 1326 1387 1458 1454 1458 1454 1452 1620 1671 1776 1954 2017 1954 2017 1954 2017 1999 2015 2044 2135 2032 2082 2082 2082 2033 2189 2203 2181 2277 2410 2514 2551	$\begin{array}{c} 11\\ -1022\\ -556\\ -1038\\ -556\\ -1102\\ -556\\ 1122\\ 115\\ 112\\ 114\\ 107\\ 106\\ 107\\ 116\\ 107\\ 116\\ 107\\ 108\\ 107\\ 108\\ 107\\ 108\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 104\\ 89\\ 99\\ 88\\ 81\\ 108\\ 107\\ 108\\ 107\\ 106\\ 129\\ 108\\ 107\\ 106\\ 129\\ 108\\ 107\\ 106\\ 129\\ 108\\ 107\\ 108\\ 109\\ 196\\ 218\\ 315\\ 282\\ 304\\ 351\\ 296\\ 322\\ 374\\ 339\\ 275\\ 336\\ 342\\ 350\\ 358\\ 119\\ \end{array}$	12 1022* 556 1062* 556 1102* 556 1225 1225 1225 1225 1235 1334 1334 1346 1362 1426 1501 1426 1501 1512 1554 1650 1704 1798 1832 1929 1983 2018 2033 2029 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 1929 2018 2033 2018 2033 2040 2040 2040 2040 2040 2040 2050 2051 2050 2051 2050 20
Social	Internal Re	utes of Re					3 93%	2.01%		0.82%	
ມມາຍ	AND A AREA AND	AND UT THE					0.0010			0.0410	J

Table C-26Social Cost-Earning profiles and Social Internal Rate of return of College of Arts Graduates (Relative to High school Graduates)in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars). $1 \neq 0 \neq 0$ $1 \neq 0 \neq 0$

C-27

25.

Notes:
** Linear regression estimate.
** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43.
*** Graduates of the College of Arts are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation".
(B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award.
Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=1/2), earnings foregone (adjusted for a=1/2) respectively.

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 23 to 60A from col. (2) + Col. (5); Col. Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (3) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) × 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 18 to 21, estimated by 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 22 to 60 = Col (6) - Column (11).

60 2906* 834 2072 240 31 60A 1453 1453	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
146 2351 795 1453 1176 277	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	000 972 -972 000 515 -518 5*** 1027 -992 000 515 -518 0000 1045 -1044 0000 515 -518 0000 1045 -1043 0000 515 -518 3000 1085 -1083 0000 515 -518 353 1102 251 368 1110 258
530 185 2616	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
397 139	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccc} -1037 & 1037^{*} \\ -518 & 518 \\ -1042 & 1042^{*} \\ -518 & 518 \\ -1118 & 1118^{*} \\ -518 & 518 \\ -1159 & 1159^{*} \\ -518 & 518 \\ 126 & 1228 \\ 129 & 1239 \\ \end{array}$

4.80%

Source: Col. (2) from Table B-3; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 23 to 60A from col. (2) + Col. (5); Col. Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col.(6) - Col. (7); Col. (7), for age 23 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col.(10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 18 to 22, = Col. (6) - Col. (7); Col. (2) for age 18 to 21, estimated by linear regression of data for age 22 to 60 + Col. (2); Col. (2) for age 18 to 22, = Col. (6) - Col. (2); Col. (2) for age 18 to 22, = Col. (6) - Col. (2); Col. (2) for age 22 to 60 = Col (6) - Column 8 age 22 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 22 to 60 = Col (6) - Column (11).

2.72%

1.46%

2.5 A AL

 Table C-27

 Social Cost-Earning profiles and Social Internal Rate of return of College of Education Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

8

9

10

11

12

7

1***

2

Social Internal Rates of Return

3

4

5****

6

Notes ** Linear regression estimate. ** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. ****Graduates of the College of Education are estimated to complete their college education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation". (B) Social institutional cost from Table A-108; (A) is a refirement bonus/end of service award. # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=1), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

C.28

1***	2	3	4	5***	6	7	8	9	10	11	12
18 18 18B 19 20B 21 21B 22 23 24 25 26 27 28	1106 1100 1167 1206 1208 1211 1229	726 726 732 732 732 732 732	4 380 374 435 474 476 479 497	240 240 240 240 240 240 240 240	6 0000 044≠ 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1346 1340 1446 1448 14451 1469	972 702 1027 702 1045 702 1085 702 1102 1110 1182 1223 1220 1240 1255	8 -972 -702 -702 -702 -1045 -702 -1085 -702 244 230 225 223 228 211 214	-1016 -702 -1010 -702 -1091 -702 -1129 -702 163 153 150 149 152 141 143	10 1016* 702 1054* 702 1091* 702 1129* 702 1183 1187 1257 1297 1296 1310 1326	-11 -1022 -702 -1018 -702 -1102 -702 -1142 -702 115 113 112 114 114 106 107	12 1022* 702 1062* 702 1102* 702 1142* 702 1224 1225 1295 1335 1334 1346 1362
28 29 30 31 32 33 34 35 36 37 38 39 40	1301 1390 1358 1378 1417 1498 1562 1615 1638 1699 1859 1859 1931	738 738 738 738 738 738 738 738 738 738	563 652 620 640 679 760 824 877 900 961 1121 1193	240 240 240 240 240 240 240 240 240 240	1541 1630 1598 1618 1657 1738 1802 1855 1878 1939 2099 2171 2211	1310 1372 1382 1405 1450 1561 1680 1717 1724 1758 1794	214 231 258 216 213 207 177 197 175 161 215 341 377 397	143 154 172 144 142 138 118 131 117 107 143 227 251 257	1387 1458 1454 1454 1519 1620 1671 1738 1771 1796 1872 1920	107 116 129 108 107 104 89 99 88 81 108 171 189 182	1426 1501 1501 1512 1554 1650 1704 1768 1798 1832 1929 1983 2019
41 42 43 44 45 46 47 48 49 50 51 52	1971 1922 2021 2036 2094 2315 2228 2247* 2344* 2392* 2344* 2392* 240*	782 738 762 762 786 786 786 786 786 786 786 834	1209 1184 1259 1274 1332 1529 1442 1461 1509 1558 1606 1606	240 240 240 240 240 240 240 240 240 240	2211 2162 2261 2276 2334 2555 2468 2487 2535 2584 2680	1825 1944 1868 1885 1899 1925 1905 1880 1834 1991 1989 1932	360 218 393 391 435 630 563 607 701 593 643 748	257 145 262 261 290 420 375 405 468 395 468 395 429 499	1934 2017 1999 2015 2044 2135 2093 2082 2068 2189 2203 2181	193 109 197 196 218 315 282 304 351 296 322 374	2018 2053 2065 2081 2117 2240 2187 2184 2185 2287 2311 2306
52 53 54 55 56 57 58 59 60 60A	2440* 2489* 2537* 2585* 2634* 2682* 2730* 2778* 2827* 1414	834 834 834 834 834 834 834 834 834 834	1655 1703 1751 1800 1848 1896 1944 1993	240 240 240 240 240 240 240 240 240	2029 2777 2825 2874 2922 2970 3018 3067 1414	2051 2027 2020 2372 2250 2286 2318 2351 1176	678 550 805 502 672 684 700 716 238	452 367 537 334 448 456 467 477 159	2131 2277 2410 2288 2539 2474 2514 2551 2590	339 275 403 251 336 342 350 358 119	2300 2502 2423 2623 2586 2628 2668 2709
Social	Internal R	ates of R	eturn			. <u> </u>	3.53%	1.67%		0.50%	

Table C-28 Social Cost-Earning profiles and Social Internal Rate of return of College of Physical Education Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Social Internal Rates of Return

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 20 to 60A = Col. (8) x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 22 to 60 = Col (6) - Column (11).

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Notes: ¹⁰⁷ Linear regression estimate. ¹⁰⁸ Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. ¹⁰⁹ Refer to social institutional benefits per graduate which are estimated to complete their college of Physical Education four years after high school graduation. Column (1) therefor is simply four years plus "number of years since college graduation". ¹⁰⁹ Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award. ¹⁰⁰ Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=1a), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

3.38% Social Internal Rates of Return 1.53% 0.38% Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col. (6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 21 to 60A = Col. (8) x 2/3, Col. x 1/2; Col. (11), for age 18 to 21, = Col. (6) - Col. (12); Col. (12) for age 18 to 21, estimated by linear regression of data for age 22 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 22 to 60 = Col (6) - Column (11).

Notes: ** Linear regression estimate. *** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. **** Graduates of the College of Academy of Fine Arts are estimated to complete their college of Academy of Fine Arts four years after high school graduation. College of Academy of Fine Arts are estimated to complete their college of Academy of Fine Arts four years after high school graduation. College of Academy of Fine Arts are estimated to complete their college of Academy of Fine Arts four years after high school graduation. College graduation. ****** The auxiliary income (ID 240) is derived from the allowance system of employees in the public sector, Republic of Iraq. (B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award. # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=14), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

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Table C-29 Social Cost-Earning profiles and Social Internal Rate of return of College of Academy of Fine Arts Graduates (Relative to High

1***	2	3	4	5****	6	7	8	9	10	11	12
18 18B 19 19B 20 20B 21 21B					0000 0000 28** 0000 0000 0000 0000 0000	972 756 1027 756 1045 756 1085 756	-972 -756 -999 -756 -1045 -756 -1085 -756	-1016 -756 -1026 -756 -1091 -756 -1129 -756	1016* 756 1054* 756 1091* 756 1129* 756	-1022 -756 -1034 -756 -1102 -756 -1142 -756	1022* 756 1034* 756 1102* 756 1142* 756
$\begin{array}{c} 11B\\ 222\\ 224\\ 256\\ 227\\ 229\\ 301\\ 323\\ 334\\ 356\\ 378\\ 394\\ 412\\ 444\\ 456\\ 478\\ 495\\ 512\\ 221\\ 2222\\ 226\\ 226\\ 226\\ 226\\ 226\\ $	1106 1100 1167 1208 1211 1229 1300 1358 1378 1378 1378 1378 1417 1498 1615 1615 1635 1635 1635 1635 1635 1635	726 722 732 732 732 738 738 738 738 738 738 738 738 738 738	380 374 435 476 479 563 652 620 640 6479 760 824 877 961 1121 1193 1209 961 1121 1193 1209 961 1123 1193 1274 1332 1529 1274 1332 1558 1606 1558	240 240 240 240 240 240 240 240 240 240	0000 1346 1340 1407 1448 1451 1469 1541 1657 1598 1618 1657 1738 1802 1875 1802 1875 1802 2171 2211 22171 22171 22171 22171 22171 22162 2268 2284 22555 2584 22555 2584 2632 2632 2632 2632 2632 2632 2632 263	756 1102 1110 1182 1220 1240 1255 1310 1372 1382 1450 1561 1605 1680 1774 1758 1794 1885 1885 1899 1905 1884 1981 1989 1932 1932	-756 244 225 223 228 211 228 214 231 207 177 175 215 241 207 177 175 215 341 377 386 630 563 630 563 630 563 643 748	-756 163 153 150 149 152 141 154 143 154 143 154 144 143 154 144 143 154 144 143 154 144 138 118 117 142 138 131 107 107 107 107 107 107 107 10	756 1183 1257 1297 1297 1296 1310 1326 1387 1458 1458 1458 1458 1458 1458 1458 1458	-756 122 115 115 115 114 106 107 116 107 108 107 104 89 99 88 81 108 107 104 89 99 88 81 108 107 104 89 99 88 81 109 197 196 218 315 282 304 351 296 322 374	756 1224 1225 1335 1334 1346 1501 1512 1554 1554 1554 1708 1704 1768 1798 1832 1929 1983 2018 2018 2018 2005 2065 2081 2117 2240 2187 2185 2287 2311 2285
55 55 56 57 58 59 60	2537* 2537* 2634* 2682* 2730* 2778* 2827*	834 834 834 834 834 834 834 834	1703 1751 1800 1848 1896 1944 1993	240 240 240 240 240 240 240 240 240	2777 2825 2874 2922 2970 3018 3067	2227 2020 2372 2250 2286 2318 2351	550 805 502 672 684 700 716	-52 367 537 334 448 456 467 477	2410 2288 2539 2474 2514 2551 2590	275 403 251 336 342 350 358	2502 2423 2623 2586 2628 2668 2668 2709
1***	2	3	4	5****	6	7	8	9	10	11	12
---	--	--	---	--	---	--	--	--	--	--	---
18 18B 19B 200 21 202 21 22 23 24 25 26 27 28 29 31 32 33 34 35 36 377 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 60A	1106 1100 1167 1208 1211 1208 1212 1390 1358 1417 1498 1417 1498 1417 1498 1417 1498 1417 1498 1417 1498 1418 1562 1615 1638 1638 1638 1638 1638 1638 1638 1638	726 722 732 732 732 732 738 738 738 738 738 738 738 738 738 738	380 374 435 476 479 563 652 620 640 640 640 640 640 824 877 1193 1120 900 961 1121 1193 1209 1184 1259 1184 1259 1274 1332 1461 1558 1606 1655 1703 1751 1808 1896 1993	240 240 240 240 240 240 240 240 240 240	0000 0000 0000 0000 0000 0000 0000 0000 0000 1340 1448 1451 1448 1451 1448 1451 1448 1451 1541 1630 1598 1631 1618 1637 1738 1802 1835 2209 2271 2262 2275 2255 2468 22487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2468 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2487 2535 2632 2632 2779	972 508 1027 508 1045 508 1045 508 1045 508 102 1120 1120 1122 1220 1220 1220 1220 1220 1225 1310 1255 1372 1382 1405 1450 1561 1605 1825 1925 1925 1925 1925 1880 1834 1925 1925 1925 1925 1925 1880 1834 1991 1932 2251 1220 2250 2251 2251 1220 2251 1220 2251 1272 1885 1925 1	-972 -508 -995 -508 -1045 -508 244 225 223 228 211 214 231 231 225 216 213 207 177 175 175 177 177 177 177 177 177 17	-1016 -508 -1022 -508 -1091 -508 -1091 -508 -1129 153 153 150 149 152 151 141 143 154 143 154 143 154 144 143 154 144 138 117 142 138 117 142 138 117 142 138 117 142 138 117 142 138 131 117 142 138 131 117 142 142 142 142 144 144 144 145 145 145 145 145 145 145	1016* 508 1054* 508 1091* 508 1129* 508 1183 1187 1257 1296 1310 1326 1387 1454 1454 1454 1454 1454 1454 1476 1519 1620 1671 1738 1771 1796 1872 1995 2015 2044 2015 2044 2015 2082 2008 2189 2203 2189 2203 2181 2277 2410 2288 2399 2474 2551 2590	-1022 -508 -1030 -508 -1102 -508 -1142 -508 122 113 115 113 112 114 106 107 116 129 108 107 104 89 99 88 81 108 107 104 89 99 88 81 108 107 104 89 99 88 81 108 107 104 89 193 109 197 196 218 315 282 304 351 282 374 339 275 374 336 342 358 119	$\begin{array}{c} 1022^{\pm} \\ 508 \\ 1062^{\pm} \\ 508 \\ 1102^{\pm} \\ 508 \\ 1122^{\pm} \\ 1225 \\ 1225 \\ 1225 \\ 1233 \\ 1224 \\ 1224 \\ 1225 \\ 1233 \\ 1224 \\ 1225 \\ 1233 \\ 1234 \\ 1334 \\ 1334 \\ 1335 \\ 1234 \\ 1335 \\ 123$
Social Internal Rates of Return 4.					4.08%	2.15%		0.95%			

 Table C-30

 Social Cost-Earning profiles and Social Internal Rate of return of College of Alsharia Graduates (Relative to High school Graduates) in Iraq, under Various Assumption for the Alpha Coefficient, 1986/87, (Iraqi Dinars).

Source: Col. (2) from Table B-2; Col. (3) derived from Table B-8; Col. (4) from Col. (2) - Col. (3); Col. (5) (ID 240) constant allowance per year; Col. (6) for age 22 to 60A from col. (2) + Col. (5); Col. (7) for age 18 to 60 from Table B-1; 18B, 19B, 20B, and 21B from Table A-108; Col (8) = Col.(6) - Col. (7); Col. (9), for age 22 to 60A = Col. (8) x 2/3, Col. (9) for age 18 to 21 = Col. (6) - Col. (10); Col. (10), for age 22 to 60 = Col. (6) - Column (9); Col. 10, for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 18 to 21, estimated by linear regression of data for age 22 to 60, 18B, 19B, 20B, and 21B from Table A-108; Col. (11), for age 22 to 60A = Column 8 x 1/2; Col. (11), for age 18 to 21, estimated by linear regression of data for age 22 to 60 + Social Institutional Cost per graduate-year, Col. (12) for age 22 to 60 = Col (6) - Column (11).

Notes: ** Tinear regression estimate. ** Refer to social institutional benefits per graduate which are estimated to be concentrated at the end of the second year after high school graduation. See Table B-43. *** Graduation. Column (1) therefor is simply four years plus "number of years since college graduation". *** Graduation. Column (1) therefor is simply four years plus "number of years since college graduation". **** The auxiliary income (DD 240) is derived from the allowance system of employees in the public sector, Republic of Iraq. (B) Social institutional cost from Table A-108; (A) is a retirement bonus/end of service award. # Columns 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 are the age since High School Graduation, wage or salary, Cost of living Allowance, Nominal Salary, Auxiliary Income, Total Gross Earning, earnings foregone and institutional cost (from age 18 to 21), differential earnings (a=1), differential earnings (a=2/3), earnings foregone (adjusted for a=2/3), differential earnings (a=1/2), and earnings foregone (adjusted for a=1/2) respectively.

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APPENDIX D

SOME SPILLOVER BENEFITS OF HIGHER EDUCATION SYSTEM IN IRAQ A CASE STUDY IS THE MEDICINE COLLEGE AT THE UNIVERSITY OF BAGHDAD

APPENDIX.D

SOME SPILLOVER BENEFITS OF HIGHER EDUCATION SYSTEM IN IRAQ: A CASE STUDY OF MEDICINE COLLEGE AT THE UNIVERSITY OF BAGHDAD

Spillover benefits from the College of Medicine at the University of Baghdad will discussed in this appendix.

The College of Medicine was established in 1927. Initially only twenty students were admitted. In 1958 it became one of the University of Baghdad Colleges.

About 6000 doctors have graduated from the college since its establishment and they work now in different medical fields and participate in raising the health standard of both Iraq and other, neighbouring countries.

The Medical College at the University of Baghdad comprises the following sections:

- 1 Medicine
- 2 Surgery
- 3 Public Health
- 4 Gynaecology and Obstetrics
- 5 Anatomy
- 6 Pathology and Forensic Medicine
- 7 Physiology
- 8 Physiological Chemistry
- 9 Radiology

Each of these sections is responsible for certain aspects of medical education and training. The primary function of these sections is to teach and instruct medical students, and to prepare them for a medical profession. However, by the very nature of such instruction, some of these sections provide secondary benefits to the community as a whole in the form of free medical services at the university's teaching hospitals and clinics. It is the purpose of this appendix to estimate the value of such services as they are provided by each section.

D.2

D.1 Surgery

The medical services provided by this section may be divided into the following headings: (1) out-patients; (2) in-patients; (3) minor surgery; (4) major surgery; and (5) anaesthesia.

Data upon the services provided by this section are derived from the Annual Report of The Statistics Department of Yarmuk Hospital which is chosen as one of the University's teaching hospitals. This report covers the period from 1st July 1986 to 30th June 1987. It is to be noted that only part of out- patients and in-patients treatment detailed in the above report were carried out by doctors on the University of Baghdad staff, others were treated by doctors employed by the Ministry of Health. Therefore, the statistics department estimated the percentage of cases dealt with by University staff for this study. To evaluate these services, prices were determined according to the index prices of medical services in Iraqi Public Health Enterprises. Spillover benefits of this section are summarized in Table B.1.

D.2 Gynaecology And Obstetrics

The medical services provided by this section may be divided into the following headings: (1) in- patient; (2) minor surgery; (3) major surgery; and (4) child birth.

All data for this section were derived from the Annual Report of the Statistics Department of Yarmuk Hospital for the year 1986/87. In order to evaluate these services, prices were taken from the index prices of the medical services in Iraqi Public Health Enterprises. The results of spillover benefits of this section are as set forth in Table D.2.

D.3 Pathology

This section provides two medical services namely: (1)biopsy tests on surgical specimens; and (2) post-mortem dissections.

All data relating to these services were derived from the same sources which used in the previous sections. The spillover benefits of this section are reported in Table D.3.

D.4 Microbiology

This section deals with examination of various specimens requested by

D.5 Radiology

The services of the radiology section are divided into two types: (1) diagnosis by x-ray; and (2) treatment by radiotherapy.

All data upon these services which are summarized in Table D.5 were obtained from the sources cited in the previous sections above.

D.6 Medicine

The services provided by this section are: (1) general medicine; (2) diabetics' services; (3) paediatric services; (4)electro-cardiography; (5) neurology and psychiatry; (6) physiotherapy; and (7)electro-encephalorphy. All data for the services provided by this section, which are summarized in Table D.6, are taken from the Annual Report of the Statistics Department of Yarmuk Hospital for the 1986/87. This services are evaluated following an identical procedure to that used in the earlier sections.

D.7 Other Sections

The remaining sections of the Medical College of Baghdad University are different in nature from the six sections, which are examined above. Some of these section are almost academic, providing lectures and other teaching facilities to various schools, institutions, and hospital staff not associated with the University of Baghdad, as well as undertaking teaching responsibilities at the College itself. For example, the Public Health and Forensic Medicine section offers lectures and teaching facilities to the School of Nursing and the Institute of Medicine. The value of such services are excluded from this study because of the difficulties in estimating the value such services, and because these services are provided only sporadically. Also because of lack of data, the value of all scientific research conducted at the Medical College are excluded.

D.8 Summary Of The Spillover Benefits

Although the annual spillover benefits of medical services, calculated in this appendix, do not cover all services of all sections of the College of Medicine, they may be treated as a rough indicator of such benefits. The spillover benefits of the six sections of the College of Medicine at the University are summarized in Table 7.7.

The total annual spillover benefits of all sections amount to ID 1,081,308. In calculating the internal rate of return to investment in medical education in the present study, this figure has been entirely excluded. The magnitude of this omission becomes more striking when it is compared to the social institutional cost of the College of Medicine which amounted to ID 2,754,659 in 1986/87 (see Table 117). If the above spillover benefits were to be incorporated into the cost-benefit calculus, the net social institutional cost would have been reduced by about 40 per cent. And if it is assumed that this percentage cost reduction is more or less constant for all years considered, then the social internal rate of return upon investment in medical education would have risen from 9% to 11% (for an alpha coefficient equal to one).

There may be practical grounds for excluding spillover effects from the rate of return calculus, but when these effects are of a considerable magnitude, they should not be ignored in the planning process. The least one can do is to provide rough estimates of these effects so that planner become aware of their existence.

D.5

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Table D.1

	Totol	Attendeo Univers: Baghdad	l by ity of staff	Index Price	Value of Service
Type of Service	Number (1)	Percent (2)	Number (3)	In ID (4)	In ID (5)
Out-Patient General Ear, Nose & Throat Dentistry Orthopaedic Ophthalmology Total out-patient In-patient (*) Minor Surgery Major Surgery General & Orthopaedic Ist Degree 2nd Degree 2nd Degree Ear, Nose & Throat Ist Degree Ear, Nose & Throat Ist Degree Total Major Surgery Anaesthesiology Minor Major	56980 25100 20150 7830 22190 5550 6300 1450 2130 39 380 83 1035 1572 3545	70% 70% 50% 100% 60% 75% 100% 100% 100% 100% 100% 100% 100%	39886 17570 10075 7830 13314 88675 4163 6300 1450 2130 39 380 83 1035 1572 3545	0.5 5.0 25.0 75.0 50.0 75.0 50.0 75.0 50.0 25.0 12.5	44338 20815 157500 108750 106500 2925 19000 6225 51750 419803 39300 44313
Total spillover benefits of Surgery section 503416					

Spillover Medical services provided by the Surgery section, College of Medicine, University of Baghdad, 1986/87.

Source: Col. (1) from Annual Report of the Statistics Department of the Yarmuk Hospital; Col. (2) estimated by Statistics Department of Yarmuk Hospital; Column (3) Col.(1) X Col. (2); Col.(4) from the index price of the medical services in Iraqi Public enterprises, compiled by Rasheed, K. J. and Ali, I., K. (In Arabic), Baghdad, Iraq, 1985; Col.(5) Col.(3) X Col. (4).

Note: (*) The estimated average length of stay in hospital by in-patients is ten days. It is assumed that each patient is visited by a member of university staff once a day throughout the duration of his stay in hospital. Using a fee of ID 0.500 per visit, the average value for services provided by the university staff to in-patients is ID 5.000 per patient.

Table D.2 Spillover Medical services provided by the Gynaecology and Obstetrics section, College of Medicine, University of Baghdad, 1986/87.

Type of Service Type of Service	Number Performed by University of Baghdad Staff (1)	Index Price in ID (2)	Value of Service in ID (3)
In-Patient(*) Minor Surgery Major Surgery	6140 2020	5.0 25.0	30700 50500
1st Degree 2nd Degree Child Birth	32 111 3022	75.0 50.0 25.0	2400 5550 75550
Total			164700

Source: Col. (1) from Annual Repot of the Statistics Department of the Yarmuk Hospital; Col. (2) from the index price of the medical services in Iraqi Public enterprises, complied by Rasheed, K. J. and Ali, I. K. (In Arabic), Baghdad, Iraq, 1985; Col.(3) Col.(1) X Col. (2).

Note(*) See the note in the Table D.1.

Table D.3SpilloverMedical services provided by the Pathologysection,College of Medicine, University of Baghdad,1986/87.

Type of Service Type of Service	Number Performed by University of Baghdad Staff (1)	Index Price in ID (2)	Value of Service in ID (3)
Biopsy tests on Surgical specimen Postmortem dissection	5728 550	5.0 20.0	28640 1100
Total			29740

Source: Col. (1) from Annual Repot of the Statistics Department of the Yarmuk Hospital; Col. (2) from the index price of the medical services in Iraqi Public enterprises, complied by Rasheed, K. J. and Ali, I. K. (In Arabic), Baghdad, Iraq, 1985; Col.(3) Col.(1) X Col. (2).

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Table D.4

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Medical services provided by the Microbiology College of Medicine, University of Baghdad, Spillover Section, 1986/87.

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Type of Service	Number Performed by University of Baghdad Staff (1)	Index Price in ID (2)	Value of Service in ID (3)
<u>Specimen analysi</u> s			
Stool Urine Septum Skin Bone Surgery of Operation theatres	17292 10084 1906 1521 134 25	2.0 2.0 2.0 6.0 4.0 5.0	34584 20168 3812 9126 536 125
Total			69251
IULAL			00201

Source: Col. (1) from Annual Repot of the Statistics Department of the Yarmuk Hospital; Col. (2) from the index price of the medical services in Iraqi Public enterprises, complied by Rasheed, K. J. and Ali, I. K. (In Arabic), Baghdad, Iraq, 1985; Col.(3) Col.(1) X Col. (2).

Table D.5 Spillover section, 1986/87. Medical services provided by the Radiology College of Medicine, University of Baghdad,

	Total Number (1)	Attende Univers Baghdad	l by ity of staff	Index Price	Value of Service
Type of Service		Percent (2)	Number (3)	In ID (4)	In ID (5)
Diagnostic radiology Radiotherapy treatment	52421 905	40% 100%	20968 905	7.5 3.5	157260 3168
Total					160428

Source: Col. (1) from Annual Repot of the Statistics Department of the Yarmuk Hospital; Col. (2) estimated by Statistics Department of Yarmuk Hospital; Column(3) Col.(1) X Col. (2); Col.(4) from the index price of the medical services in Iraqi Public enterprises, complied by Rasheed, K. J. and Ali, I., K. (In Arabic), Baghdad, Iraq, 1985; Col.(5) Col.(3) X Col.(4).

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Table D.6	5					
Spillover	F Medical	services	provided	by the	Medicine	Section,
College o	of Medicir	ne, Univer	rsity of	Baghdad	, 1986/87.	•

Type of Service	Number Performed	Index	Value of
	by University of	Price	Service
	Baghdad Staff	in ID	in ID
	(1)	(2)	(3)
General Medicine	8000	1.012.53.515.02.51.52.5	8000
Neurology and psychiatry	5550		69375
Physiotherapy	10380		36330
Electro-encephalography	580		8700
Electro-cardiography	5821		14553
Paediatrics	8780		13170
Diabetics	1818		4545
Total	154673		

Source: Col. (1) from Annual Repot of the Statistics Department of the Yarmuk Hospital; Col. (2) from the index price of the medical services in Iraqi Public enterprises, complied by Rasheed, K. J. and Ali, I., K. (In Arabic), Baghdad, Iraq, 1985; Col.(3) Col.(1) X Col. (2).

Table D.7 Summary of Spillover Medical Services provided by the College of Medicine, University of Baghdad, 1986/87.

Section	Value of Spillover Services Performed
Surgery section Gynaecology and Obstetrics Section Pathology Section Microbiology section Radiology Section Medicine Section	503,416 164,700 29,740 68,351 160,428 154,673
Total	1,081,308

Source: From Table D.1 to D.6.

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