# The Economics of Political Donations

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A thesis submitted for the Degree of Doctor of Philosophy at the University of Leicester.

May 2019

To My Parents

Muhammad Zakir & Shafia Zakir

& My Husband

Nabeel

# The Economics of Political donations

by

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**Abstract**

American corporate and political elites are connected by the donations that the latter receive from the former. Using a novel dataset, this thesis analyzes these connections as a social network. This analysis uncovers the allocation of such money among legislators and the changing structure of this network, and thus of the changing nature of money in US politics. In particular, beyond the well understood increase in the scale of donations, we document how donation patterns have become more polarized, more concentrated, and more dependent on the corporate connections and allegiances of the individual. We show that the last 35 years has seen a transition in the nature of political giving. A similar transition has taken place in terms of who receives the donations. Money is now much more targeted on a small number of key politicians. Moreover, power, as measured by standard network statistics has become much more concentrated. The distribution of donations becoming extremely skewed, dominated by a few 'mega-donors', and giving almost exclusively along party lines. The dissertation then goes on to examine whether such ideological diversity when present in the boardroom affects firm performance. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial.

# Acknowledgements

Undertaking this PhD has been a truly life-changing experience for me. I thank Almighty for giving me the strength to complete this thesis. It would not have been possible without the guidance and support that I have received from many people.

My deepest gratitude and thanks goes to my supervisor Dr James Rockey for his invaluable support in all respects. I deeply appreciate all his contributions of time, ideas and insightful advice to guide this research and help me grow as a researcher. His strong encouragement to accept challenges made my Ph.D. experience productive and stimulating. His dedication and the brilliant insights into academic research have truly inspired me to work hard and sharpen my inquiry skills. Thank you for being a phenomenal supervisor. I am forever indebted to you for the kindness and extra support during the most challenging times of my PhD.

I must thank the Division of Economics and the Business school for their financial support. My sincere thanks goes to our PhD program director Dr Subir Bose who has truly been an amazing mentor throughout these years. I cannot forget to thank Dr Asad Zaman for his sincere efforts to obtain funding for the first year of my PhD. I can never thank enough to my friends who were always there in my difficult times. Arpita and Natasha deserve a special mention. Thanks for being such amazing friends. Thank you Ms. Sarah Mohamed for providing the help when I needed it the most. Thank you Sara and Emma for your lovely company and interesting discussions.

A very special thanks goes to my family to whom I owe a great deal. First of all my father Mohammad Zakir from whom I have derived the motivation of getting higher education. Thank you for all your encouragements as they have made me keep trying and achieve more. I feel fortunate to be your daughter. Thank you to my sisters Hamida, Nabeela, Sabiba, brother Yasir and all my nieces and nephews for all the love and support you have given to me.

One of the biggest thank you goes to my sister Faheema who I consider as a blessing in my life. I can never thank enough for all you have done for me. I love

you immensely. Thank you to my brother Gulzar Ahmed for his tremendous support especially during these past five years of my studies. Thank you Hajra, Amir, Adeel, Heena, Zainab and my darling Esa for your refreshing company and love during all these years. Most importantly for giving my kids the love of the family, you all are and will remain the most special people in their lives as well as mine. Thank you Hajra for the proofreading of my thesis as well.

I owe thanks to a very special person, my husband, Nabeel. Without you I would not have had the courage to embark on this journey in the first place. It is not easy to acknowledge your support for this thesis from collecting the data with me to caring for our children that I could work worry-free. I just want to say that this is as much your accomplishment as it is mine. Thank you for being such a supportive and loving husband and an amazing human being. I love you. Thank you Mustafa and Zunayra, you both have been my greatest strength and the source of my happiness, which made this journey joyful despite many challenges.

Finally, I thank the two persons who have made me what I am today, my mother Shafia Zakir and my sister Nazia. They both always stood beside me in my most difficult times. You both have loved me unconditionally, I owe everything in my life to you. Ammi your love and prayers for me were what sustained me thus far. I dedicate this thesis and all my accomplishments to both of you. Nazo eight years without you and I still become speechless when it comes to say something about you. I wish that you were here.

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# Chapter 1

# Introduction

This thesis studies connections between corporate and political elites as a social network to understand the nature of money in US politics as revealed by the the changing structure of this network. Concerns regarding sources of campaign finance often depend on its motivation and possible consequences for the performance of democracy given economic disparities. The increasing involvement of large donors in recent US elections, especially individual contributions from corporate elites, has made such connections a central focus of recent research in the field of money in politics. This thesis presents a comprehensive study of such contributions analysing the past seventeen election cycles using tools from network theory. To do this we build a novel data set on all individual contributions from corporate elites which involves hand collected data on the composition of all listed firms' boards and senior management and use of automated record-linkage methods to identify the political contributions by these elites. In the remainder of this introduction, I outline how this is used in understanding the connections between corporate and political elites.

This thesis begins, in Chapter 2, by asking how corporate elites allocate their contributions among legislators. We do this by looking into the role of legislator's characteristics in determining the amount of money they receive from these elites. The initial analysis of executives contribution behaviour highlights the growing scale and increasing share of such donations along with a consistently higher preferences

for certain types of candidates. The regression results give an insight into the relative importance of power, connections and ideology in deriving such contributions. The findings show that key politicians are more likely to receive large donations; suggesting the increasing importance of very powerful legislators. A recent task force report on future research in the field has called for more research in understanding the influence donations have in the legislative process rather than on roll call votes.[1] In this context, our work provides more direct evidence on how contributions are allocated to target the legislators who have an important role in the agenda setting and legislative process. This research contributes to the literature by showing the role of contributions earlier in the process, when committees and leaders shape the agenda and by providing the most direct and comprehensive study of contribution motivations of corporate elites.

The nature of such donations indicates a network of politicians and donors which may convey some groups and particular people additional power by virtue of their position in it. We analyse this network of corporate and political elites in chapter 3. We use a bipartite network approach to study the underlying structure of this network. We can also use the unimodal projections of this network, to ask what are the common traits or characteristics of both corporate elites and legislators which determine the formation of this network. We show that the last 35 years has seen a transition in the nature of political giving. The giving of relatively small and comparatively uniform amounts often to candidates of both parties has been replaced with the distribution of donations becoming extremely skewed. Moreover analysis of the evolution of key network statistics, i.e. the distribution of degree and centrality, provides more formal evidence to complement the preceding graphical approach. The analysis further suggests that the number of common recipients (financing the same set of legislators) between donors is an important indicator of their overlapping preferences and goals. Recent research shows the relationship between wealth disparities and campaign contributions and the implications of increasing polarization

[1] See Fortier and Malbin (2013).

for democracy. [2] We contribute to this by providing formal evidence of increasing concentration and polarization within the corporate sector as well in new and novel ways using the tools from network theory. The analysis indicates that structure of contributions by those within the corporate sector, and within the set of the wealthy, also merits attention. The concentration of campaign contribution within the corporate sector may further accelerate already increasing economic disparities.

Chapters 2 and 3 thus contribute to an emerging literature in Economics and Political Science concerned with understanding of the role of contributions earlier in the legislative process. It provides a new understanding of the underlying structure and distribution of (big) money in politics and its changing nature. It thus complements the recent literature in three areas. Firstly, it is most closely related to the recent literature that analyses the political behaviour of corporate elites. Particularly, to recent work that analyses the motivations for political donations by executives. Secondly, it is also related to an emerging literature that analyses donation data as a network. Finally, it is related to a venerable literature that seeks to understand the amount of money in politics. The analysis here indicates that structure of contributions by those within the corporate sector, and within the set of the wealthy, also merits attention. The concentration of campaign contribution within the corporate sector may further accelerate already increasing economic disparities.

This polarization or extreme diversity in views might have implications for the performance of the firms managed and led by these elites. We focus on such relationship in chapter 4. Specifically, it asks whether ideological diversity in the boardroom affects firm performance. We do this by measuring precisely ideological heterogeneity within firms, and between the board and the senior management of all publicly traded companies since they became public. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial. This negative effect is present when diversity is mea-

[2] See Bonica and Rosenthal (2015b).

sured only within non-executive directors and when diversity is defined in terms of the difference between executive and non-executive directors. We contribute to the literature by showing that the positive impact found of other forms of diversity may not apply to political beliefs. These findings suggest that the negative perceptions of those with different political beliefs and the difficulties of getting along with them socially, documented in previous research, may play out in the boardroom too and such political division hampers the performance of the board.[3]

[3]See Pew (2016)

# Chapter 2

# Influence or Ideology:

# What motivates political donors ?

## 2.1 Introduction

Recent critiques of the campaign finance literature emphasize the need to go beyond its well studied effect on the electoral outcomes or on roll call votes; and calls for more research in understanding how contributions influence the legislative process.[1] This chapter aims to investigate this by studying how corporate elite donors allocate funds among legislators. To do this it examines the relative importance of legislators' characteristics in relation to the money they receive from corporate elites. The intuition is simple; if contributions are used to influence the process of legislation we should see a disproportionate allocation in favour of legislators who have an important role in the agenda setting and legislative process. We argue that considering the expected motives of such contributions is also the natural starting point in understanding the role of corporate elites in politics or public policy.

Massive spending in recent US elections has sparked concern with the activities of corporate elites and the role of large donations in financing campaigns. While individual contributions are the largest source of campaign money, the large indi-

[1] See Fortier and Malbin (2013).

vidual donations account for roughly 35-40 percent of this money (Francia et al., 2003). Moreover, a recent study shows that the biggest category of such donors is the donors with corporate ties. [2] Thus some of the fundamental concerns regarding such contributions are about who they go to, why and their distribution among the candidates in the election. For example, If much more is donated to politicians of one party or members already in power than others, we may worry it is injurious to democracy. Although, to what extent such money from a corporate elite affects the actions of a legislator remains a matter for conjecture; one way to understand this better is to study the allocation of such money among the legislators.

Individuals, generally, are expected to make political contributions due to reasons such as partisan, ideological, identity based, or access seeking Francia et al. (2003). If corporate elites use contributions to influence the legislative process, we should expect them to go to legislators who have more power in this process. Likewise, access seeking executives should target their money to the members who are more connected to other legislators and are part of a larger network. On the other hand, if executives give money in support of candidates with a particular ideology, we should see a disproportionate amount of money flowing to members who are a part of that particular ideological group. We argue that the extent to which corporate elites allocate funds disproportionately among members reveals the motivation of these donations. This research examines these members' characteristics of power, connections and ideology in relation to the money they receive from corporate elites.

Most of the literature on corporate political contributions focuses on contributions made by firm's Political Action Committees. Only recently, the focus has shifted towards the role corporate elites have in financing legislators and hence opening the possibility of another route of access for their firms. Much of such literature on donations by firms and corporate elites seeks to understand their motivation. Gordon et al. (2007) argue that increased donations by executives whose pay is more sensitive to corporate performance suggests that donations are better

[2] Source:`sunlightfoundation.com/2011/12/13/political-one-percent-of-the-one-percent`.

seen as an investment by executives rather than consumption. Similarly, Ovtchinnikov and Pantaleoni (2012) argue that the pattern of higher donations to politicians with 'power to affect their economic well-being' by executives. Likewise, Fremeth et al. (2013) argue that the increase in donations by executives promoted to CEO cannot be explained purely by wage increases suggesting 'taste' or consumption-based explanations are insufficient. Richter and Werner (2017) studies how personal contributions by CEOs increase to those candidates who refuse to take firm PAC donations, again consistent with an investment-type explanation. On the other hand, Bonica (2016a) using the data on Fortune 500 in the 2012 Election Cycle, argues that donations made by Fortune-500 CEOs tend to be more ideological, and less focused on winning candidates, in line with a consumption-based explanation. This highlights the importance of understanding the patterns of donations by corporate elites in a more direct and comprehensive way. If donors tend to all give to the same powerful politicians, this would be in line with an investment explanation, whereas support for a variety of candidates is more consistent with a consumption explanation. This research will address this gap. Also, it will work with a substantially larger dataset than most of the previous literature and not restrict itself only to Fortune 500 companies.

This chapter seeks to explain how corporate elites allocate resources among legislators; it thus examines the relative importance of legislator's characteristics in relation to the money they receive from corporate elites. More specifically, this chapter investigates if and how "big money", the donations from corporate elites, is related to : (1) the power of legislator (2) his connections and (3) the extremity of legislator's ideology. For each of the three we employ various indicators. The power of legislators in the process of legislation depends on the type and the relevance of committee they are on, their committee and party positions, experience etc., we consider all of these as indicators of power. Next, for connection we have used members personal donations to other fellows in chamber and the non-party independent expenditures made for the candidate respectively. Lastly, we use six ideological groups

to incorporate the within party political orientation and the extremity of members ideology. We are interested in not only the incidence of such donations but also how the amount of money received varies with the member's characteristic so the dependent variable used is the total amount of donations received by a member of Congress in a given election cycle.

To do this we construct a unique data set that combines FEC data on personal contributions as collated by Bonica (2014a, 2013) with hand collected data from Bloomberg and other sources on the composition of all listed firms' boards and senior management since their inception. Next, to identify those directors and executives who have made political contributors we employed automated record-linkage methods. Data on all the required members characteristics was combined with this self constructed data to get a panel dataset on all of the House and Senate members from 103rd-112th Congress.

This research documents the increasing importance of donations from those connected to listed firms over recent election cycles. Also, donations from directors and executives have mostly been given to candidates who are incumbents and that are most likely to win. The regression results show that the key politicians are more likely to receive large donations; suggesting the increasing importance of very powerful. Legislators positions on a committee or in the Chamber, memberships of some of the important committees, seniority and connections respectively play the most important role in how corporate elites allocate their funds among them; ideology appears unimportant in this context. We argue that considering all of the above expected motives of contributions is the natural starting point to understand the role of corporate elites' money in politics. Our analysis thus provides the most direct and comprehensive study of corporate elites contribution motivations.

The primary contribution of this paper in relation to existing literature is as follows. First, the existing literature mostly identifies conditions that lead corporate elites to make political contributions; this study provides evidence for how they allocate these contributions among legislators which reveals the role of contributions

in the legislative process. Second, the existing work on corporate elites contribution behaviour remains limited in terms of the small number of elections that have been studied; our results demonstrate some of the benefits of studying these contributions over a large number of election cycles. This research complements the existing work on the motivation of corporate elites donations and the overall corporate political influence.

The remainder of this chapter is organized as follows. The next section explains the data construction and brief overview of the variables used for this research. Section 2.3 then documents some important facts regarding the contribution behaviour of corporate elites. Section 2.4 presents the empirical strategy employed and moves on to the discussion of regression results. Section 2.5 concludes the chapter.

## 2.2 Data

This analysis is based on a self-constructed data set on campaign contributions by individuals who are in senior positions in the U.S corporate sector and the committee assignment data of all the House and Senate members of the past ten Congresses.

### 2.2.1 Data on Corporate Elites Contributions

To construct these data we have combined two data sources. First, we have used the Database on Ideology, Money and Elections (DIME) Bonica (2014a) which contains details of all individual contributions for all election cycles from 1980-2012. This data set is based on the Federal Election Commission (FEC) register data, but has the advantage of providing unique identifiers for individual donors. The FEC requires the registering of all individual contributions of more than $200 to individual candidates, parties, campaign and political action committees (PACs). Whilst, we have data on the timing of each donation as analyzed by Traag (2016) we abstract from this to the contributor-recipient-cycle level by totalling all of the individual contributions by each person to each candidate in an election cycle.

Second, data on corporate elites along with the details about company affiliation, position, employment dates etc., are taken from Bloomberg. Bloomberg contains all the relevant information but it is extractable only for the current board members and top management of a company. In order to to get the historical information from the Bloomberg database, we collected data manually for each company since it was founded. Our data also contains a set of other relevant firm specific variables, for example, market capitalization, sector, industry, sub-industry etc., and head office location.

Next, to identify those directors and executives who have made political contributors we employed automated record-linkage methods. The process of fuzzy matching included matching the last name, first name, middle name, contributor occupation, employer and address respectively. The output of this procedure is a unique dataset of all campaign contributions by both current and former directors and executives of all the 2346 currently listed companies in U.S (see Table B.1 for some examples). Thus the total contributions received by each member of Congress from all of the corporate elites in an election cycle is the main variable used in this research.

### 2.2.2 Data on Legislator's Power, Connections and Ideology

The data on legislators is taken from Committee assignment data, provided by Charles Stewart and Jonathan Woon.[3] The variables used to indicate the legislators characteristics are explained below in three groups:

- Power Indicators

  Some of the earlier work on PAC-Committee relationship (e.g.,Romer and Snyder Jr (1994), Romer and Snyder (2007), Milyo (2005)) has emphasized the importance of certain legislator's characteristics in the legislative process. We use most of them here in order to comprehensively cover the sources of

[3]Source: `http://web.mit.edu/17.251/www/data_page.html`.

power that may derive the contribution money. The details of each of them are as follows:

1. Membership of Important Committees: We use 19 important House and Senate Committees and construct the membership variable for each of these;
2. Important Positions: Vice Chairman/Co-Chairman, Committee Chairman, Majority Leader, Minority Leader, Ranking Minority member, Speaker of the House;
3. Seniority: Number of years served in the legislature, and
4. Majority Party: Being the member of a majority party in that Congress.

- Party and Non-Party Connections

  1. The personal donations of members of Congress to other fellow members may indicate the extent of their connections in the chamber. Thus this research uses the total number of distinct legislators to whom the member has personally donated as a measure of their connections in the Congress.
  2. Non-Party Connections: The amount of non-party Independent expenditures made in support of the member during his Election Campaign can show the extent of members connections.

- Ideology

  We use six categories of members' ideological position: Far left (FL), left (L), Moderate Left (ML), Moderate Right(MR), Right (R), Far Right (FR) to incorporate the within party political orientation and the extremity of members' ideology. The data on ideology of legislators (DW-NOMINATE scores) are provided by Keith Poole and Howard Rosenthal.[4]

We merge these data with already constructed information on contribution receipts from corporate elites by using the unique identifiers present in both data sets. Thus

[4]Source: `http://www.voteview.com`.

the above exercise provides us with the following: A panel dataset on all of the House and Senate members from 103rd-114th Congress, the detailed information on each members' committee assignment, positions held, seniority, connections, ideology, the money they receive from corporate elites etc., summary statistics are provided in section A.2 of the Appendix in table A.2.

## 2.3 Contribution Behaviour of Corporate Elites

We begin by establishing some simple, but to our knowledge, not-systematically documented stylised facts. These facts show the dynamics of elites contribution over a period of more than three decades (1979-2012).

### 2.3.1 Spending Patterns

A simple analysis of political spending patterns of corporate elites can unveil the main features as well as the underlying priorities of these donations. It may highlight their personal ideology versus other motives like securing access or influence for their firms. For example, for the latter to be true, one could anticipate that they should target their money to candidates who are most likely to win, incumbents or on powerful positions. Previous studies have documented some of these features in the context of PACs. To put our analysis in this context, the natural starting point is to examine these features in the case of individual contributions by the executives.

Figure 2.1 shows the increasing importance of donations from those connected to listed firms over recent election cycles. Indeed, by the 2012 election cycle corporate elite contributions account for the majority of the value of donations despite being a very small share of the overall population. This provides initial evidence and a key message of this chapter, which is that the role of business elites in US politics has been increasing apace in recent years. Figure 2.2 shows the trend in total individual contributions from the corporate sector, with the y-axis a log-scale. We can see a nearly 1,000 fold increase in the amount of contributions from 1980- 2012. It

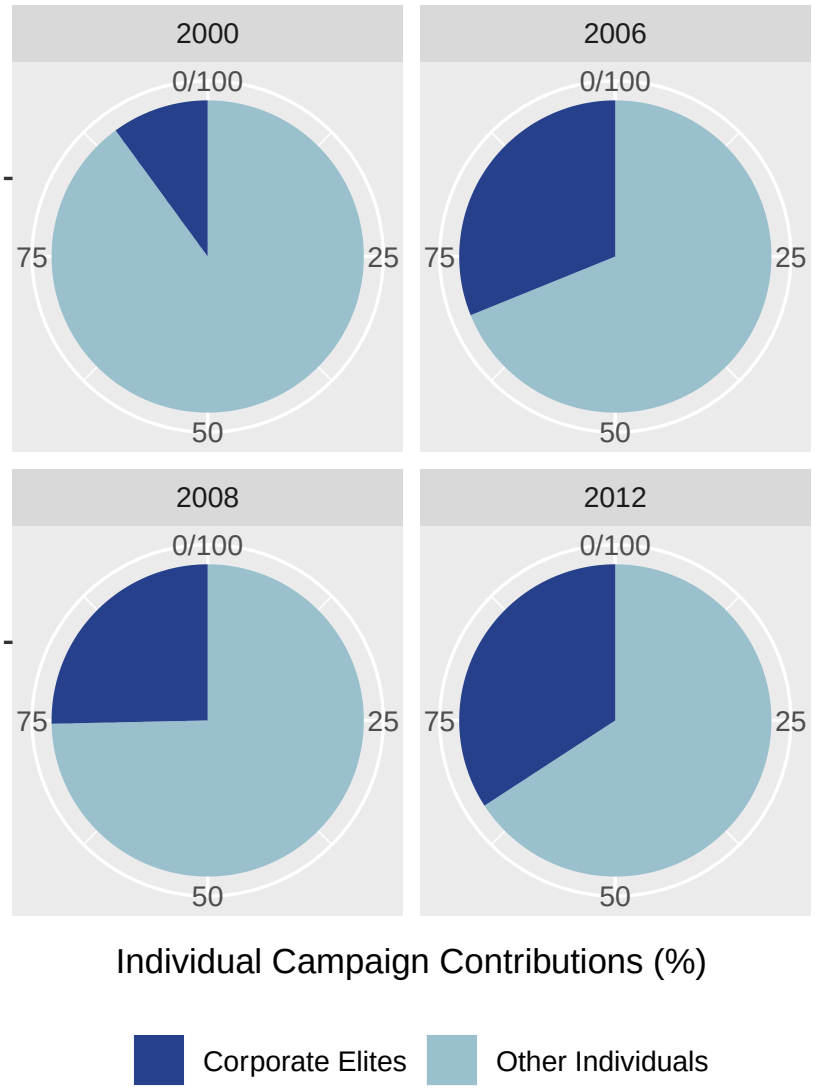


Figure 2.1: Corporate versus other Individual Contributions

also disaggregates the sources of these contributions in to three groups: the board members, senior executives and the executives who are also on the board of the firm. We can see that the largest share of these contributions have always come from the directors (board members) of these firms, and that the relative shares are nearly entirely stable.

### 2.3.2 Picking Winners and Incumbents

Figure 2.3, on the left part, plots the percentage of corporate elite donors who gave to the candidates that are most likely to win in each election cycle. This

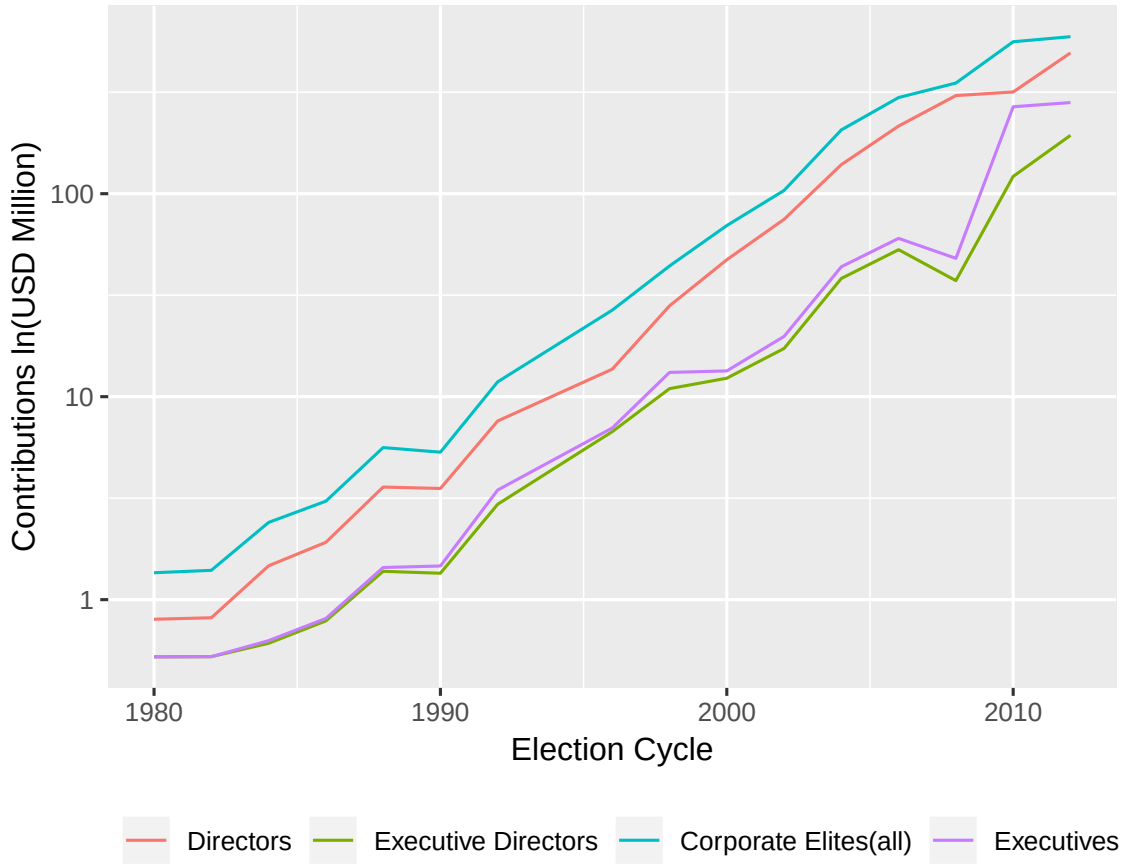


Figure 2.2: Individual contributions from corporate sector (1980-2012)

has consistently been well over 55 percent in most of the election cycles suggesting donations from directors and executives go disproportionately to the candidates that are most likely to win. A similar feature is shown on the right part of the figure 2.3 which plots the percentage of corporate elite donors who made contributions to incumbents, challengers and open seats in each of the election cycles from 1980-2012. The percentage of corporate elite donors who gave to incumbents has consistently been far higher than the other two categories. Also, a higher percentage of donors have given to candidates in an open seat election than to challengers. This also suggests that the donation behaviour of corporate elites seem very different from the existing evidence regarding overall individual contributions. Corporate elites are good at picking winners and are more likely to support incumbents.

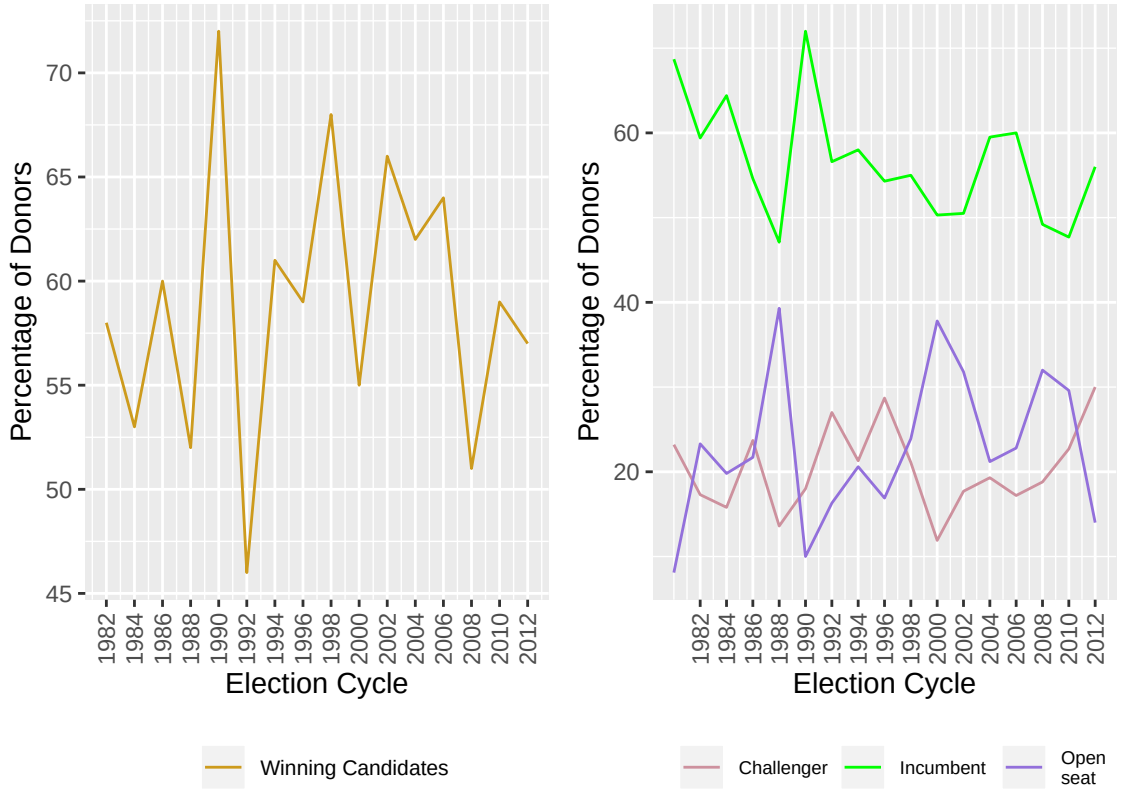


Figure 2.3: Picking Winners and Incumbents

### 2.3.3 Partisanship

Figure 2.4 depicts a very important transition in the nature of political giving over the period 1979-2012. It shows that the percentage of donors who gave to both parties has decreased significantly over the years and the difference has become significant in the last decade. The giving of relatively small and uniform amounts often to candidates of both parties is replaced by giving increasingly along party lines. Although the percentage of donors who gave to republicans is generally higher, we see significant percentage of Democrat donors as well.

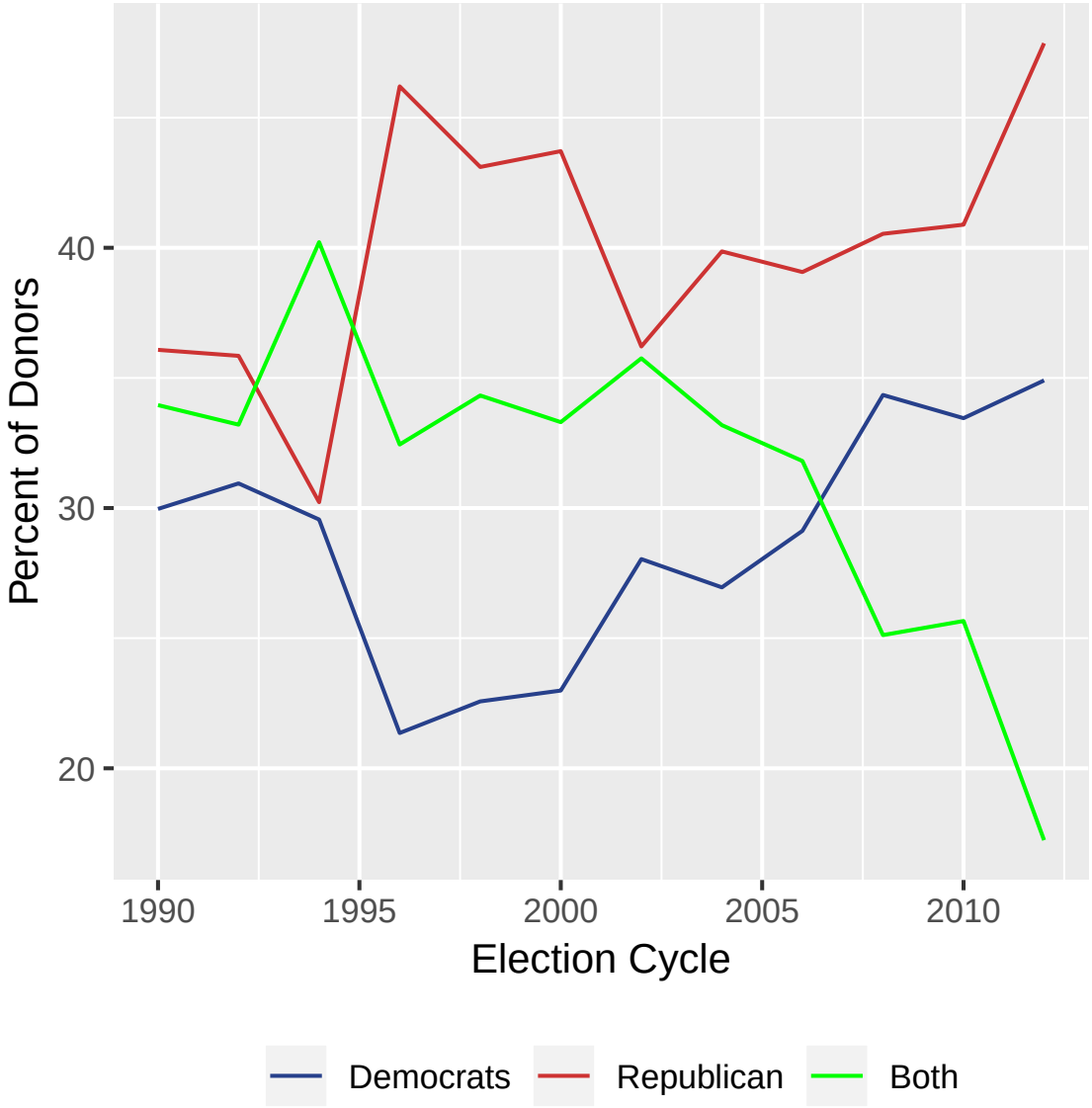


Figure 2.4: Party-wise corporate elites donations overtime

## 2.4 Empirical Strategy and Results

This section begins by explaining our model and estimation strategy and then moves on to the discussion of regression results.

Our model seeks to investigate the role and the relative importance of the members characteristics that derive donations from corporate elites. We do this by incorporating various indicators related to: (1) the power of legislator (2) his connections and (3) the extremity of the legislator's ideology. We are interested in knowing not only the incidence of such donations but also how the amount of money received

varies with the member's characteristics. Thus our dependent variable is the total amount of donations received by a member of Congress from all corporate elites in a given election-cycle.[5] We test the relation between total donations received by each member of Congress from corporate elites and their above mentioned characteristics in a multivariate regression framework. Specifically, the model we estimate is of the following form:

$$\log D_i^t = \underbrace{\sum_k \beta_k \text{Committee}_{ki}^t + \sum_l \gamma_l \text{Position}_{li}^t + \phi \text{Majority}_{it} + \psi \text{Seniority}_{it} +}_{\text{Power}}$$
$$\underbrace{\delta \text{Party Connections}_{it} + \tau \text{Non-Party Connections}_{it} +}_{\text{Connections}}$$
$$\underbrace{\sum_m \omega_m \text{Quartile Party Ideology}_{mi}^t}_{\text{Beliefs}} + \eta_i + \mu_j + \varepsilon_{ij}^t \tag{2.1}$$

Where $D_i^t$ is the amount of contributions received by legislator $i$ in period $t$, all of the variable names are self explanatory and as described in section 2.2, the variables "Committee" and "Position" consist of 19 House and Senate committees and six categories of important positions in the Congress respectively. Also, $\eta_i$ and $\mu_j$ are either fixed or random effects and the dependent variable is the (log of) contributions. For the robustness of results, we report all of the pooled, random effect and fixed effect regression results in Tables A.3 to A.5, the standard errors are always clustered at the recipient level. In what follows, we use graphical displays for the discussion of these regression results.

### 2.4.1 Power and Money

A members' power comes form his ability to influence legislation; and this ability can result in deriving campaign contributions, votes etc., from the relevant interest groups or voters. The extent to which these powers are distributed among the

[5]The distribution of dependent variable is shown in Figure A.1 in the Appendix

members depends on the type and the relevance of committee they are on, their committee and party positions, experience etc., we investigate each of these indicators of power and their relationship with money from corporate elites. Given the initial evidence of large amount of donations from corporate elites to the members of Congress (see Figure 2.2), we expect that if contributions are used to influence the legislative process these large amounts may target committees and legislator who shape the agenda.

Our results suggest that being a member of an important committee seems to play a significant role in receiving money from corporate elites. Figure 2.5 shows such results where the dependent variable is log of total contributions received by a member of Congress from corporate elites. It shows that Armed Services (Senate), Agriculture, Nutrition & Forestry (Senate), Commerce Science and Transportation and Appropriations (Senate) appear to be most relevant committees in this case. Being a member of these committees significantly affects the total amount of contributions received from the elites in corporate sector. For example, becoming a member of senate committee on Appropriations increases the average contributions from corporate elites by 89.6 percent. The coefficients on other committees mentioned above are even larger. Table A.3 reports all these coefficients of committee membership in columns 1 to 4. The committee variables with the greatest effect on contribution changes is Armed Services. We also find some evidence of increased contributions for Ways and Means, Banking, Housing & Urban Affairs(Senate) and Foreign Relations.

Figure 2.6 shows the relationship between the legislators position or seniority in the Congress and the amount of money they receive from corporate elites. The coefficient plot shows that a higher position of the member is even more important to corporate elites than mere membership. The coefficients on majority Leader, House Speaker, Committee Chairman and ranking Majority member are highly significant with large coefficients and hence show that being on these higher positions significantly enhances a member's corporate portfolio. The coefficient in the case of

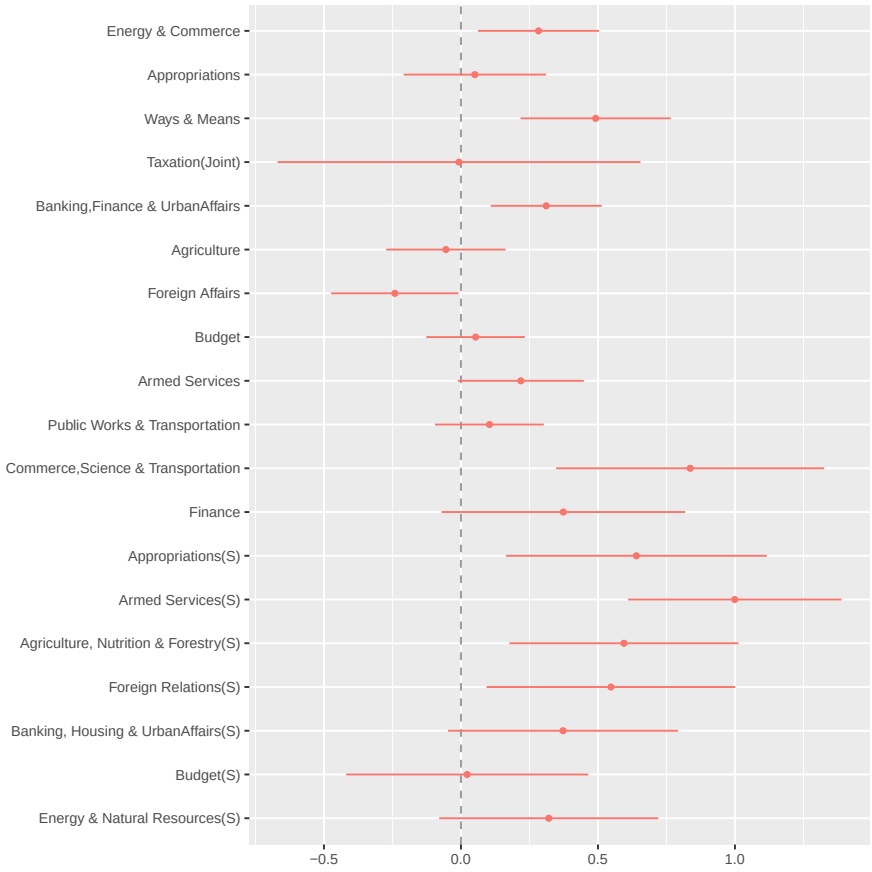


Figure 2.5: Membership of Important Committees

Majority Leader is even higher than the Committee Chairman; this may well reflect the important change in the balance of power resulting from the institutional reforms enacted in 1994, which transferred a considerable amount of power from committees and committee chairs to the House leadership. By contrast, being a Minority Leader or a senior party status (SPS) appears to have no effect on contribution from directors and executives.

Another indicator of power used in our analysis is being a member of majority party. Contribution money by any strategic donors is generally expected to change in response to a shift in partisan control of the chamber; whereas ideological individual contributions are expected to show the opposite. Our results show (see Figure 2.6) that the coefficient on this variable is quite large and highly significant, suggesting that corporate elites are more likely to give larger amounts of money to the member who is affiliated with the party in power. We find that if a members party comes into

power, it leads to around 22 percent increase in contributions to his campaign by corporate elites. The coefficient on the seniority variable (years served in Congress) seems relatively small but is highly significant; for a one additional year served in Congress, the average contributions from corporate elites increases by only 2 percent.

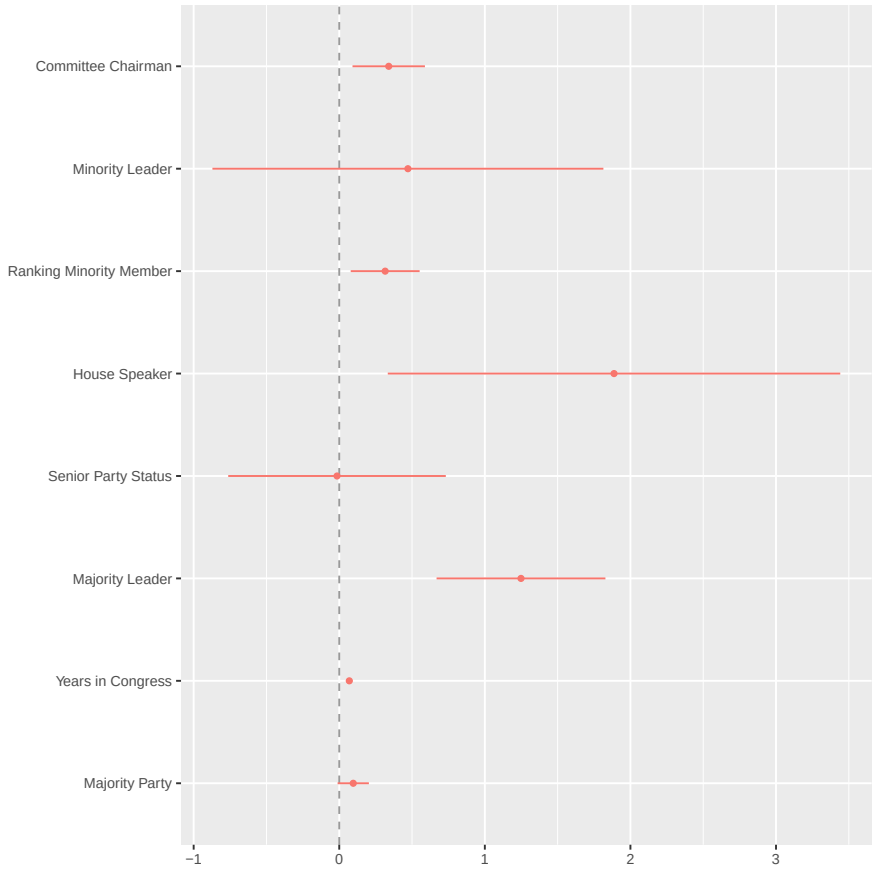


Figure 2.6: Higher Position and Seniority

These patterns suggest that not only legislators committee membership but also their higher position on the committee and in the chamber matters for how corporate elite allocate money among them. The largest effect, perhaps unsurprisingly, is of the higher positions. Specifically, the positions which imply extra agenda power and greater influence in the earlier stages of legislative process; and thus make legislators more appealing to the corporate elites.

### 2.4.2 Connections and Money

Battaglini et al. (2018) present a theory of competitive vote-buying which predicts that campaign contributions are increasing in the legislators centralities. We try to empirically test the significance of connections for the contributions made by corporate elites. We use two variables for this purpose. First, the number of legislators to whom a member has made personal donations. Second is the amount of non-party independent expenditures made for a member's campaign. The variables used have limited scope as they cannot show the full extent of a member's connections, however they can very well give us a lower bound of such a relationship. Figure 2.7 shows the effects of both the Party and Non-Party connections to be significant and with the expected sign. The coefficient on party connection is relatively small (showing a 0.2 percent increase in contributions), however it is highly significant and thus suggests that members who have more connections within the chamber are more likely to receive increased amount of money from corporate elites. The results on non-party connections are not robust.

### 2.4.3 Ideology and Money

Lastly, we consider if the money from corporate elites flows towards a group of members having certain ideological position. If corporate elites give contributions to support a certain ideology then we should expect certain ideological groups to receive disproportionately more money than other groups. Given that moderates of both parties may have more in common with each other than they do with the more extreme wings of their parties, we not only consider members as Republicans and Democrats but divide them in six groups. This incorporates the ideological variation within the Republican and Democratic parties as well. We consider how left or right the member is on the ideological spectrum and how this matters for receiving money from corporate elites. The coefficients on each of the independent variables, relating to ideology, measures the change in contribution patterns relative

to the reference ideology group i.e., the far left group. Figure 2.7 shows that Ideology is relatively unimportant in this case as none of the group has a significant influence on the dependent variable.

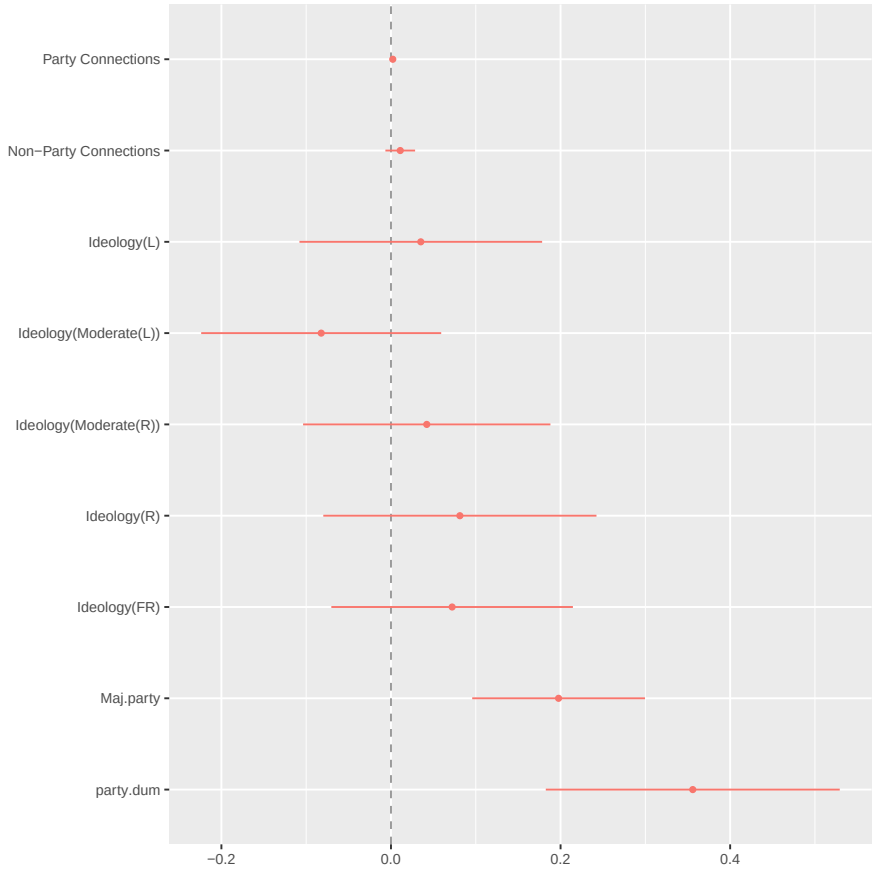


Figure 2.7: Connections and Ideology

All of the results discussed above are robust, tables A.3 to A.5 given in appendix A present the regression results of the pooled, random effect and fixed effect models from column 1 onward respectively, standard errors are always clustered at individual legislator level. Thus, our findings suggest that legislators' position on a committee or in Congress, membership of some of the important committees, seniority and connections respectively are the primary characteristic that are associated with receiving money from corporate elites, more than their ideology. We argue that considering all of the above expected motives of contributions is the natural starting point to understand the role of corporate elites in money in politics.

## 2.5 Conclusion

This chapter aims to explain how corporate elite donors allocate resources among legislators to reveal the influence contributions have in the legislative process. To do this it examines the relative importance of members characteristics in relation to the money they receive from corporate elite. The initial analysis of executives contribution behaviour highlights the growing scale of such donations, their increasing share in total individual contributions, and that the donations from directors and executives have mostly been given to winning candidates or incumbents. The regression results show that the key politicians are more likely to receive large donations; suggesting the increasing importance of very powerful legislators. Legislators position on a committee or in the Chamber, membership of some of the important committees, seniority and connections respectively play the most important role in how corporate elites allocate their funds among members; ideology appears unimportant in this context. Such a pattern of giving and the initial evidence found of the importance of connections indicate a contribution network which might have implications for inequality in various dimensions. The study of such a network is the focus of the next chapter.

# Chapter 3

# Power and the money, money and the power: A network analysis of donations from American corporate to political leaders.

## 3.1 Introduction

American corporate and political elites are connected by the donations that the latter receive from the former. Using a novel dataset, this chapter analyzes these connections as a social network. This analysis uncovers the changing structure of this network, and thus of the changing nature of money in US politics. In particular, beyond the well understood increase in the scale of donations, we document how donation patterns have become more polarized, more concentrated, and more dependent on the corporate connections and allegiances of the individual.

Recent US elections have seen a sharp upswing in the contributions made to the political campaigns, $6.5 billion was spent in the 2016 campaign cycle.[1] Given such scale and its correlation with the power of the legislators,[2] the concerns increase

[1] Source: `www.opensecrets.org/cost.php`.

[2] Chapter 2 provides the initial evidence of such correlation.

if these donations flow from only a small number of individuals. Indeed, recent evidence suggests that this is the case.[3] However, we may also be concerned if donations are structured or coordinated in such a way to allow a particular group, such as the very rich, to have a disproportionate influence on policy. This concern is separate to concerns regarding the scale or origin of donations. Notably, such structure or coordination is contrary to the premise of the classic analyses of Becker (1983) and Grossman and Helpman (1996, 2002) of special interest politics as a (free) market. While, Becker (1983) was relatively sanguine about the activities of political interest groups, one might be less so not only if the distribution of resources is extremely uneven but because the structure of the network of politicians and donors may convey some groups and particular people additional power by virtue of their position in it.

Aggregate statistics can be illuminating about the growing scale of donations, or of the increasing importance of the very rich. But, the complex nature of similarities and relationships between individual politicians, and similarly the complex relationships between business leaders make understanding the patterns of donations from the latter to the former more challenging. This chapter addresses this problem using tools from Network Theory to analyze the structure of donations and how it has evolved. Specifically, we show that the last 35 years has seen a transition in the nature of political giving. The giving of relatively small and comparatively uniform amounts often to candidates of both parties has been replaced with the distribution of donations becoming extremely skewed, dominated by a few 'mega-donors', and giving almost exclusively along party lines. A similar transition has taken place in terms of who receives the donations. Money is now much more targeted on a small number of key politicians. Moreover, power, as measured by standard network statistics has become much more concentrated.

To do this we construct a unique data set that combines FEC data on personal contributions as collated by Bonica (2014a, 2013) with hand collected data from

[3]For example, Bonica and Rosenthal, 2015a.

Bloomberg(2015) and other sources on the composition of all listed firms' boards and senior management since their inception. Thus, donors are linked via their association with their firms, this network can itself be complicated as senior management often sit as board members at other firms, and so on. Politicians, are linked by a range of characteristics including the states they represent, the committees on which they serve, and so forth. Politicians and donors are then linked by donations from donors to politicians. We treat these data as a bipartite graph, with politicians and executives as exclusive sets of vertices and the donations the edges between them.

We analyze the structure of this network, both considering politicians and donors separately and also together using bipartite graph approaches. This allows us to ask what are the common traits or characteristics of both corporate elites and legislators which determine the formation of this network. The results of analyzing them together using network visualizations, show that not only is there an extremely skewed distribution of donations and receipts but that this has become much more so over time magnifying substantially the effect of increases in the overall amount of donations. Secondly, we find that there has become much greater donor ideological polarization. In the 1990s it was common for donors to give to candidates of more than one party albeit in uneven amounts. This is now very rare indeed. Thirdly, we find that the donations are now extremely concentrated on a small minority of races. Fourth, analysis of the evolution of key network statistics, i.e. the distribution of degree and centrality, provides more formal evidence to complement the preceding graphical approach, of the increasing relative importance of a small number of nodes. Analysis of network centrality statistics suggest that power and influence is increasingly concentrated on a small number of donors.

Then we employ the projection of this bipartite network: where one type of mode is treated as a connection between the nodes of the second type of mode to study the common characteristics of these modes (donors and recipients) in a separate analysis. Here we employ the well-known dyadic approach for our regression analysis, using a Bayesian approach given the high-dimensionality of the problem. The intuition is

simple, we expect that corporate elites will finance the same legislators to the extent they share traits that drive these donations. Similarly, a pair of legislators who receives money from the same set of corporate elites is expected to share traits that these individual directors and executives value. The extent to which the importance of these factors is not constant over time, other things equal, reveals the changing structure of the network, and thus the changing motivations and priorities of donors and recipients. (It will also reflect changes in campaign finance law over the period.)

In common with the preceding analyses we use all the donations made by individuals from corporate sector (board members and top management) to candidates of the U.S. House and Senate during all election cycles from 1980-2014. We find increased concentration of campaign contributions within the corporate sector overtime. We find that directors and executives who work for the same company are increasingly likely to give donations to the same candidate (set of candidates) for congress. Also we find that corporate elites from the same sector increasingly likely to share more common recipients than those whose companies are not in the same sector. On the other side, legislators are increasingly likely to have common corporate elite donors if they serve on the same committee, are from the same state, vote alike and and belong to the same party. These results shed light on the attributes which can lead to a common choice among the directors and executives. This research contributes to the literature in three main ways. Firstly, it is most closely related to the recent literature that analyses the political behaviour of corporate elites. Particularly, to recent work that analyses the motivations for political donations by executives. Secondly, it is also related to an emerging literature that also analyses donation data as a network. Finally, it is related to a venerable literature that seeks to understand the amount of money in politics.

### 3.1.1 Related Literature

#### 1. Network Approaches to Campaign Finance

This work is closely related to a small, and relatively recent literature that also uses Network analyses to analyze political donations. Chen and Fang (2017) develop a Bayesian estimator that uses financial connections between PACs to infer the ideological affiliations of PACs which do not self-identify their affiliation. Traag (2016) uses an interesting dataset from littlesis.org that contains both information on connections between members of the 'elite' and their political donations to develop an epidemiological approach that understands how contagions spread amongst networks of connected donors. Finally, Koger and Victor (2009) employ a similar approach to our work as they use network analysis to understand the relationships between lobbyists and politicians. However, this analysis is complicated by the fact that there are many non-pecuniary aspects to lobbyists relationships with politicians, as documented by Vidal et al. (2012).

#### 2. The Amount of Money in Politics

It is related to the literature that seeks to understand the amount of money in politics. Recent research has also noted relationship between increasing disparities in wealth and campaign contributions (Bonica and Rosenthal, 2015a). Perhaps this just reflects reality catching up with theory. Since, Tullock (1972) famously asked why *there is so little money in US politics* given small observed amounts of corporate cash in elections given the huge expected returns.[4] Yet, whether any of this should be cause for concern depends on the motivations and the consequences of such donations. If donors give, not to obtain advantage for their firms, but because they are interested in politics. That is if they give as a form of consumption Gordon et al. (2007), then one may be less concerned than if they give in order to obtain and manipulate legislation to their advantage. This highlights the importance of

[4]Answers to Tullock's question include those of Bonica (2016a), Ansolabehere et al. (2003), Ansolabehere and Snyder (2004).

understanding the patterns of donations by members of the same firm or industry. Also, it indicates the need to pay attention to the structure of contributions within the corporate sector as well. The possible inequalities and concentration of campaign contribution within the corporate sector can further accelerate the already increasing economic disparities.

This chapter proceeds as follows. In the next section we provide a brief overview of our data. Section 3.3 rehearses the basics of bipartite graphs and outlines our empirical strategy. Section 3.4 contains our main results, and Section 3.5 briefly concludes. An Appendix collects additional tables and figures.

## 3.2 Data

Our analysis uses a novel dataset on contribution links between each donor (executives and board members of listed companies) and its recipient. To compute this we have used the data introduced in chapter 2 which combined two data sources: the DIME database of political donations provided by Bonica (2014a) and data on personal information of individuals who are in senior positions in the corporate sector from Bloomberg (L.P. (n.d.)). [5] In order to to get the historical information from the Bloomberg database, we collected data manually for each company since it was founded.

Next, to identify those directors and executives who have made political contributors we employed automated record-linkage methods. The process of fuzzy matching included matching the last name, first name, middle name, contributor occupation, employer and address respectively. The output of this procedure is a unique dataset of all campaign contributions by both current and former directors and executives of all the 2346 currently listed companies in U.S

For each donor we use information on their company, sector, state, congressional district and the location of their company. Similarly, for each recipient we

[5]The details on construction of this data are given in chapter 2 also.

take information on their party, committee membership, state and congressional district et cetera. Firms are mapped to Congressional Districts via Zip Code, which are taken from US Census Bureau data (Congressional Districts Relationship Files (Nation-based)). We build contributor-recipient-cycle level data by totalling all of the individual contributions by each person to each candidate in an election cycle. Summary statistics are provided in Section B.2 of the Appendix in Tables B.1 to B.3. For the regression analysis we have used data dyad wise and computed the number of common recipients (donors) for each pair of corporate elites (legislators).

## 3.3 Bipartite Networks

Our first aim is to understand and characterize the network structure of individual corporate contributions to recipients. We will analyze this as a weighted bipartite graph. This reflects that we have two exclusive sets of vertices (candidates and donors), and that the value of donations is an important feature of our data. For clarity and specificity this section briefly rehearses the notations and concepts, following closely those of Borgatti (2012). A more thorough introduction can be seen in Jackson (2008) and Newman (2010). A network graph is generally represented by a pair $G = (V, E)$, where $V(G)$is known as vertex set (or nodes) and $E(G)$ is the edge set (or links). A graph $G(V, E)$ is bipartite if we can partition all nodes into two sets, $C$ (candidates) and $D$ (donors), $C \cap D = \varnothing$, $C + D = V$, such that no edges within $C$ or within $D$ are possible. Let $C = \{c_1, c_2, ..., c_{n_c}\}$ represent the vertex sets of donors (directors and executives) Who give money to candidates of congress and $D = \{d_1, d_2, ....., d_{n_d}\}$ represents the vertex sets of these candidates. The set of edges is $E = \{(c, d) : c \in C, d \in D\}$, where $E \subseteq C \times D$ is the set of links connecting nodes i.e., the connections (campaign contributions) from a donor to the recipient. The individual donors are connected to candidates and no connection exist within donors or within candidates. The edge weights or node size are used to represent the strength of connection or relative importance of the nodes. Thus the above sets

can be represented as a bipartite graph $G = (C \cup D, E)$ where vertices from set $C$ and $D$ are connected by an edge iff $c_i d_j \in E$, where $1 \leq i \leq n_c$ is the number of unique donors in set $C$ and $1 \leq j \leq n_d$ is the number of unique recipients in the set $D$ of the bipartite network. Finally, $\mathbf{X}$ is the resulting incidence matrix which is a bipartite donor-by-recipient matrix in which the rows correspond to donors while the columns correspond to recipients. Elements take a positive value if there is a donation from donor $i$ to candidate $j$ That is, the donor-recipient incidence matrix is defined as:

$$x_{ij} = \begin{cases} 1 \text{ if an edge exists from vertex i to vertex j} \\ 0 \text{ Otherwise} \end{cases}$$

### 3.3.1 Network Metrics

Next, we employ the standard measures of network analysis to identify the important characteristics of our network. These statistics capture key features of the network, and thus of patterns in donations. There are standard measures that can be used to describe the structure of the entire network e.g., density, degree distribution, connectivity and centralization. Also, we use some node and edge specific measures according to the purpose of our analysis e.g., to identify important vertices, locate subgroups etc. We use all these measures adjusted for bipartite networks as given in Borgatti (2012).

Given the bipartite matrix $\mathbf{X}$, the degree of a vertex in the network defined as the number of ties incident upon node $a_i$ is given by:

$$\delta_i = \sum_j c_{ij}$$

The node that has the most neighbors or connections has the most influence in its local neighborhood and hence is a key member.

Degree centrality is typically normalized by dividing by the maximum number of

ties possible, which in a graph of $n$ nodes is $n-1$. However, in bipartite graph, no node can be connected to all others as by definition within group ties are not possible. So, the adjusted measure of degree centrality is one for each vertex set of bipartite graph:

$$\delta_i^* = \delta_i / n_c$$

$$\delta_j^* = \delta_i / n_d$$

where $\delta_i$ is the degree of the vertices, $n_c$ and $n_d$ are the total number of nodes in the set of candidates and donors respectively and $0 \leq d_i^* \leq 1$.
The degree distribution is thus the probability distribution of these degrees over the whole bipartite network and is defined as: $P_C(\delta)$: degree distribution of nodes in Vertex set $C$; $P_D(\delta)$: degree distribution of nodes in vertex set $D$

The density of a network, defined as a measure of the extent of connectedness of a graph is the number of edges $|E|$ divided by the number of pairs of nodes $\binom{n_c+n_d}{2}$. In our case, as edges are not possible between donors and candidates, this limits the maximum possible density and thus we normalize by the possible maximum:

$$\frac{n_c n_d}{(n_c+n_d)(n_c+n_d-1)}$$

### 3.3.2 Unimodal Analysis of the bipartite data

For our regression analysis, we aim to identify the common traits that determine the formation of donation network between corporate elites and legislators. To do this we utilize the well know dyadic approach in the network analysis. This involves the Unimodal Analysis of the bipartite data described above. Specifically, we focus on each of the mode of our bipartite network one by one i.e., corporate elites donors vertex set$D$ and legislators vertex set $C$.

A projection onto the vertex set $C$ results in a one-mode network where node $c$ is connected to $c'$ given $c \in C$ and $c' \in C$ only if there exists a pair of edges $(c,d) \in E$ and $c', d) \in E$ such that $c$ and $c'$ share a common neighbor $d \in D$, in the bipartite

graph $G$. Thus, the C-projection of our donor-recipient bipartite network is the donors network $G_D = (A, E)$, where two vertices of set $A$ are linked together if they have at least one recipient in common. Our one-mode Projections are built using the approach that leads to weighted graphs. In weighted projections, the weight of an edge in the projected network represents the number of common neighbors that a pair of nodes $c$ and $c'$ share from the opposite vertex set $D$ in $G$. The sum of the weights of all links of $c$ is called the node strength $S_u$ of $c$, which is given by

$$S_c = \sum_{c'=1}^{n_c} w_{cc'}$$

where $w_{aa\prime}$ is the weight of the link connecting nodes $a$ and $a\prime$. The node degree represents the number of neighbors the node has while the node strength represents the number of total interactions of such node.

The matrix representation of this C-projection is a 1-mode matrix $Y$ such that:

$$y_{ij} = \begin{cases} 1 \quad \text{if } N(c_i) \cap N(c_j) \neq \varnothing \\ 0 \quad \text{otherwise} \end{cases}$$

where $N(a_i)$ is the neighborhood of the node $(a_i)$ i.e., other vertices directly connected by an edge with $(a_i)$. Thus $y_{ij} = 1$ implies donor $i$ has at least one common recipient with donor $j$. Moreover, we can construct this matrix as a valued matrix such that $y_{ij}$ gives the number of common recipients that donors $i$ and $j$ share together. Thus it can be equivalently defined as:

$$y_{ij} = \sum_k x_{ik} x_{jk} \, or \, Y = XX'$$

In this C-projection of bipartite donation network two corporate elites are linked if they donate to the same member of congress. Applying this framework to our data, we have created a $N \times N$ matrix of all the individual donors from corporate sector, where $N$ is the total number of corporate elite donors identified in each election

cycle. For example, we had matched 31,688 individual corporate donors in 2012 Election cycle. After using the start and end dates of their employment, 14,848 individuals were identified as serving during the specific period when donation were made for this election cycle. Thus, we created a $14,848 \times 14,848$ matrix of the corporate elites in our data and calculated the number of common candidates of congress between each dyadic pair of these donors.

Similarly, the D-projection of our donor-recipient bipartite network is the recipients network $G_D = (D, E)$, where two vertices of the vertex set $D$ are linked together if they have at least one donor in common. we have repeated the above analysis and created a $M \times M$ matrix of all the members of congress in the data and calculated the number of common donors between each legislator dyad. Table 2 provides some summary statistics on these data where the outcome variable is the number of common donors.

## 3.4 Results

This section has three parts. The first part documents some stylised facts revealed by the bipartite graphs explained above in section 3.3. Next, some of the related network stats are presented using the methodology given in section 3.3.1. We end by the multivariate regression analysis to identify the common traits that may explain the formation of this network in the third part which is based on the unimodal technique explained in section 3.3.2.

### 3.4.1 Stylised Facts

We begin by explaining the underlying structure of the donation network between corporate elites and candidates of congress. we present the bipartite graphical analysis of this network.

**Concentration of Individual Campaign Contributions**

We simply visualise the links between donors and candidates to reveal the structure of the network and then study how the network of donors and candidates has changed. To visualize the differences in scale of donations larger donors are depicted as larger circles, and similarly recipients by larger squares. We use this approach in Figures 3.1-3.3 to analyze the distribution of these donations. For clarity, we plot only subsets of the largest donors. Figure 3.1 shows the extent of unequal distribution of campaign contributions within the corporate elites. Here we see that the 15 largest donors (0.05 percent of total donors) make 22 percent of all donations. The recipients of these donations are equally skewed, they flow to only 19 (0.01 percent) candidates in 2012 Election Cycle. Looking at Figure 3.1 we can see that even amongst the very largest donors and recipients a few donors and recipients stand out which depicts the extent of concentration of campaign contributions among a small number of donors.

Figure 3.2 plots the 50 percent of all corporate donations that due to the top 0.01 percent of corporate donors in 2012. For comparison it plots the same half of total donations for which 0.47 percent of donors were responsible in the 2010 election-cycle. One can see that dense clustering of recipients around a few donors is much more pronounced in 2012 than in 2010, while there was variation in the nodes' degree the range was much lower.

Figure 3.3 shows this trend overtime, again focusing on a subset of donors for clarity. This time it focuses on those responsible for 25 percent of total donations. The distribution of Campaign contributions have always been unequal however there has been a decline from the relatively large number of competing donors in 1994 to the small number in 2012.

Recent research also shows the relationship between wealth disparities and campaign contributions (Bonica and Rosenthal, 2015b). Following the logic of (Bonica and Rosenthal, 2015b) the analysis here indicates that structure of contributions by those within the corporate sector, and within the set of the wealthy, also merits

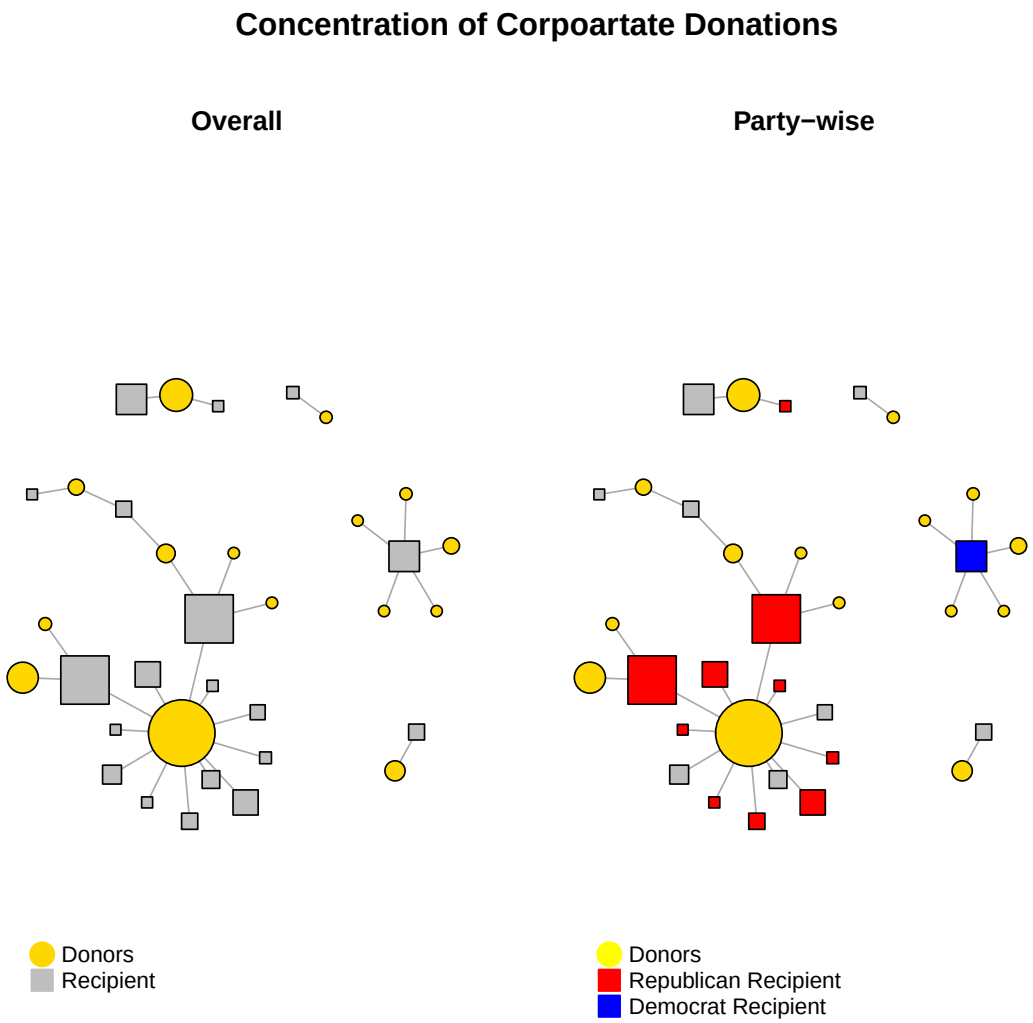


Figure 3.1: Top Donors and Recipients

attention. The concentration of campaign contribution within the corporate sector may further accelerate already increasing economic disparities. That is, rather than the relatively competitive market Becker envisaged there is instead evidence of something akin to an oligopoly. We find that the observed huge rise in the total campaign contributions from the corporate elites is actually coming from a small proportion of wealthiest donors, the top 0.05 percent of the corporate donors.

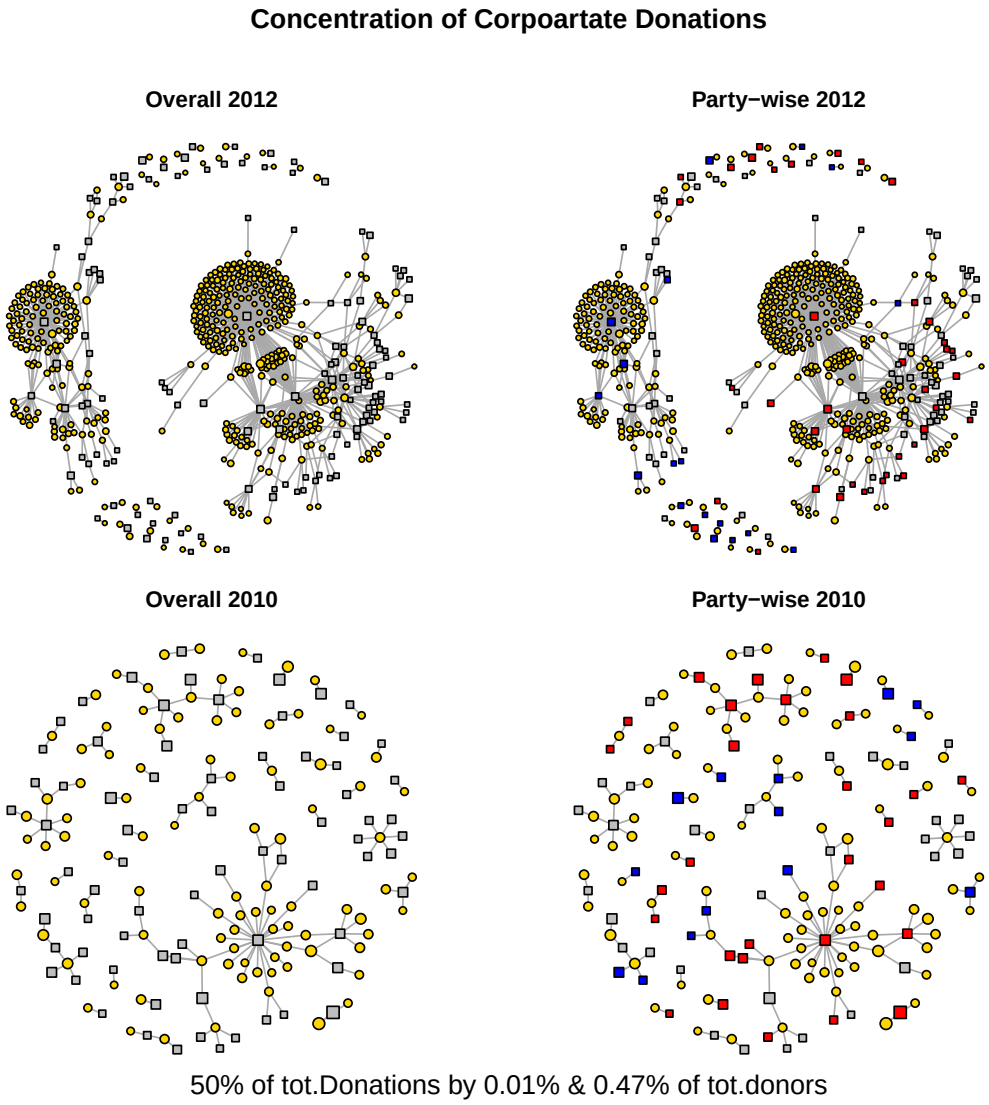


Figure 3.2: Concentration of CC within the Corporate Sector

### Political Polarization of corporate donors

Figure 3.4 plots the C-projection of the 150 largest donors and colours those judged to be Republican, Democrat, or Independent as Red, Blue and Grey respectively. As may be expected there are two clusters of Democrat and Republican donors, the edges between whom are too numerous to distinguish. However, what is more surprising is that there are two donors (one democrat, one independent) who share recipients with both Republican and Democrat donors. Given, that as we have already seen these 150 largest donors account for 35 percent of all donations this almost complete separation is perhaps surprising. Moreover, it is not limited to the

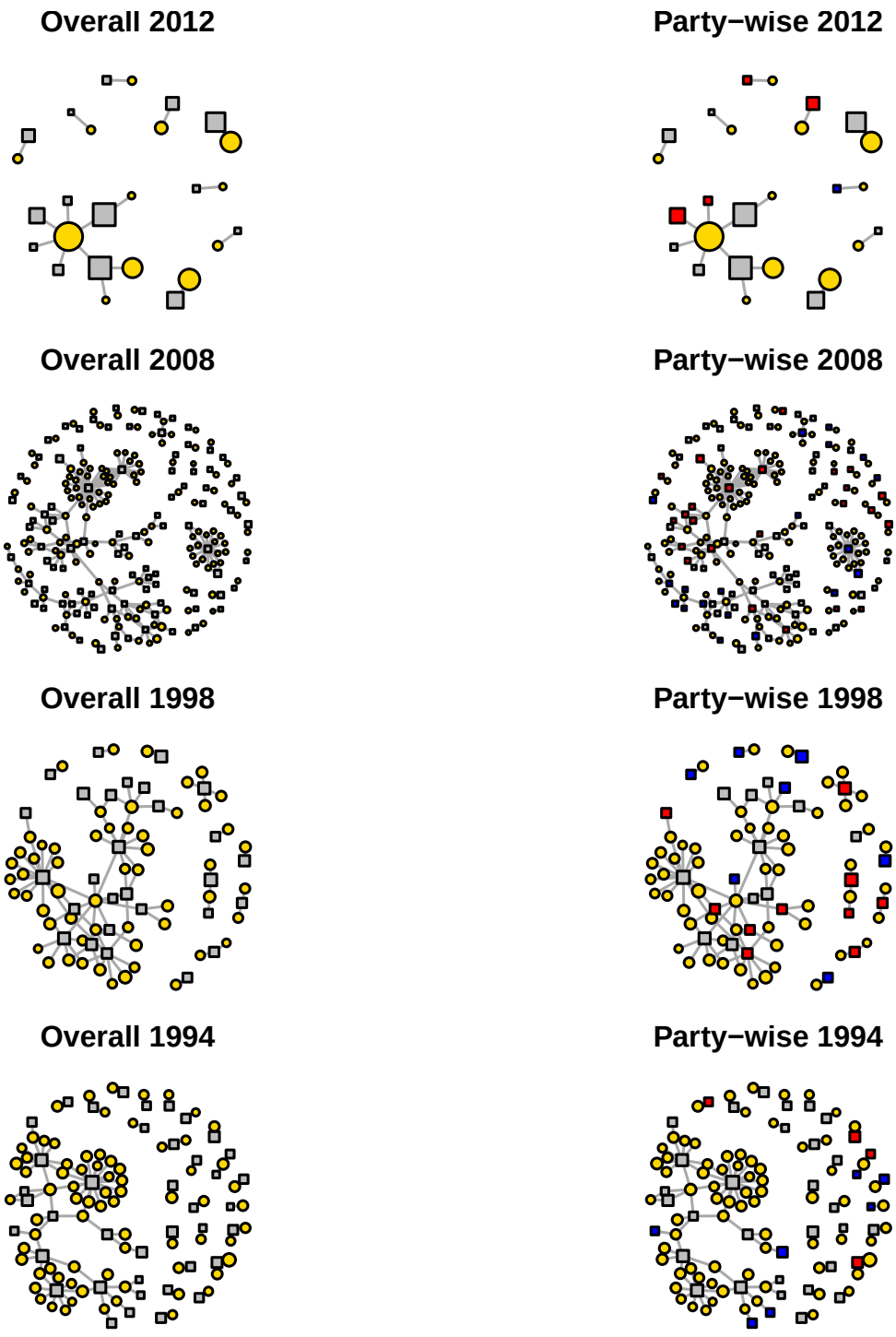


Figure 3.3: Concentration of Donors overtime

largest few donors. Comparison with Figure B.2 shows that a similar pattern is true of the large donors accounting for 50 percent of (the value of) donations.

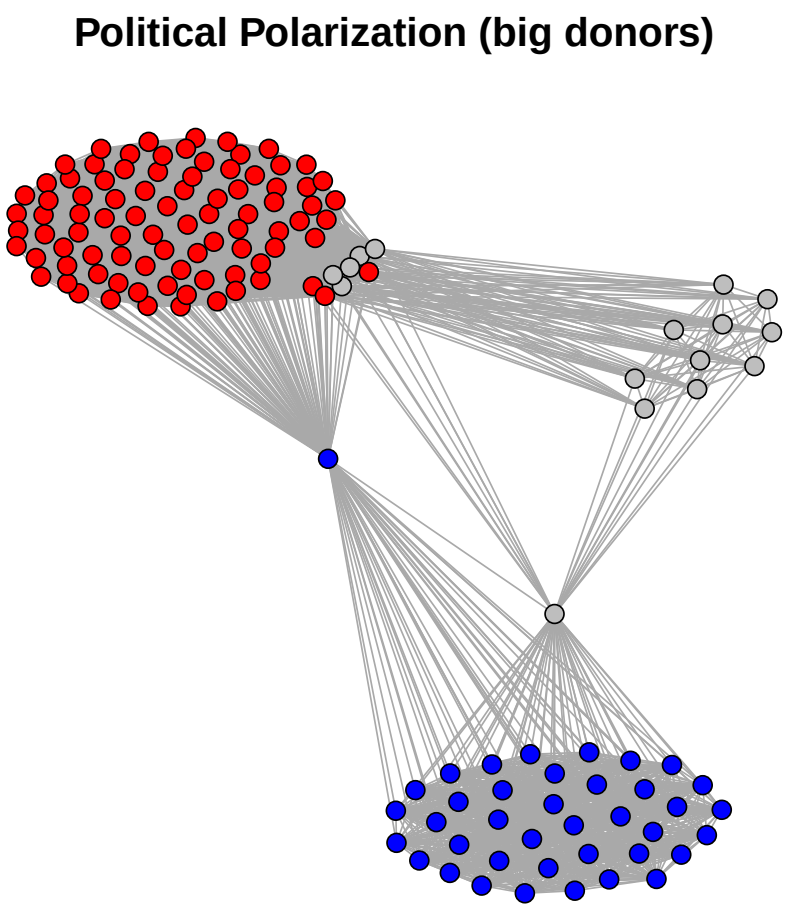


Figure 3.4: Polarization of Corporate Donations

This level of polarization is hard to reconcile with the standard models of Grossman and Helpman (1996, 2002) in which donors may donate to parties they do not prefer to alter their platforms. It thus may suggest a richer model, in which for example, candidates choose from whom to accept money given the views of their voters, or one in which donors make their funding conditional on not accepting funding from ideologically distinct sources.

Looking at Figure B.3 it seems that the polarization of donors is a relatively recent phenomenon. In 1998 there were a relatively large number of donors who shared recipients with both Republicans and Democrats. This poses another natural question: Does this polarization in funding drive, or reflect growing political polarization more broadly as studied empirically by Fiorina and Abrams (2008) (who argued there was little evidence that increasing polarization of elites was reflected in increased polarization in the population as a whole) as well as Abramowitz and Saunders (2008) (who in response argued that there was) and more recently Ezrow et al. (2014) who provide cross-country evidence and Autor et al. (2016) and Boxell et al. (2017) who have analysed the impact of trade shocks and the internet on polarization respectively. Kamada and Kojima (2014) argue theoretically that polarization may be more readily reconciled with standard models of political competition if voters are not assumed to have concave utility functions. The increased polarization of donors is also related to the important recent literature on the political influence of the media particularly Bernhardt et al. (2008), Gentzkow et al. (2011), Gentzkow and Shapiro (2011), Gentzkow et al. (2014, 2015) and social media and fake news Prior (2013), Puglisi and Snyder (2015), Allcott and Gentzkow (2017). It is beyond the scope of this research to establish any causality between the increased polarization of elite donation networks and polticial polarization more generally but it is worth noting that our finding of polarization amongst donors is consistent with the literature on polarization being initially at least an elite phenomenon as surveyed by Fiorina and Abrams (2008), and the limited influence attributed to the internet, social media, or fake-news by Gentzkow and Shapiro (2011), Allcott and Gentzkow (2017), Boxell et al. (2017).

### 3.4.2 Centrality

An important advantage of analysing candidates and donors as a network is that we can recover which are the most influential or important nodes and analyse how the distribution of nodes' importance has changed over time. More precisely, we

analyse three key aspects of centrality – Degree Centrality, Betweeness Centrality, and Power Centrality. As discussed in Section 3.3, a useful metric for analyzing the extent to which the network is dominated by a small number of individuals who make or receive many donations is the degree distribution. Plotting the CDF of the degree distribution, as in Figure 3.5, with both axes on a log-scale, allows us to see that the relationship is roughly linear. This suggests, that the degree follows a power-law distribution, important in this context as networks with such a degree distribution will have a so-called giant component. Such a predominant group of nodes, surrounding a small number of donors of very high degree, is very much counter to the logic of Becker (1983).

Looking at Figure 3.6 we can see how the degree distribution of donors has changed over time. In the top-left plot, we see that in 1980 the maximum degree was around 50 and the relationship was approximately linear. Ten years later, in the plot for 1990 in the leftmost plot of the second row, we see a very similar pattern. However, moving down another row it becomes clear that not only has the maximum of the degree distribution doubled, but the relationship is now increasingly concave, with more mass than would be expected on nodes of high degree. The increase in the maximum degree, other things equal, would suggest only that the degree-distribution had remained the same but the number of donors grew. However, the increase in concavity suggests that the relative number of very high-degree donors is now more than predicted by the standard power-law specification and suggests that there is a greater concentration of links on a small number of individuals than is observed in other social networks. Now looking at Figure 3.7 we can see a similar pattern for candidates. Again, the maximum degree has increased markedly from 1980, when it was around 50 to 2012 where it is around 5,000. Unlike, the donor degree distribution above, however, there seems to be no other change in the functional form of the relationship. This seems to remain approximately linear, albeit with a continued excess of nodes of very high degree as can be seen in the bottom right of each plot. This increasing concentration on the top recipients is interesting as it

may reflect changes in the effective distribution of power in US politics. A relatively (and only relatively) uniform distribution of donations as seen at the beginning of the period is compatible with donations being targeted at a number of politicians who may all be important to the passage of legislation of interest, for example. On the other hand, the concentration on a small number of 'mega-recipients' as in more recent cycles is compatible with influence being concentrated on a small number of key players.

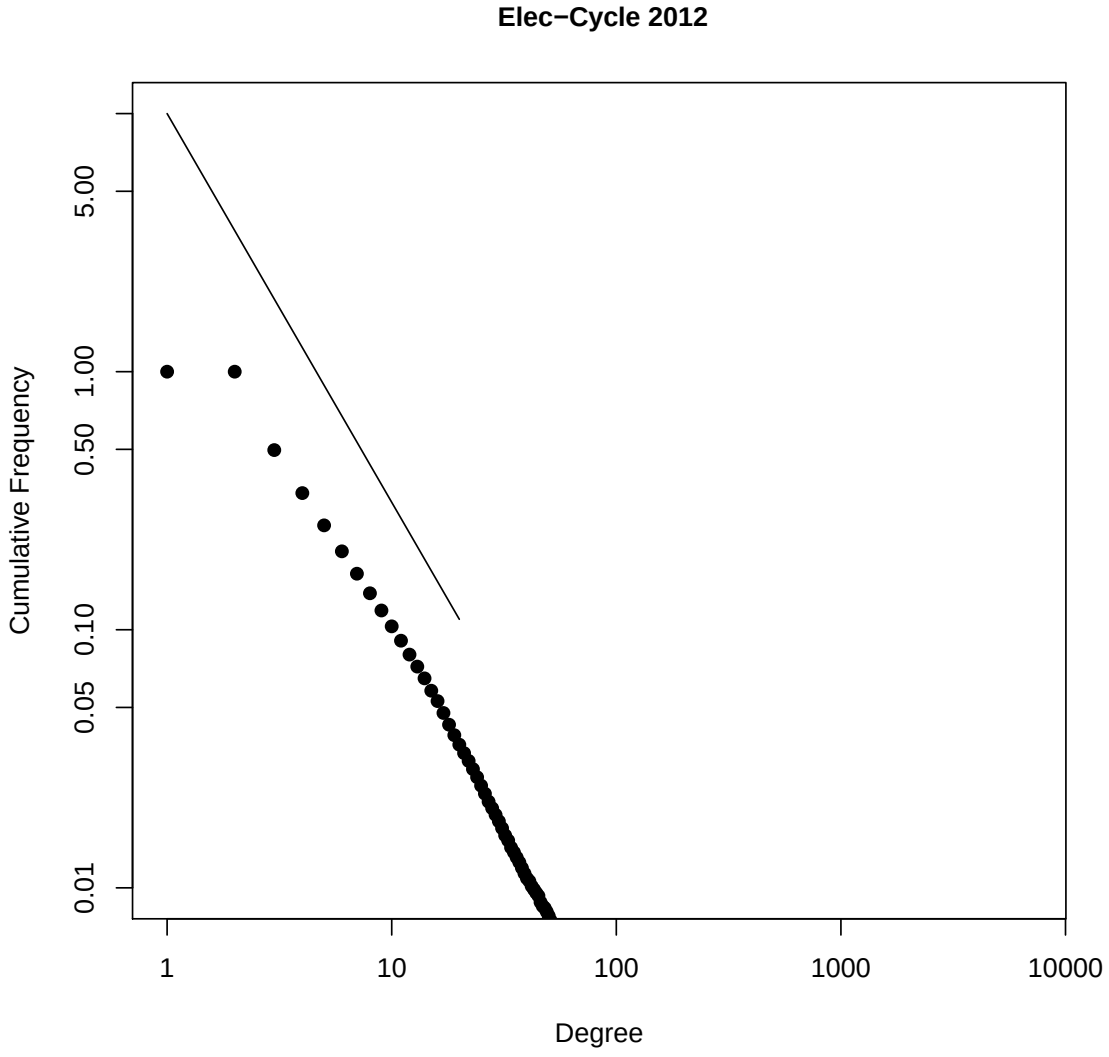


Figure 3.5: Degree Distribution 2012

Betweenness centrality measures how central a vertex is by counting the number of shortest paths between every pair of vertices that go through that vertex. Thus,

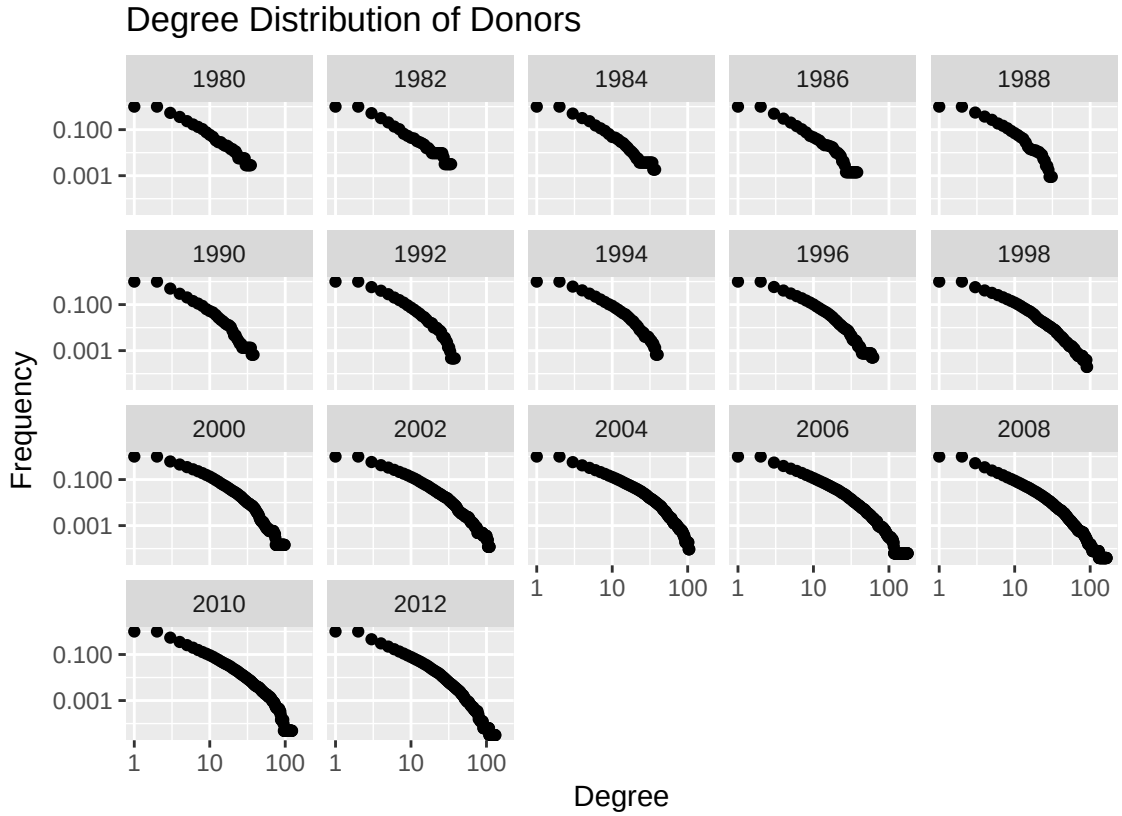


Figure 3.6: The Degree Distribution of Donors by Election Cycle

computation reduces to counting the number of cases for which that is true (and weighting appropriately) compared to the total number of shortest paths.[6] Intuitively, as in Padgett and Ansell (1993)'s study of the rise of the Medici family in medieval Florence, being the (best) link between many other individuals or factions is a source of influence and control. Thus, in our analysis representatives or donors with high betweenness centrality are those who provide the best link between many other donors and recipients.

We plot the results of this calculation in Figure 3.8 for each election cycle. In our data the distribution of Betweenness centrality has an extremely long right tail and thus, for clarity, the x-axis is the $\log_{10}(\log_{10}(Ce_i^B(g)+1)+1)$. The first thing we notice is that the overall shape of this distribution is consistent over the entire period. Taking into account the x-axis scale reveals the preponderance of vertices with $Ce_i^B(g)$ close to 0. It also reveals that there are a small number of vertices

[6]We employ the algorithm proposed by Brandes (2001).

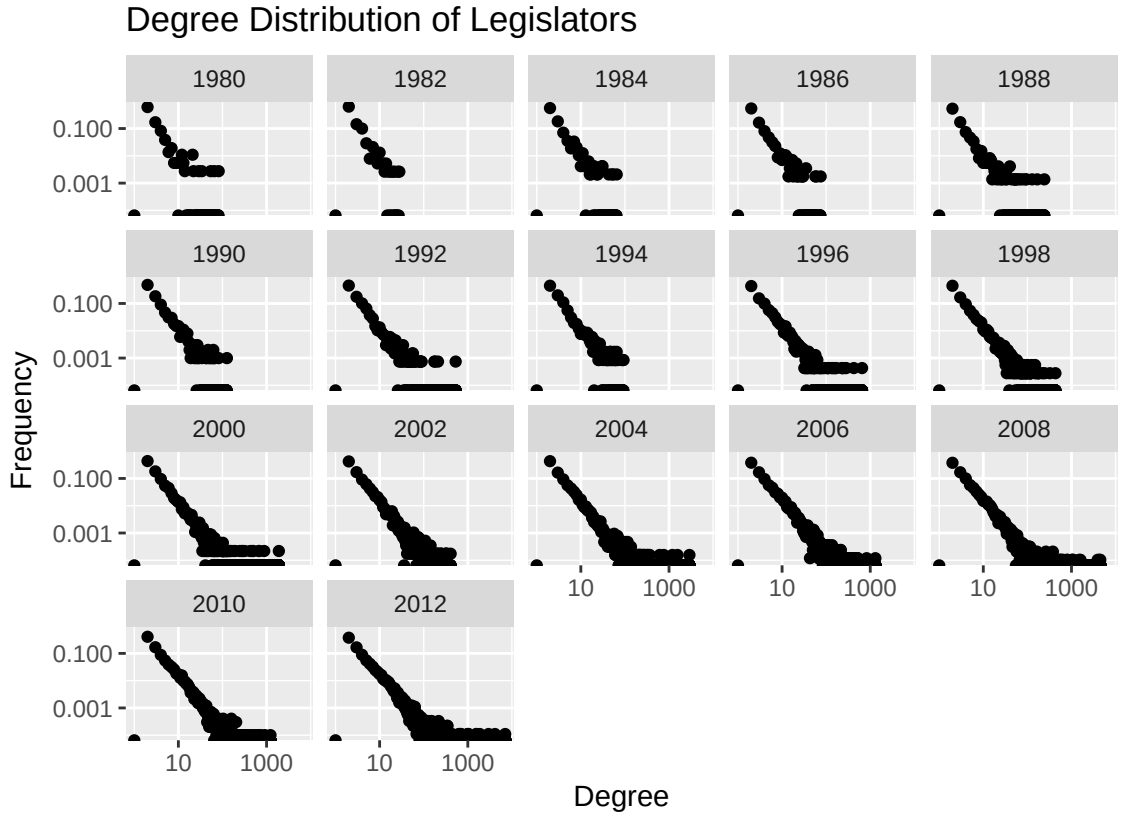


Figure 3.7: The Degree Distribution of Candidates by Election Cycle

with extremely high values of $Ce_i^B(g)$, suggesting a small number of very powerful individuals. Note, that while the double-log scale allows us to visualise both ends of the distribution it does frustrate comparison of the relative density of the left-hand tail vertices compared to those in the right tail as we need to adjust for the fact that the range of underlying values encompassed by the range $(0\frac{1}{4}, 1)$ is vastly larger. The reality is revealed by the data for 2012 which are still not satisfactorily captured by this scale and which appears simply as a right-angle coinciding with the axes.

The second key thing we can see is that there has been a consistent shift outwards in the right-hand tail, with the darker, earlier, curves to the left of their lighter, later, equivalents. Furthermore, the left-hand of the distribution reveals the increasing polarization of Betweenness, with later curves having a larger peak at 0 and less mass in the intermediate region $\log_{10}(\log_{10}(Ce_i^B(g)+1)+1) \in (\frac{1}{8}, \frac{1}{4})$. This suggests an increasingly unequal distribution in influence, with a small number of individuals increasingly dominating the paths between all other pairs of individuals.

We now consider our final measure of centrality, sometimes termed prestige or power-centrality. This infers the importance of a vertex by how important its neighbours are. Thus, the most important vertices are those that are connected to many other important vertices, but those other important vertices are otherwise linked to less important vertices. In our context this implies that the most powerful politicians and donors are those that are directly connected to many other important donors and recipients. That is, they are central in the sense that *they know everybody worth knowing*. We focus on Eigenvector centrality as is both standard, and because it reduces the need for further normalization. Specificially, calculating Eigenvector centrality reduces to obtaining the eigenvector, $x$ that is associated with the largest eigenvalue of $A$, the adjacency matrix of the Graph $G$. That is, the solutions to: $Ax = \lambda x$.

Figure 3.9 plots the distribution of Eigenvector centralities, again weighting by the size of donations, on the same $\log_{10}\log_{10}$ scale as Figure 3.8, but excluding observations for which $x < 0.05$ for clarity. We observe a similar pattern. Again, we see a preponderance of vertices with centrality scores close to zero, and here this is understated as the smallest are excluded. Again, we also see, a long thin right tail. It is less clear in this case, but one can still discern this tail moving substantially rightwards over the period suggesting again that the 'power' of the most powerful has increased markedly over the period. This point is perhaps clearer in Figure 3.10, where all vertices are now included, but we truncate both axes to 'zoom in' on the area close to the origin. We can see that more recent cycles have more skewed distributions, with even the most still appearing as a right-angle on the axes. Whilst, because of the truncation we do not observe the relative lengths of the tails, which are much longer for more recent elections, we do see again that there is relatively little mass for intermediate values of Eigenvector centrality providing further evidence that the power of donors and representatives is becoming substantially more skewed.

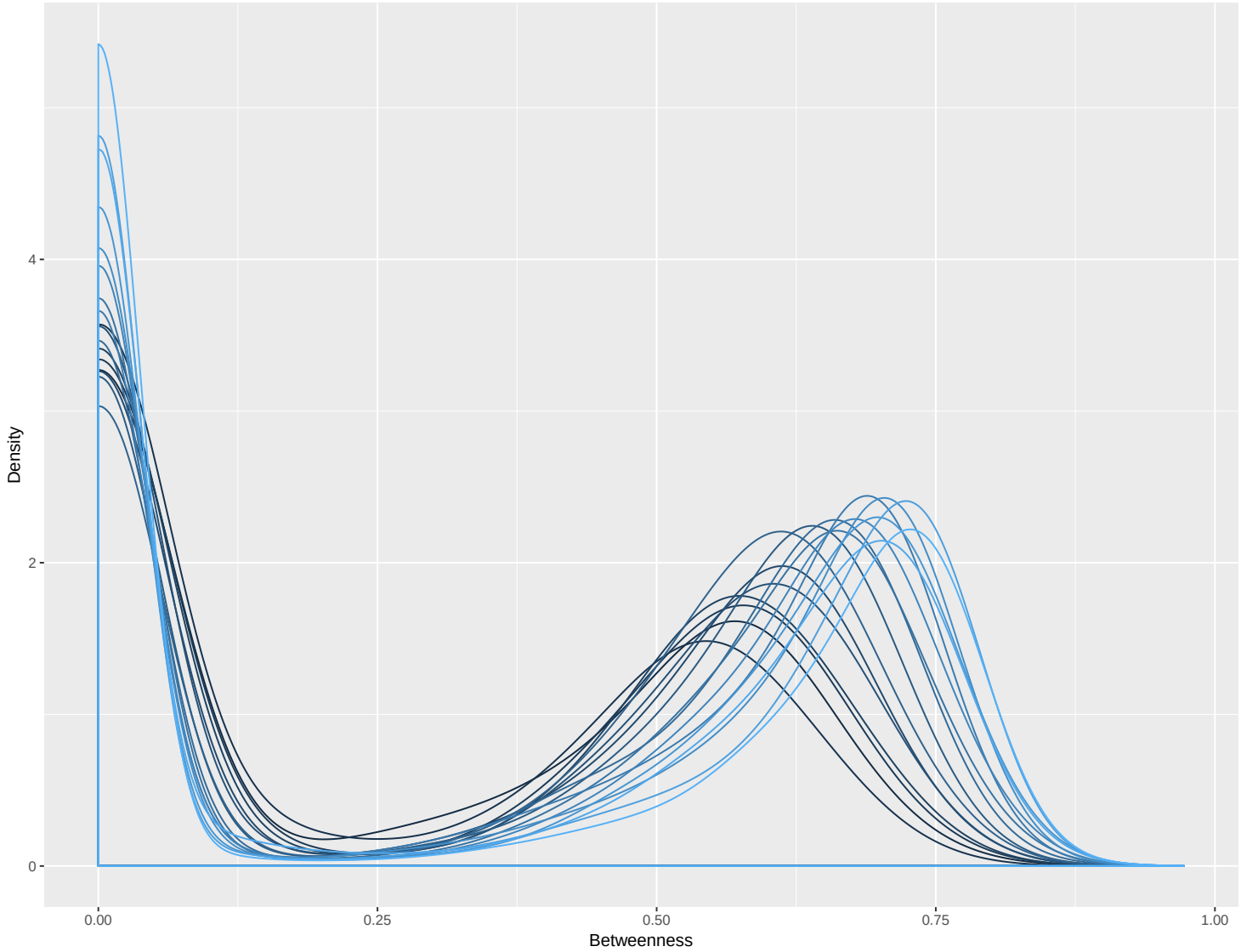


Figure 3.8: Betweenness Distribution by Election Cycle

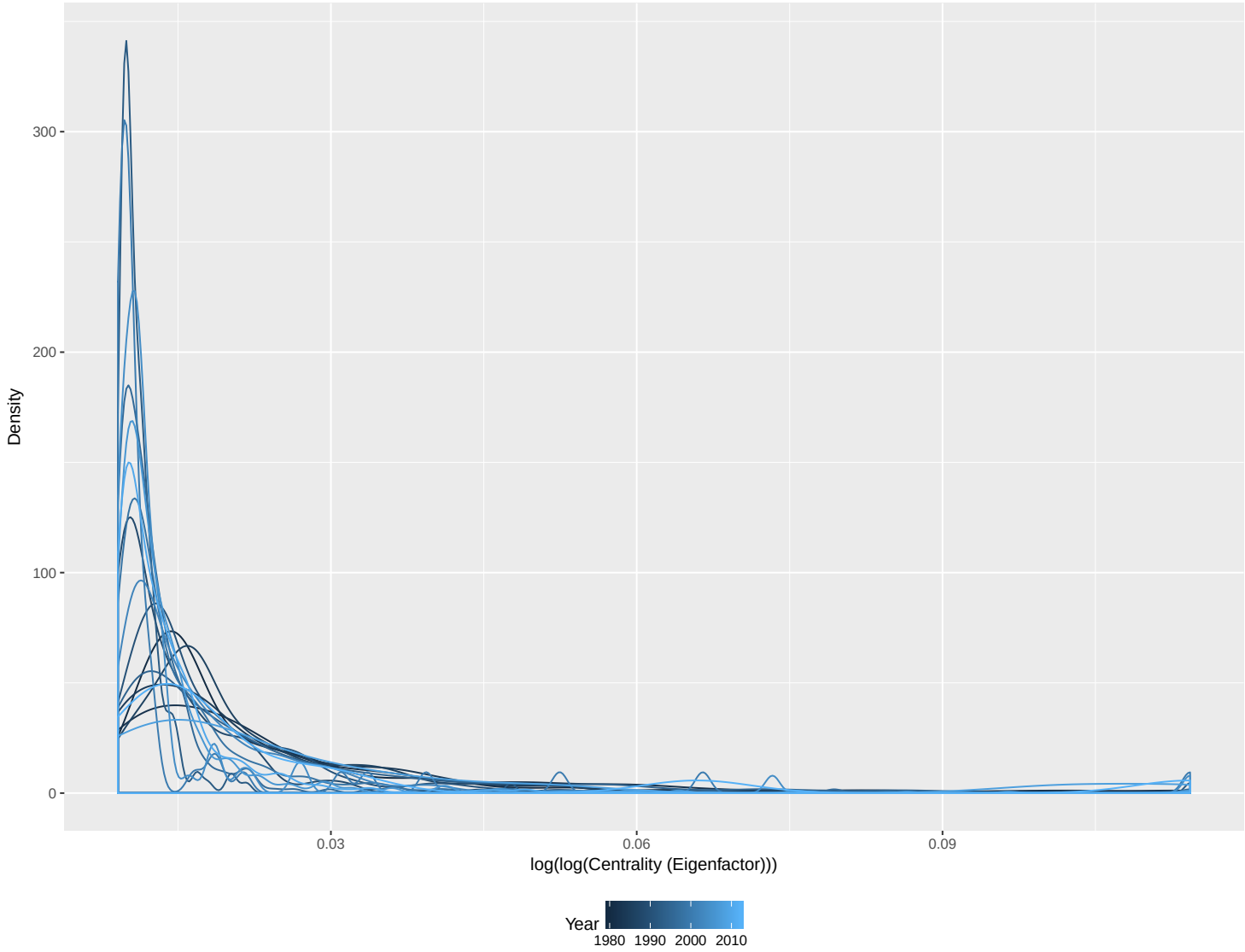


Figure 3.9: EigenvectorCentrality Distribution by Election Cycle

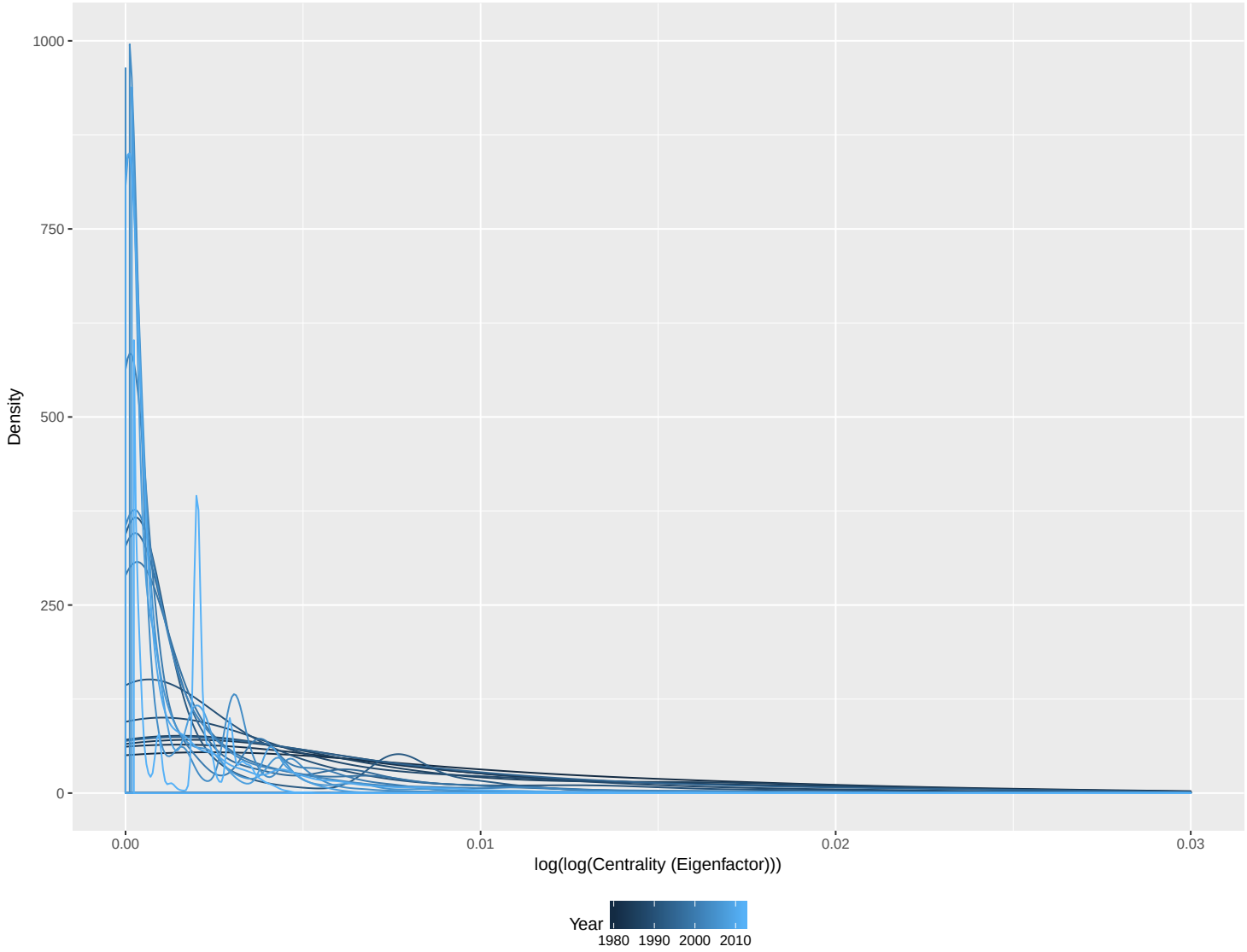


Figure 3.10: EigenvectorCentrality Distribution by Election Cycle

### 3.4.3 Regression Results

This section presents the regression results based on the dyads data obtained from the methodology given in section 3.3.2, which computes the dependent variables used in this analysis: the number of common recipients for each donor dyad and the number of common donors for each legislator dyad. Thus, this section has two parts. First, We begin with the discussion of the corporate donors' network and the common characteristics of the donors which may give rise to the formation of these networks. The second part is the analysis of legislator's network who are financed by the same set of corporate elites.

To understand what characteristics those donors who give to the same politicians share, we regress the number of common recipients for each pair of donors $(i, j)$ on a number of their shared characteristics. Thus the model we estimate is of the following form:

$$\begin{aligned}\#\text{Common Recipients}_{ij} \sim \beta_1 \text{Same Company} + \beta_2 \text{Same Sector} + \beta_3 \text{Same State} \\ + \cdots + U_i + \varepsilon_{ij}.\end{aligned} \tag{3.1}$$

This model has two key features which preclude using OLS. Firstly, our dependent variable, the number of recipients in common, is a count variable that exhibits over-dispersion compared to a Poisson distribution, and for which there is no separate process generating additional zeros. Secondly, we need to address unobserved heterogeneity in the characteristics of donors. As well as leading to omitted variable bias in the normal way, given the dyadic structure of the data unobserved heterogeneity will also induce dependence between observations given that donors will be common to many dyads. Thus, we include a donor-specific random intercept (random effect).[7] One can alternatively interpret these random effects as capturing clusters in the data due to different dyads having individuals in common. That

[7]Note, that this approach is preferred to a fixed-effect estimator as in most cases there is no consistent conditional fixed effects estimator Guimarães (2008) and given the number of recipients in our data, an unconditional estimator is infeasible.

is we assume $U_i \sim N(0, \sigma)$ and $\varepsilon_{ij} \sim NB(r, \phi)$. Given the scale of our data, a conventional maximum likelihood estimator was unfeasible and so we estimate an equivalent Bayesian model with a diffuse prior using the NUTS sampler Stan Development Team (2016). Given the diffuse prior and the large sample at hand the posterior means and standard deviations we obtain will be equivalent to the maximum likelihood estimates.

**Donor Networks**

In this section we describe and present the results of the corporate elites' donation network. We study the common characteristics of each pair of corporate elites who have financed the same set of legislators. We have 14848 donors and $3,000,000$ dyads in the latest election cycle and the number of common recipients in this year ranges from 0 to 27.[8]

Moving on to the regression results of the determinants of the donor network, we focus on the C-projection and thus the dependent variable is the Number of common Recipients. The negative binomial estimator we use models the log of the expected count as a function of the predictor variables. To simplify the interpretation of the estimated coefficients we therefore present the incident rate ratios (IRR) instead of beta coefficients. These ratios, are simply obtained by exponentiating our model coefficients (and the associated confidence intervals). Figure 3.11 presents IRR estimates for (3.1) estimated for each election cycle separately. The whiskers associated with each dot describe the 95 percent confidence interval.[9] They are plotted in all cases, where they cannot be seen this reflects the precision of the estimates.

We find that the directors and executive from the same company are more likely to finance the same set of candidate for congress i.e., more specifically a pair of donors

[8]The preceding descriptive analysis is based on the whole dataset, however due to the size of this C-projection matrix for the last few election cycles, computational limitations meant we had to take a random sample of 3 million dyads in each cycle for the regression analysis.

[9]In fact they are the 2.5 and 97.5 percentiles of the posterior distribution of $\beta$, but as above given the large sample and diffuse prior the confidence interval and these will coincide.

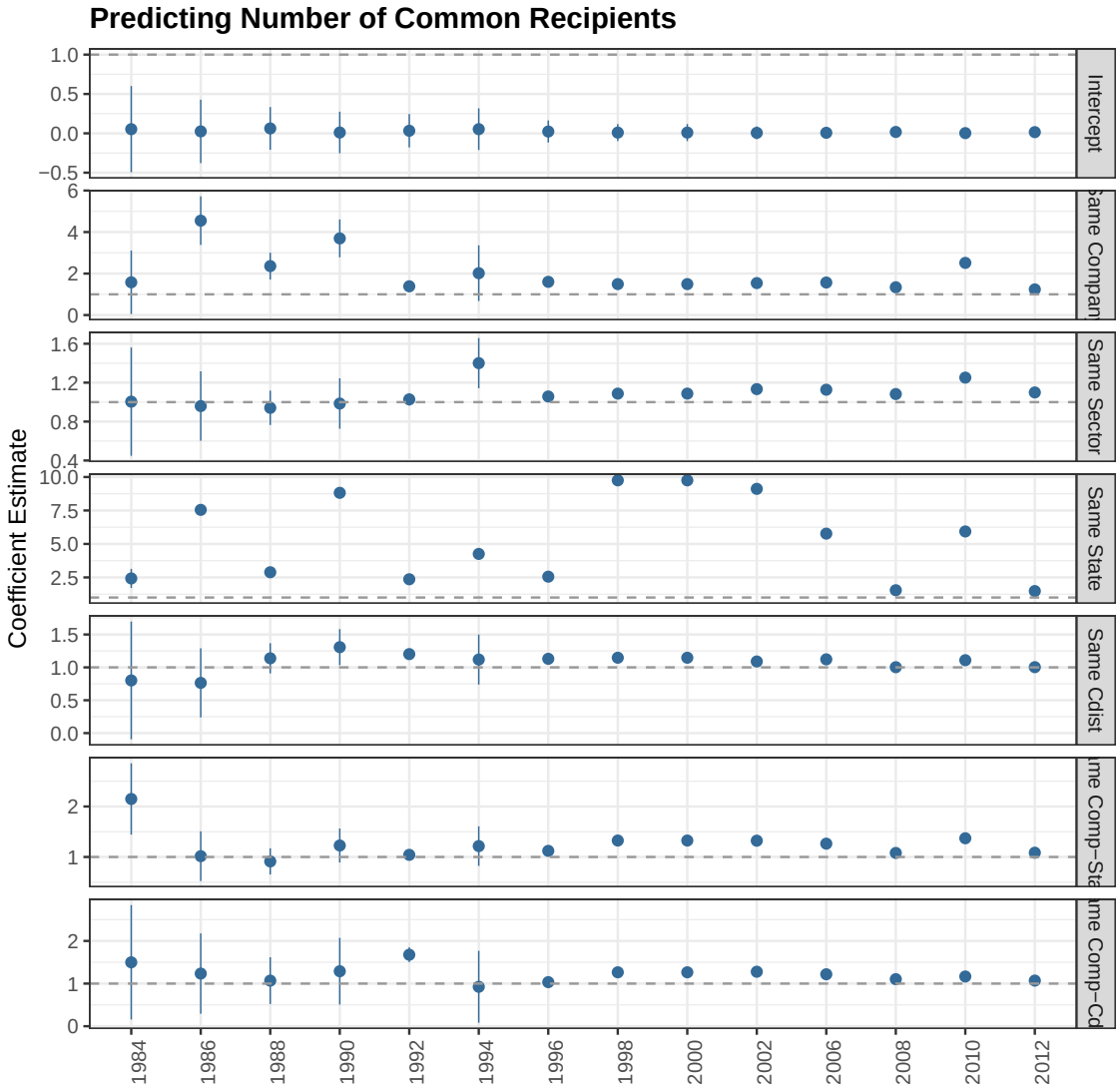


Figure 3.11: Coefficient Estimates and Confidence Intervals: Corporate Donor Data

who are from the same company are more likely to have more common recipients. The IRR varies between elections, particularly at the beginning of the period when it's higher, but stabilizes at around 1.5. The coefficient on "same sector" is also positive and statistically significant, although not in earlier elections. Note, that this nests the same sector variable, so the expected count for donors in the same firm will combine these two effects. The results show that the corporate elites from the same sector will have around 1.1 times the incident events as those from different sectors which implies that donors from the same sector are more likely to finance same candidates for congress than others.

The largest effect, perhaps unsurprisingly, is that donors resident in the same state are much more likely to donate to the same candidates. In some years the IRR is as high as 10. But, the coefficient, whilst always precisely estimated varies considerably over time. Whether, this reflects the changing importance of local politics, or is driven in part by election between presidential elections is unclear.

One way to understand this better is to analyze those resident in the same congressional district. Here, we find a consistently small effect. This might suggest that the relevant level of analysis for corporate donors is the state and not the congressional district. The final two rows of Figure 3.11 reports the results if their companies are located in the same state or same congressional district respectively. We see in both cases that the coefficient is positive and around 1.5 consistently. This suggests that donors whose companies are located in the same region are more likely to finance the same set of candidates.

Thus, our findings suggest that directors and executives from the same company and sector is the primary characteristic that is associated with (contributes to) financing the same set of legislators, more than other common traits. we argue that the number of common recipients (financing the same set of legislators) between donors is an important indicator of their overlapping preferences and goals.

**Network of Legislators**

Here we reverse the analysis to study the legislator's network who are financed by the same set of corporate elites. That is we study the D-projection, where the dependent variable is now the number of donors common to each pair of the candidates running for Congress. Thus the model we estimate here is of the following form:

$$\begin{aligned}\#\text{Common Donors}_{ij} \sim \beta_1 \text{Same Party} + \beta_2 \text{Same Committee} + \beta_3 \text{Same State} \\ + \cdots + U_i + \varepsilon_{ij}.\end{aligned} \tag{3.2}$$

Figure 3.12 presents the estimates of this model. Again we present the incident rate ratios (IRR) instead of beta coefficients. We find an extremely large coefficient

of between 8 and 12 associated with being from the same state, perhaps reflecting large numbers of smaller local donors. Serving on the same committees, and thus being in a position to influence policy on particular issues was also found to increase the expected number of shared donors, by a rate of 1.39 compared to the reference group in 2012. But, this is larger than in recent years. We include the Ideological Distance between donors and as expected being further apart (conditional on whether they are in the same party) reduces substantially the likelihood of having donors in common, with a coefficient of 0.23 suggesting that a unit increase in distance (on a $-1, 1$ scale reduces the probability of common donors by three quarters. The key change over the period is the importance of being of the same party. In 1996 being from the same party only suggested a 20 percent increase in the expected number of donors in common. By 2010 the IRR was around 2 implying double the number of donors in common compared to the reference group. However, the decline in 2012 suggests this may not be a permanent change.

The overall conclusion, for both the donor and recipient data, is that whilst there is some interesting variation the key patterns in terms of whom gives to whom have not changed. Changes in the network, such as increasing polarization and the importance of a small number of central players, may thus be a consequence of the actions of a relatively small number of actors.

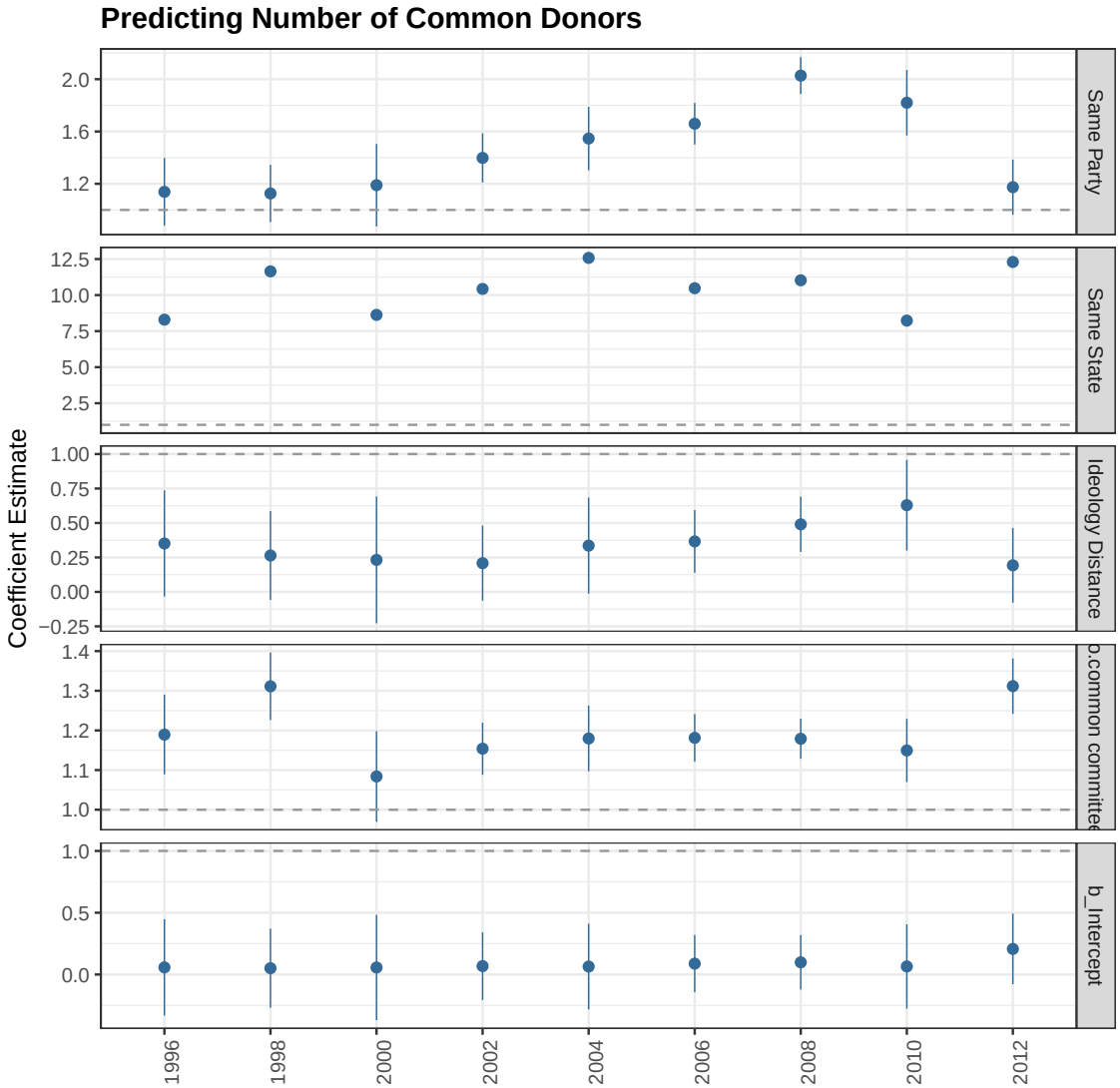


Figure 3.12: Coefficient Estimates and Confidence Intervals: Recipient Data

## 3.5 Conclusion

Using a novel dataset, this chapter analyzes the donation network of corporate and political elites. Our findings suggest that, donation patterns have become more concentrated, more polarized, and more dependent on the corporate connections and allegiances of the individual. Also, being connected to the same firms has been a key predictor of donating to the same candidate, and that legislators are more likely to be financed by common donors if they serve on the same committee or vote similarly. We argue that the number of common recipients (financing the same set of

legislators) between donors is an important indicator of their overlapping preferences and goals.

One of the notable findings documented above is the increasing polarization of corporate elite donors. This polarization or extreme diversity in views might have implications for the performance of the firms managed and led by these elites. We focus on such relationship in the next chapter.

# Chapter 4

# When Two Tribes go to Work: Board Political Diversity and Firm Performance

## 4.1 Introduction

This chapter studies whether ideological diversity in the boardroom affects firm performance. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial.

This finding is in contrast to the largely positive effects documented by the previous literature on the effects of diversity in the boardroom, whether defined in terms of race and ethnicity, gender, education, or age (Bernile et al., 2018).[1] But, perhaps, this is to be expected. Pew (2016) documents that 70% of Democrats say Republicans are 'Closed-Minded' while fully 46% of Republicans say Democrats are

[1] A robust body of evidence suggests that increases in the share of women on corporate boards is associated with reduced risk-taking (Huang and Kisgen, 2013), fewer layoffs (Matsa and Miller, 2013),more innovation (Bernile et al., 2018),more monitoring (Adams and Ferreira, 2009), and higher dividends (Chen et al., 2017). The evidence is less clear whether there is an effect of these changes on market performance (Adams and Ferreira, 2009, Gregory-Smith et al., 2014, Sila et al., 2016).

'Immoral', 'Lazy', and 'Dishonest'.[2] Around 40% of highly engaged members of both parties say it would be hard to get along with a neighbour who was a member of the other party. This chapter shows that these negative perceptions and social difficulties play out in the boardroom too.

There are good reasons why the positive effects associated with increasing other forms of diversity may not apply to political beliefs. Firstly, there is less reason to expect efficiency gains. Secondly, political division may hamper the performance of the board.

As we will see it is not the case that boardrooms are the exclusive preserve of those of a particular political persuasion. Thus, the efficiency concerns about other aspects of boardroom diversity, e.g. that more talented women are being excluded to the advantage of less talented men does not apply in the same way. Moreover, the related concern that boards drawn from a narrow range of backgrounds may lack a sufficient range of experience does not seem as appropriate here.

In terms of the downsides, there are several reasons why such diverse political beliefs in the boardroom might hamper performance. Following Akerlof and Kranton (2000) the literature on economics and identity has emphasised that individuals' identities and perceptions thereof may affect behaviour in ways that lead to outcomes quite different from those predicted by standard models. While, political affiliation cannot be conflated with Race or Gender as a basis for discrimination, the survey results above make it clear that it is a very real divide.

Similarly, differences in political beliefs can be thought of as creating groups in the boardroom. Goette et al. (2006) shows that such groups can form rapidly, even when the composition is arbitrary. Heap and Zizzo (2009) show that the existence of such groups leads to discrimination against non-group members, and lower aggregate levels of trust.Lee et al. (2014) provides evidence for this effect in the boardroom. CEOs who are politically aligned to independent directors are associated with lower

[2]Specifically, $47\%, 46\%, 45\%$ respectively.

firm performance, but a reduced likelihood of dismissal, and a weaker link between pay and performance.

Figure 4.1 shows the distribution of ideological positions of US corporate elites, measured on the basis of which politicians they donated to. (This measurement is discussed in more detail below). We can see that while both the mean and the median are positive, and there is a substantial peak around 0.9 implying that the average member of the corporate elite is right-of-centre. The distribution is not quite uni-modal, however, with another peak at around $-1$ suggesting that there is also a second smaller group of left-of-centre executives and board members. Figure 4.2 reports the average ideology by firm (for 2012). In comparison with Figure 4.1 we can see that there is now, as might be expected, more mass in the centre of the ideological distribution but still a pronounced right of centre mode, with still a perceivable, albeit attenuated, left of centre mass point. In the presence of random assignment of directors and senior management to firms, we would expect to see (given the Central Limit Theorem) substantial shrinkage to the mean of the distribution and a normal distribution of average firm ideologies around it. That we do not observe this implies that assignment is not random, and that instead there is some process of assortative matching. The purpose of this chapter is to understand the consequences of this matching for the performance of firms.

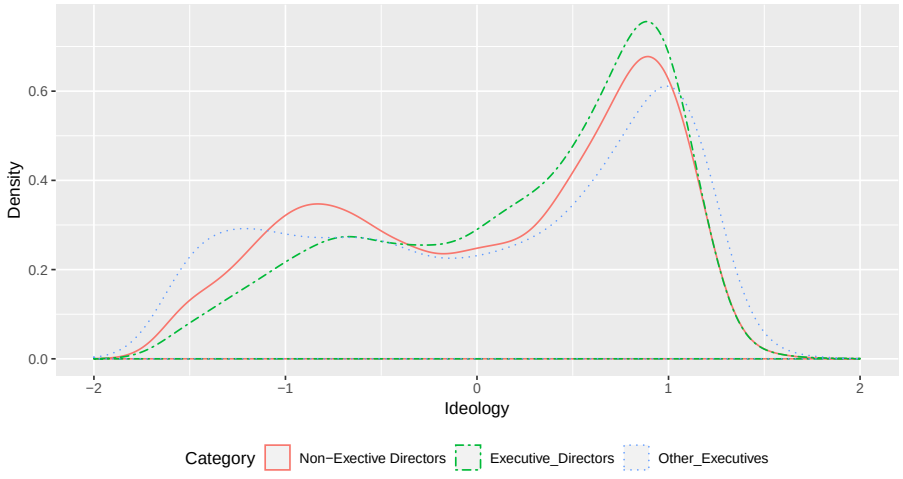


Figure 4.1: Ideology of Corporate America

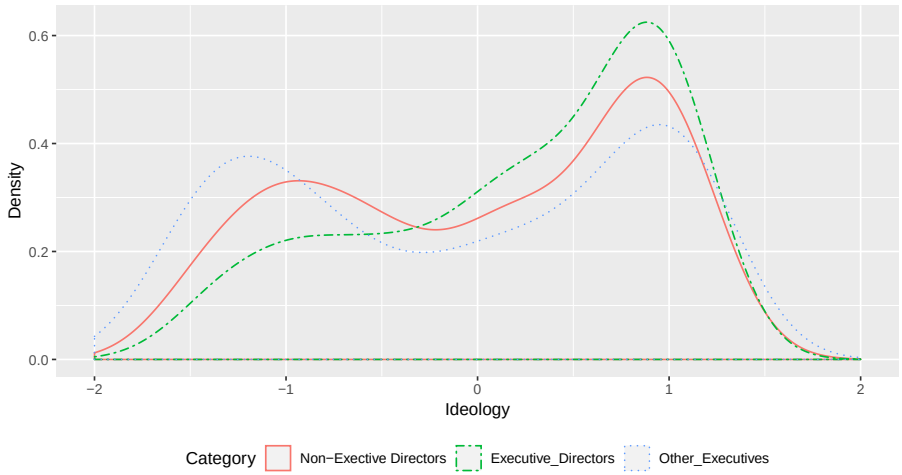


Figure 4.2: Mean Firm Ideology (2012)

Given the results of the Pew (2016) survey it is not hard to imagine reasons for such a matching process. This may, unconsciously, bias firms towards hiring those with similar politics. Symmetrically, individuals may be more likely to pursue or take roles at firms that they feel are an ideological 'fit'. The implications of such assortative matching in people's personal lives have been studied by Economists and Political Scientists, for example, Hitsch et al. (2016), Banerjee et al. (2013). In the context of the large firms we study, the concerns are different, and are more similar to those studied by the literature on other forms of diversity and firm performance. Even in those states, such as New York or California, where overt discrimination on the basis of poltiical belief is illegal, in the same way it is on the basis of race or gender, more subtle biases may remain. Aside from the obvious moral implications, Economists have argued since Becker (1957) that such discrimination is inefficient and should be associated with reduced performance, for recent evidence see Weber and Zulehner (2014).

This research contributes to a growing literature on the politics of corporate leaders. Bonica (2016b) documents, using the same Bonica (2014b) database we employ, a number of important stylised facts about the political donations of corporate elites. Noting, that individual donations are commonplace and that there is

substantial political heterogeneity within and across firms. Bayat (2017) shows that conservative CEOs are associated with larger dividends, other things equal. Chin et al. (2013) shows that liberal CEOs are more likely to pursue corporate social responsibility initiatives. Political values also influence remuneration policy, and conservative boards pay CEOs more than their liberal equivalents.

Perhaps the closest paper to this work is Kim et al. (2013) who also study how ideological diversity affects firm performance. Using data for 500 randomly selected firms for the period 1999-2005 they find that ideologically diverse boards are associated with better firm performance, lower agency costs and reduced discretionary power of inside directors over firms' PACs. However, as we discuss below, the data they use to build their diversity measure is much less rich than ours and they do not provide convincingly causal estimates.

This chapter builds on this prior work by employing the unique dataset explained in chapter 2, as well as some methodological refinements, to measure precisely ideological heterogeneity within firms, and between the Board and the Senior Management.

The key advantage of our approach is that we are able to exploit the variation in political orientation within the Republican and Democratic parties as well as between them. Given that moderates of both parties may have more in common with each other than they do with the more extreme wings of their parties, this is vital to measure the ideological heterogeneity of firms accurately. To see this consider the following two examples. The board and senior management of Firm A only make donations to Republicans, however half of the Board are moderates and donate to centrist Republicans (we think of Susan Collins or Charlie Baker) whilst the other half are extremists and donate only to very Right Wing Republicans. Previous measures, based only on the share of Republican donations, will record this firm as being ideologically homogeneous. Our measure, will capture the heterogeneity accurately. Similarly, consider Firm B of which the board and senior management only make donations to moderates, in approximately equal amounts to those of both

parties, i.e. 50% to centrist Republicans and 50% to centrist Democrats. A measure based on the share of Republican donations would record Firm B as being maximally ideologically heterogeneous. While our measure will capture the differences between those who support the Republicans and those who support the Democrats, but the small, if any, distance between them will mean the measured diversity will be very low.

A second important advantage is that we have data on not only Directors and CEOs but all of each firm's top management. This allows us to study if ideological diversity exacerbates the principal-agent problem faced by the owners of a firm, as studied in the context of CEOs and independent directors by Lee et al. (2014). We also have a substantially larger sample than previous studies, we study all publicly traded companies over the period 1980-2012 since they became public.

This chapter is organised as follows. Section 4.2 introduces our data, and how we measure diversity and performance. Section 4.3 describes our empirical strategy and discusses the results. Section 4.4 briefly concludes.

## 4.2 Data and Descriptive Statistics

Our main measure of political diversity is the variation in the ideological positions of a firms top executives and directors. To compute this we have used the data introduced in chapter 2 which combined data sources: the DIME database of political donations and estimated ideological positions provided by Bonica (2014b) and data on firms' management and performance from Bloomberg (L.P. (n.d.)).

First, Bloomberg provides the detailed information on each company's top management and Board data since its inception. We hand collected this historical information as only current information is accessible via an API for this category. We first gathered company-wise personal information (i.e., name, age, position, start and end dates (position-wise) of all of both the board directors and the top management since the company started. We identified the independent directors and

the insiders for each firm-year by matching and comparing the top management and board data. Our sample thus consists of all directors and top executives who have ever served for all of the 2,346 currently listed companies in U.S.

We then used automated record-linkage methods to match these records on firms to data on political campaign contributions contained in the Database on Ideology, Money and Elections (DIME) Bonica (2014b). The combined data thus contains both data on individual members of the corporate elite, the politicians they have donated to, their donations, and crucially for our purpose their ideological positions. We combine all of the individual contributions by a given donor to each candidate in an election cycle to obtain a dataset contributor-firm-cycle level.

### 4.2.1 Measures of Political Diversity

Henceforth, for simplicity, we refer to board members and senior managers as "Directors". Let $\mathcal{J}$ be the set of directors and $\mathcal{I}$ the set of all firms. In a given year, $t$ each firm $i \in \mathcal{I}$ is associated with a subset of directors $\mathcal{J}_{it} \subset \mathcal{J}$. Our measure of the ideological diversity of firm $i$ in year $t$ is then the standard deviation of the ideologies of its directors in that year. That is,

$$\text{Diversity}_{it} = \sqrt{\sum_{j \in \mathcal{J}_{it}} \left[\text{Ideo}_j - \overline{\text{Ideo}}_{\mathcal{J}}\right]^2} \tag{4.1}$$

Implicit in (4.1) is that the political preferences of those who do not donate (or who donate less than the $200 reporting minimum) is equal to the average of the rest of the firm. That is, that the decision to donate is orthogonal to how different an individual's politics is to the average of their firm. In the appendix we provide sensitivity analyses showing that our main results go through employing two alternative assumptions. First, that those who do not donate are moderates, in that they are assumed to have (an average) ideology of 0, the centre of the scale used by Bonica (2014b). This alternative assumption says that those who do not donate are representative of the population as a whole rather than their firm. The second

alternative assumption we consider is that directors who do not donate are representative of directors in general across all firms. That is, we assume that their ideology is equal to that of the average firm. The assumption that those who do not donate are similar to the rest of their firm is our preferred assumption as it treats all firms equally. All other assumptions would increase measured diversity, but in an uneven way, increasing diversity in relatively extreme firms more than in comparatively centrist firms. This is unappealing, both statistically, but also substantively given the literature on value homophily which shows that people are drawn to others with the same values, beliefs, and preferences as their own (Srivastava and Banaji, 2011).

The directors of a firm maybe divided into two groups. Management and non-management. I.E. between executive and non-executive directors. We denote the Management as $\mathcal{M}$, and the non-executive directors as $\mathcal{NE}$. We compute two further measures of ideological diversity so that we can disentangle whether the impact of diversity varies depending on whether it is within the non-executive directors or between the management and the board that is expected to hold it to account.

First we calculate the ideological diversity of the board, excluding those in each company's management. That is we recompute (4.1) for the subset $\mathcal{J}_{it} - \mathcal{M}_{it}$. This allows us to understand whether diversity affects board performance beyond any impact of ideological differences with senior executives.

$$\text{Diversity}_{it}^{-\mathcal{M}} = \sqrt{\sum_{j \in \mathcal{J}_{it} - \mathcal{M}_{it}} \left[\text{Ideo}_j - \overline{\text{Ideo}}_{\mathcal{J}-\mathcal{M}}\right]^2} \tag{4.2}$$

Second, we calculate the ideological diversity of the management relative to the non-executive directors. This captures a range of ideological differences between insider and outside directors in a symmetric way. It will take larger values if the average ideology of the insider directors is far to the left or the right of the outside directors, or indeed if the insider directors are very heterogenous. Essentially, instead of computing the second moment of the distribution of the ideologies of insider directors around the mean of that distribution, we now compute it around the mean

of the distribution of ideologies of outside directors.

$$\text{Diversity}_{it}^{\mathcal{MB}} = \sqrt{\sum_{j \in \mathcal{J}_{it} - \mathcal{NE}_{it}} \left[\text{Ideo}_j - \overline{\text{Ideo}}_{o \in \mathcal{NE}}\right]^2} \tag{4.3}$$

Our final dataset then contains these diversity measures, $\text{Diversity}_{it}$, $\text{Diversity}_{it}^{-\mathcal{M}}$ and $\text{Diversity}_{it}^{\mathcal{MB}}$ as well as a number of other characteristics of firms' boards: proportion of independent directors, board size, number of other directorships held etc. It also contains key firm-level financial variables Tobin's Q, Assets, Revenues, leverage etc., which are taken from Bloomberg. Table 4.1 shows descriptive statistics for our sample at the individual and firm levels.

## 4.3 Empirical Strategy and Results

Our empirical analysis comprises two parts. Before moving on to analyse the causal relationship between ideological diversity and firm performance in Section 4.3.1 we build intuition by studying the OLS estimates. Specifically, we consider the following model.

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it} \tag{4.4}$$

Thus, our parameter of interest is $\gamma$. This measures the association between an increase in diversity and a firms performance, as measured by (the log of) Tobins Q. As is standard, and because we anticipate decisions made by boards to impact performance with some delay, we consider performance the following year, that is in period $t+1$. We include a vector of standard firm level controls, as well as year and industry fixed effects. The controls we include are the (log) value of the firms Assets, the degree of leverage, the (log) of the size of each firms board, and the proportion of independent directors. The first two controls, along with the industry fixed effects, serve to normalise $Q_{it}$ such that it is comparable across firms. Similarly, conditioning on board size and the share of independent directors partials out two key ways in which boards vary. The year effects control for the effects of aggregate changes in

average company valuations over the period we study. We allow for dependence in firms' performance over time by clustering the standard errors at the firm level.

Table 4.2 reports the estimates of (4.4). Looking across all three specifications we can see that the control variables are all of the expected sign, with consistent coefficients, and significant at conventional levels. (The only exception is log Board Size in column 3 which is smaller in magnitude than in columns 1 and 2 and insignificant.)

Looking now at the coefficient of interest we see that an increase in Diversity is associated with a significant increase in firm performance. Specifically, a move from the $25^{th}$ to the $75^{th}$ percentile would be associated with an increase in firm performance of 2.2%. This is a large increase and suggests that ideological diversity amongst a firms directors is an important correlated of performance. Column 2 reports results for $\text{Diversity}_{it}^{\mathcal{MB}}$ and the coefficient is now around 15% larger although this difference will not be statistically significant. Column 3 reports results for $\text{Diversity}^{-\mathcal{PA}_{it}}$, the ideological diversity of the management of the firm relative to the average politics of the non-executive directors. This coefficient is small and imprecise. The implication of columns 2 and 3 taken together is that it is not ideological diversity*between* executive and non-executive directors that is important a determinant of performance, but the ideological diversity *within* the set of Board members. This is interesting as it might suggest that the positive impact of ideological diversity relates to something other than the similarity of the two sets of directors.

### 4.3.1 Causal Analysis

To understand the *causal* relationship between board diversity and firm performance we need to address the non-random matching of directors to firms and the bias. To do this we employ a novel instrument that captures local political diversity. The argument is that local political competition shouldn't have a direct impact on firm's performance, but will determine the diversity of political preferences in the local pool

of potential directors. Given that most firms hire locally (Knyazeva et al., 2013), this will then be correlated with the diversity of their boards. Moreover, for those firms that hire non-locally, the ease with which they can attract candidates with preferences for either of the main two parties will depend on it not being perceived as a deep-blue or deep-red locale (congressional district).

We measure local political diversity as the extent to a district is politically competitive, employing a standard measure used in Political Science, the Effective Number of Parties (ENP), as proposed by Laakso and Taagepera (1979).[3]

$$\text{ENP} = \frac{1}{\text{Dem Share}^2 + \text{Rep Share}^2 + \text{Ind Share}^2} \tag{4.5}$$

Thus, when one party captures most of the votes then ENP is smaller, as effectively, there is only one party. When both parties have 50% of the vote then $ENP = 2$, and as the share of the vote of Independent candidates grows, the ENP will also increase, other things equal.

We thus replace 4.4 with the following Instrumental Variable (IV) specification:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it} \tag{4.6}$$

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it} \tag{4.7}$$

Where we make the conventional exogeneity and relevance assumptions, $\mathbb{E}\left[\epsilon_{it}\text{ENP}\right] = 0$ and that $\Theta \neq 0$. Table 4.3 reports the estimates of (4.6) the first-stage regression. We can see that the coefficient on ENP is consistently positive and significant in columns 1–4. Given that there is only one excluded instrument (ENP) the usual first-stage F-statistic is just the square of the t-statistic on ENP. In the case of column 1 is 67.99, and it is similarly large in columns 2–4. As will be consistently the case, it is not significant when we also include time effects as well as industry effects and controls, which as discussed below is unsurprising.

[3]Note, this is simply the reciprocal of the more familiar Herfindahl index.

Table 4.4 reports estimates of (4.7). Looking first at column 1 in which all coefficients other than $\delta$ are restricted to 0 we can see immediately that the estimated relationship between firm performance and $\text{Diversity}_{it}$ is now negative and around twice as large in magnitude. This suggests that the previous results suggesting a positive correlation between ideological diversity and firm performance were being driven by the non-random matching of firms to directors.

Given the OLS results in Table 4.2 the inference is then that while better performing firms have more diverse boards other things equal, that an increase in ideological diversity reduces performance. That is, that when board diversity increases due to the local supply of directors, that performance weakens. Note, that these two results are not incompatible. For example, it could be that some firms are more appealing and this impacts both the composition of their board – directors want to be associated with them – and the choice and thus average quality of workers they can hire *à la* Becker (1957). On the other hand, the causal impact of an increase in board diversity separate from any factor such as appeal to workers, may be to decrease the effectiveness of the board and reduce firm performance. That is, board diversity may be associated with other unobserved positive characteristics of firms but itself be deleterious for performance.

Columns 2 to 5 progressively weaken the exogeneity assumption that with an alternative of conditional exogeneity. In column 2 it is now $\mathbb{E}\left[\epsilon_{it}\text{ENP}|\phi_l\right] = 0$, that is instead of a claim that there is no direct relationship between ENP and firm performance we now have that there is no direct relationship between ENP and firm performance once we allow for industry. Column 3 instead allows for firm and board characteristics as in (4.4) and column 4 includes both.

In both cases while the relative precision of our estimate of $\delta$ falls, the estimated coefficient increases substantially to around $-3$ and $-1.5$ respectively. These large coefficients, imply that the LATE is large, and thus that firms which change their board as a consequence of changes in the local political environment see large changes in performance. One interpretation of this is that these are firms which

are previously constrained by their locale from hiring well-matched executives or outside directors, relaxation of that constraint then leads to large improvements.

Finally, Column 5 additionally includes time effects. $\delta$ is no longer significant, although the coefficient remains negative and of a similar magnitude as in column 3. This is perhaps unsurprising and reflects the demanding nature of the specification. It suggests that including the year effects, in conjunction with the controls in $X_{it}$ and the industry fixed effects, asks too much of the data given that both board composition and the degree of local political competition will evolve slowly over time. That is we are now studying the LATE of a change in the local ENP within years, within industries, conditional on firm characteristics, and as these changes in the ENP are expected to evolve slowly rather than change rapidly there is too little residual variation in the data to identify the effect precisely.

Tables 4.5 and 4.6 reports estimates of (4.6) and (4.7) respectively for our second measure of Diversity, that of board members only, Diversity$^{-\mathcal{M}}$. The results for the first stage again show that the instrument is relevant. The second stage results are similar to those in table 4.4 for all directors: there is a consistent negative effect of an increase in ideological diversity. The effect is around three times larger conditional on firm characteristics and 50% smaller when allowing for firm fixed effects. Again, the results including industry and year fixed effects as well as firm and board characteristics are insignificant but with a similar point estimate to those in columns 1–4.

Tables 4.7 and 4.8 reports estimates of (4.6) and (4.7) respectively for our final measure of Diversity, how diverse the politics of executives are relative to the average of non-executive directors, Diversity$^{MB}$. Here, unlike for the OLS regressions we find that there is a positive (negative) impact of increased similarity (diversity) of the politics of a firm's management with its non-executive directors. This then suggests that both diversity within the set of board members, and between them and the firm's managers are harmful to firm performance. Our interpretation of this is that ideological diversity both hampers the effectiveness of the board mem-

bers to work cohesively and also may exacerbate principal-agent problems with the firms' management. We note, in passing, that this causal effect of Diversity$^{MB}$ is in contrast to the OLS results in Table 4.2 where no significant effect was found.

## 4.4 Conclusion

A substantial literature has studied how increased diversity in terms of gender, age, education, and race amongst members of firms' boards affects decisions and performance. This chapter studies whether ideological diversity in the boardroom affects firm performance. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial. This negative effect is present when diversity is measured only within non-executive directors and when diversity is defined in terms of the difference between executive and non-executive directors.

Table 4.1: Descriptive Statistics

| Statistic | N | Mean | St. Dev. | Min | Pctl(25) | Pctl(75) | Max |
|---|---|---|---|---|---|---|---|
| $\text{Diversity}_{it}$ | 36,370 | 0.6 | 0.4 | 0.0 | 0.3 | 0.8 | 2.2 |
| $\text{Diversity}_{it}^{-\mathcal{M}}$ | 33,102 | 0.6 | 0.4 | 0.0 | 0.3 | 0.8 | 2.2 |
| $\text{Diversity}_{it}^{\mathcal{MB}}$ | 24,177 | 1.1 | 1.6 | 0.0 | 0.2 | 1.3 | 23.1 |
| Tobin's Q | 30,766 | 2.0 | 1.4 | 0.8 | 1.1 | 2.2 | 9.2 |
| Board size | 47,548 | 10.1 | 6.7 | 1.0 | 4.0 | 15.0 | 66.0 |
| % Independent Directors | 42,630 | 0.6 | 0.2 | 0.05 | 0.4 | 0.7 | 1.0 |
| Assets | 33,622 | 9,871.0 | 28,979.7 | 15.9 | 533.2 | 5,924.0 | 219,977.3 |
| Leverage | 33,591 | 24.8 | 21.2 | 0.0 | 7.0 | 37.0 | 95.4 |
| ENP | 5,703 | 1.7 | 0.4 | 1.0 | 1.4 | 2.0 | 2.8 |

*Notes:* This table provides descriptive statistics of our diversity measures, dependent variable as well as the control variables used for the whole of our sample (19802012). Detailed definitions of variables are in table C.1 in Appendix C. Also, accounting variables here are winsorized to exclude the top 1 percent and the bottom 99 percent.

Table 4.2: Board Diversity and Firm Performance - Pooled OLS Results

| | *Dependent variable:* | | |
|---|---|---|---|
| | Tobin's Qt+1 | | |
| | (1) | (2) | (3) |
| $\text{Diversity}_{it}$ | $0.045^{**}$ | | |
| | (0.019) | | |
| $\text{Diversity}_{it}^{-\mathcal{M}}$ | | $0.052^{***}$ | |
| | | (0.019) | |
| $\text{Diversity}_{it}^{\mathcal{BM}}$ | | | 0.0004 |
| | | | (0.004) |
| log assets | $-0.058^{***}$ | $-0.057^{***}$ | $-0.051^{***}$ |
| | (0.006) | (0.006) | (0.006) |
| Leverage | $-0.002^{***}$ | $-0.002^{***}$ | $-0.002^{***}$ |
| | (0.0005) | (0.0005) | (0.0005) |
| log Board Size | $0.033^{**}$ | $0.040^{**}$ | 0.011 |
| | (0.016) | (0.017) | (0.021) |
| Prop.Ind.Dir | $0.166^{***}$ | $0.158^{***}$ | $0.168^{***}$ |
| | (0.036) | (0.038) | (0.045) |
| Constant | $0.640^{***}$ | 0.621 | $0.627^{***}$ |
| | (0.193) | (0.397) | (0.176) |
| Ind/year Effects | $Yes$ | $Yes$ | $Yes$ |
| Observations | 24,033 | 22,976 | 18,493 |
| $R^2$ | 0.402 | 0.404 | 0.408 |
| Adjusted $R^2$ | 0.399 | 0.401 | 0.405 |

*Notes:* This table presents the results of (4.4) a pooled OLS regression that examines a relation between each of the three Ideological Diversity measures and firm value,(measured by the log of Tobin's Q, one period ahead).

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it}$$

See text for detailed definitions of the diversity measures, Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are also included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.3: Directors Political Diversity and Firm Performance: First Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $\text{Diversity}_{it}$ | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| ENP | $0.134^{***}$ | $0.139^{***}$ | $0.063^{***}$ | $0.067^{***}$ | 0.019 |
| | (0.018) | (0.018) | (0.018) | (0.019) | (0.025) |
| log assets | | | $-0.023^{***}$ | $-0.013^{**}$ | $-0.013^{**}$ |
| | | | (0.005) | (0.006) | (0.006) |
| Leverage | | | $-0.00002$ | $0.001^{*}$ | $0.001^{*}$ |
| | | | (0.0004) | (0.0004) | (0.0004) |
| log Board Size | | | $0.195^{***}$ | $0.194^{***}$ | $0.147^{***}$ |
| | | | (0.014) | (0.015) | (0.019) |
| Prop.Ind.Dir | | | $-0.282^{***}$ | $-0.311^{***}$ | $-0.282^{***}$ |
| | | | (0.040) | (0.041) | (0.042) |
| Constant | $0.318^{***}$ | $0.268^{***}$ | $0.310^{***}$ | $0.166^{*}$ | $-0.009$ |
| | (0.033) | (0.080) | (0.060) | (0.095) | (0.147) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 3,671 | 3,668 | 3,092 | 3,092 | 3,092 |
| $R^2$ | 0.018 | 0.074 | 0.130 | 0.195 | 0.208 |
| Adjusted $R^2$ | 0.018 | 0.056 | 0.129 | 0.176 | 0.186 |

*Notes:* This table presents the results of the first-stage (4.6) of the 2SLS estimator in (4.7). We regress $\text{Diversity}_{it}$ (overall firm diversity) on the instrumental variable, local political diversity, as measured by the number of effective parties ENP. The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.4: Directors Political Diversity and Firm Performance: Second Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Tobin's Qt+1 | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| $\text{Diversity}_{it}$ | $-0.845^{***}$ | $-0.626^{***}$ | $-2.301^{**}$ | $-1.351^{**}$ | $-2.250$ |
| | (0.277) | (0.205) | (0.921) | (0.561) | (3.785) |
| log assets | | | $-0.156^{***}$ | $-0.065^{***}$ | $-0.078$ |
| | | | (0.027) | (0.016) | (0.060) |
| Leverage | | | $-0.004^{***}$ | $-0.001$ | $-0.0001$ |
| | | | (0.001) | (0.001) | (0.002) |
| log Board Size | | | $0.555^{***}$ | $0.306^{**}$ | 0.390 |
| | | | (0.194) | (0.120) | (0.570) |
| Prop.Ind.Dir | | | $-0.329$ | $-0.284$ | $-0.506$ |
| | | | (0.277) | (0.188) | (1.062) |
| Constant | $1.060^{***}$ | $1.070^{***}$ | $2.000^{***}$ | $1.334^{***}$ | 0.742 |
| | (0.159) | (0.142) | (0.405) | (0.238) | (0.512) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 3,209 | 3,209 | 2,995 | 2,995 | 2,995 |
| $R^2$ | 0.009 | 0.239 | 0.00005 | 0.134 | 0.060 |
| Adjusted $R^2$ | 0.008 | 0.223 | -0.002 | 0.113 | 0.033 |

*Notes:* This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on all Director's diversity $\text{Diversity}_{it}$. The specification estimated is (4.7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}$ are the predicted values obtained from (4.6) as reported in Table 4.3. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.5: Non-Executive Directors Diversity and Firm Performance: First Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $\text{Diversity}_{it}^{-\mathcal{M}}$ | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| ENP | 0.129*** | 0.135*** | 0.049*** | 0.052*** | 0.021 |
| | (0.019) | (0.019) | (0.019) | (0.019) | (0.026) |
| log assets | | | −0.022*** | −0.015*** | −0.015*** |
| | | | (0.005) | (0.006) | (0.006) |
| Leverage | | | 0.0001 | 0.001* | 0.001** |
| | | | (0.0004) | (0.0004) | (0.0004) |
| log Board Size | | | 0.204*** | 0.205*** | 0.169*** |
| | | | (0.015) | (0.015) | (0.020) |
| Prop.Ind.Dir | | | −0.367*** | −0.400*** | −0.374*** |
| | | | (0.040) | (0.042) | (0.043) |
| Constant | 0.311*** | 0.200*** | 0.313*** | 0.145 | 0.037 |
| | (0.034) | (0.074) | (0.062) | (0.088) | (0.171) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 3,384 | 3,381 | 2,924 | 2,924 | 2,924 |
| $R^2$ | 0.017 | 0.067 | 0.142 | 0.199 | 0.207 |
| Adjusted $R^2$ | 0.016 | 0.048 | 0.141 | 0.180 | 0.184 |

*Notes:* This table presents the results of the first-stage (4.6) of the 2SLS estimator in (4.7). We regress $\text{Diversity}_{it}^{-\mathcal{M}}$ (Non-Executive Directors Diversity) on the instrumental variable, local political diversity, as measured by the number of effective parties ENP. The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.6: Non-Executive Directors Diversity and Firm Performance: Second Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Tobin's Qt+1 | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| $\text{Diversity}_{it}^{-\mathcal{M}}$ | $-0.952^{***}$ | $-0.574^{**}$ | $-3.082^{**}$ | $-1.584^{*}$ | $-1.262$ |
| | (0.313) | (0.225) | (1.572) | (0.824) | (2.501) |
| log assets | | | $-0.168^{***}$ | $-0.069^{***}$ | $-0.064$ |
| | | | (0.040) | (0.020) | (0.044) |
| Leverage | | | $-0.003^{*}$ | 0.00003 | $-0.0002$ |
| | | | (0.002) | (0.001) | (0.002) |
| log Board Size | | | $0.738^{**}$ | $0.375^{**}$ | 0.282 |
| | | | (0.337) | (0.181) | (0.430) |
| Prop.Ind.Dir | | | $-0.815$ | $-0.504$ | $-0.354$ |
| | | | (0.587) | (0.337) | (0.934) |
| Constant | $1.090^{***}$ | $1.007^{***}$ | $2.226^{***}$ | $1.306^{***}$ | $0.896^{**}$ |
| | (0.172) | (0.130) | (0.639) | (0.261) | (0.410) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 2,987 | 2,987 | 2,836 | 2,836 | 2,836 |
| $R^2$ | 0.007 | 0.256 | 0.001 | 0.104 | 0.150 |
| Adjusted $R^2$ | 0.007 | 0.239 | -0.001 | 0.082 | 0.125 |

*Notes:* This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on board diversity $\text{Diversity}_{it}^{-\mathcal{M}}$. The specification estimated is (4.7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}^{-\mathcal{M}}$ are the predicted values obtained from (4.6) as reported in Table 4.5. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.7: Management Diversity in terms of Non-Executive Directors and Firm Performance: First Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $\text{Diversity}_{it}^{\mathcal{BM}}$ | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| ENP | 0.182** | 0.265*** | 0.286*** | 0.343*** | 0.075 |
| | (0.076) | (0.082) | (0.086) | (0.096) | (0.125) |
| log assets | | | −0.092*** | −0.070** | −0.067** |
| | | | (0.025) | (0.027) | (0.028) |
| Leverage | | | −0.003 | −0.002 | −0.001 |
| | | | (0.003) | (0.003) | (0.003) |
| log Board Size | | | −0.317*** | −0.288** | −0.488*** |
| | | | (0.118) | (0.113) | (0.133) |
| Prop.Ind.Dir | | | 0.836*** | 0.621*** | 0.766*** |
| | | | (0.222) | (0.236) | (0.234) |
| Constant | 0.681*** | 0.856** | 1.671*** | 1.719*** | 1.399 |
| | (0.132) | (0.397) | (0.322) | (0.470) | (0.911) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 2,370 | 2,367 | 2,164 | 2,164 | 2,164 |
| $R^2$ | 0.002 | 0.080 | 0.036 | 0.098 | 0.107 |
| Adjusted $R^2$ | 0.001 | 0.054 | 0.034 | 0.068 | 0.072 |

*Notes:* This table presents the results of the first-stage (4.6) of the 2SLS estimator in (4.7). We regress $\text{Diversity}_{it}^{\mathcal{BM}}$ (Diversity between Management and Non-Executive Directors) on the instrumental variable, local political diversity, as measured by the number of effective parties ENP. The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4.8: Management Diversity in terms of Non-Executive Directors and Firm Performance: Second Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Tobin's Qt+1 | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| $\text{Diversity}_{it}^{\mathcal{BM}}$ | $-1.008^{*}$ | $-0.405^{**}$ | $-0.678^{**}$ | $-0.295^{**}$ | $-0.501$ |
| | (0.564) | (0.183) | (0.279) | (0.127) | (1.019) |
| log assets | | | $-0.152^{***}$ | $-0.054^{***}$ | $-0.069$ |
| | | | (0.034) | (0.017) | (0.075) |
| Leverage | | | $-0.005^{**}$ | $-0.002$ | $-0.002$ |
| | | | (0.003) | (0.001) | (0.002) |
| log Board Size | | | $-0.158$ | $-0.072$ | $-0.200$ |
| | | | (0.108) | (0.049) | (0.493) |
| Prop.Ind.Dir | | | $0.996^{***}$ | $0.350^{***}$ | 0.514 |
| | | | (0.311) | (0.134) | (0.763) |
| Constant | $1.591^{***}$ | $1.308^{***}$ | $2.463^{***}$ | $1.607^{***}$ | 1.649 |
| | (0.566) | (0.301) | (0.585) | (0.329) | (1.644) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 2,183 | 2,183 | 2,116 | 2,116 | 2,116 |
| $R^2$ | 0.009 | 0.090 | 0.0003 | 0.157 | 0.076 |
| Adjusted $R^2$ | 0.008 | 0.061 | -0.002 | 0.128 | 0.038 |

*Notes:* This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on Diversity between Management and Non-Executive Directors $\text{Diversity}_{it}^{\mathcal{BM}}$. The specification estimated is (4.7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}^{\mathcal{BM}}$ are the predicted values obtained from (4.6) as reported in Table 4.7. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

# Chapter 5

# Conclusion

Using a novel dataset, this thesis analyzes the connections between the corporate and political elites, where they are connected by the donations that the latter receive from the former. We begin by asking how such money is allocated among legislators. Next we study these connections as a social Network and highlight the shared preferences of the corporate elite donors which determine the formation of such network. In the end we examine whether ideological diversity found within corporate elites, when present in the boardrooms, affects firm's performance.

This study uses a unique data set that combines FEC data on personal contributions with hand collected data from Bloomberg on the composition of all listed firms' boards and senior management since their inception. In Chapter 2 and chapter 3, the giving pattern of corporate elites and the resulting connections are studied using tools from Network Theory. Chapter 2 provides evidence that how the amount of contribution is correlated with members' power and connections rather than their ideology. The results foresee a donation network of elites with thick links with key legislators. The detailed study of such a network is carried out in chapter 3.

The Network analysis shows that such donation patterns have become more polarized, more concentrated, and more dependent on the corporate connections and allegiances of the individual. We also document the common traits or characteristics of both corporate elites and legislators which determine the formation of this

network. Directors and executives from the same company and sector is the primary characteristic that is associated with (contributes to) financing same set of legislators, more than other common traits. We argue that the number of common recipients (financing the same set of legislators) between donors is an important indicator of their overlapping preferences and goals.

The thesis goes on in chapter 4 to examine the effects of ideological diversity in boardrooms on firms' performance. The analysis here shows that the ideological distribution of corporate elites is not quite uni-modal, while the average member of the corporate elite is right-of-centre, however, there is also a second smaller group of left-of-centre executives and board members. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial.

This thesis has shown the changing nature of money in US politics. The findings indicate that the structure of contributions by those within the corporate sector, and within the set of the wealthy, also merits attention. The concentration of campaign contribution within the corporate sector may further accelerate already increasing economic disparities. The papers presented here are of course a starting point of a deeper analysis of the influence of contributions in the legislative process. Evidence found in chapter 3 of the increasing polarization of large donors suggests a future study of comparison with small individual donors and within small versus large firms. Also, how board political diversity can affect the political activities of the firm e.g., its lobbying decision ? These are some of the questions that I am eager to address in the near future.

# Appendix A

# Appendix to Chapter Two

## A.1 Graphs

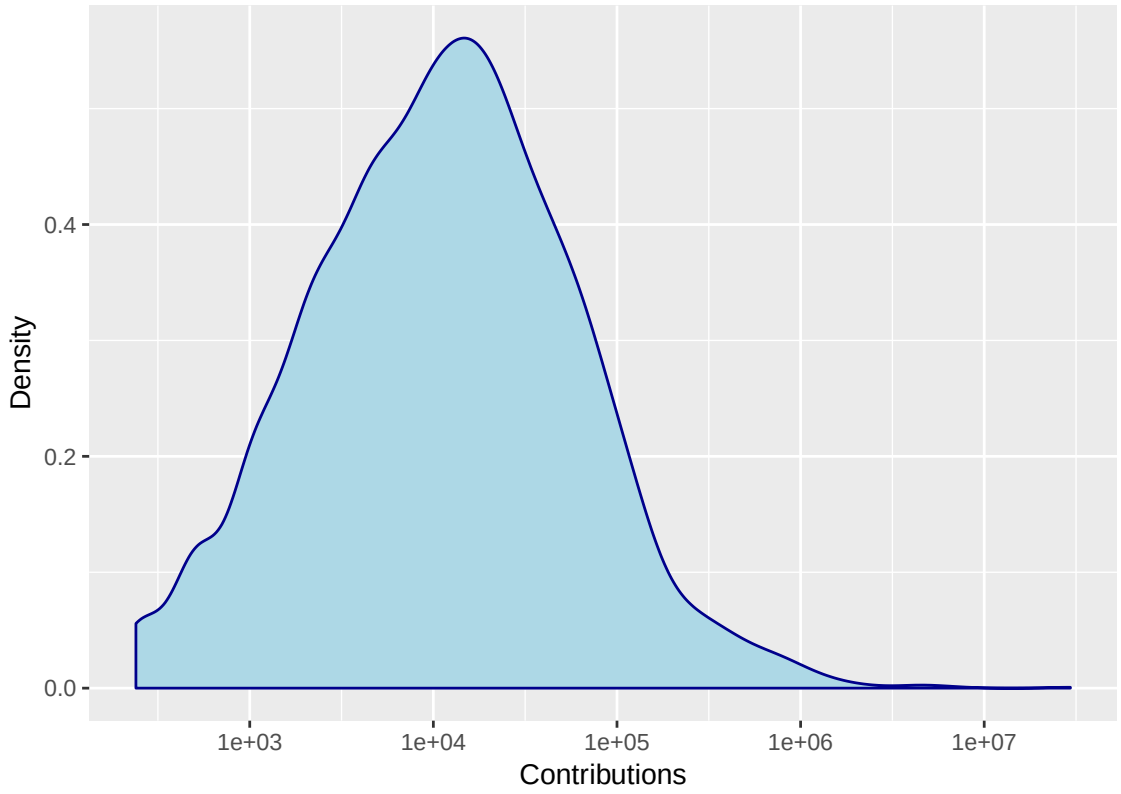


Figure A.1: Distribution of total Contributions from Corporate Elites(Dependent Variable)

## A.2 Tables

Table A.1: Data on Directors and Executives

| Group | No.of Individuals | Firms | Years |
|---|---|---|---|
| Top Management | 35917 | 2360 | since Inception |
| Board Members | 33570 | 2360 | since inception |

Table A.2: Descriptive Statistics

| Statistic | N | Mean | St. Dev. | Min | Pctl(25) | Pctl(75) | Max |
|---|---|---|---|---|---|---|---|
| Contributions | 5,393 | 43,521 | 438,362 | 0 | 1,000 | 25,750 | 29,466,759 |
| Donors per Member | 5,393 | 20.5 | 77.5 | 0 | 2 | 18 | 4,252 |
| Party Connections | 5,393 | 25.0 | 55.5 | 0 | 0 | 26 | 931 |
| Ind.exp.for.Cand | 4,452 | 6,749.2 | 60,194 | 0.0 | 0.0 | 21.0 | 1,879,734 |

*Notes:* This table presents the summary statistics of the following variables: Contributions are the total money received from corporate elites by a member. Donors per Member is the corporate elite donors per member, the other two variables are the indicators of connections explained in section 2.2.

| | *Dependent variable: log(Contributions)* | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Energy & | 0.417*** | 0.283** | −0.269** | −0.108 |
| Commerce | (0.139) | (0.113) | (0.137) | (0.123) |
| Appropriations | 0.204 | 0.051 | −0.153 | −0.073 |
| | (0.131) | (0.133) | (0.145) | (0.127) |
| Ways& Mean | 0.521*** | 0.492*** | 0.110 | 0.247 |
| | (0.141) | (0.140) | (0.191) | (0.167) |
| Taxation(Joint) | 0.131 | −0.007 | 0.030 | −0.185 |
| | (0.428) | (0.338) | (0.344) | (0.345) |
| Banking,Finance | 0.385*** | 0.311*** | −0.273** | −0.155 |
| & UrbanAffairs | (0.114) | (0.104) | (0.118) | (0.105) |
| Agriculture | −0.128 | −0.055 | −0.189 | −0.081 |
| | (0.114) | (0.111) | (0.146) | (0.139) |
| Foreign Affairs | −0.135 | −0.241** | −0.254** | −0.166 |
| | (0.129) | (0.119) | (0.130) | (0.116) |
| Budget | 0.112 | 0.054 | −0.068 | 0.025 |
| | (0.111) | (0.092) | (0.090) | (0.085) |
| Armed Services | 0.208* | 0.218* | −0.006 | 0.093 |
| | (0.117) | (0.117) | (0.162) | (0.156) |
| Public Works | 0.048 | 0.104 | 0.052 | 0.045 |
| & Transportation | (0.106) | (0.101) | (0.113) | (0.106) |
| Commerce,Science | 0.678*** | 0.837*** | 0.993** | 0.729 |
| & Transportation | (0.207) | (0.250) | (0.463) | (0.492) |
| Finance | 0.386* | 0.374* | 0.316 | −0.273 |
| | (0.213) | (0.227) | (0.319) | (0.309) |
| Appropriations | 0.528*** | 0.640*** | 0.928** | 0.381 |
| (S) | (0.188) | (0.243) | (0.375) | (0.318) |
| Armed Services | 1.056*** | 0.999*** | 0.763*** | 0.497* |
| (S) | (0.189) | (0.199) | (0.261) | (0.268) |
| Agriculture | 0.457** | 0.595*** | 0.684** | 0.431* |
| & Forestry(S) | (0.197) | (0.213) | (0.328) | (0.252) |
| Foreign Relations | 0.720*** | 0.547** | 0.518 | 0.091 |
| (S) | (0.214) | (0.231) | (0.360) | (0.341) |
| Banking,Housing | 0.504** | 0.373* | 0.232 | −0.014 |
| & UrbanAffairs | (0.208) | (0.214) | (0.280) | (0.255) |
| Budget(S) | −0.017 | 0.023 | 0.139 | 0.013 |
| | (0.181) | (0.225) | (0.370) | (0.319) |
| Energy& Natural | 0.049 | 0.321 | 0.646** | 0.322 |
| Resources(S | (0.201) | (0.204) | (0.282) | (0.278) |
| Member/Year Effects | *No* | *Yes/No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,442 | 4,442 | 4,442 | 4,442 |
| $R^2$ | 0.095 | 0.445 | 0.224 | 0.100 |
| Adjusted $R^2$ | 0.088 | 0.440 | -0.033 | -0.201 |

*Notes:* This table presents the results of regression that examines a relation between committee membership and contributions received from corporate elites. Column 1, 2 and 3 are respectively pooled, random effect and fixed effect regression results. Numbers in parentheses are standard errors(clustered at indiviual legislator level).***, **, & * denote significance at the 1%,5%, and 10% levels,respectively.

Table A.3: Membership of Important Committees

Table A.4: Higher Positions and the Seniority

| | *Dependent variable: log(Contributions)* | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Committee Chairman | 0.301** | 0.194 | 0.340*** | 0.283** |
| | (0.145) | (0.129) | (0.127) | (0.126) |
| Minority Leader | 1.118* | 0.795 | 0.472 | 0.253 |
| | (0.598) | (0.655) | (0.685) | (0.611) |
| Ranking Minority | 0.423*** | 0.298** | 0.315*** | 0.210* |
| Member | (0.155) | (0.129) | (0.121) | (0.120) |
| House Speaker | 2.431*** | 2.064*** | 1.887** | 1.887** |
| | (0.619) | (0.689) | (0.793) | (0.872) |
| Senior Party Status | 0.078 | −0.092 | −0.015 | 0.084 |
| | (0.382) | (0.327) | (0.381) | (0.381) |
| Majority Leader | 0.948* | 1.308*** | 1.248*** | 1.094*** |
| | (0.497) | (0.408) | (0.296) | (0.321) |
| Years in Congress | −0.004 | 0.018*** | 0.069*** | 0.026*** |
| | (0.003) | (0.003) | (0.003) | (0.009) |
| Majority Party | 0.221*** | 0.198*** | 0.096* | 0.103** |
| | (0.060) | (0.052) | (0.055) | (0.049) |
| Member/Year Effects | *No* | *Yes/No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,442 | 4,442 | 4,442 | 4,442 |
| $R^2$ | 0.095 | 0.445 | 0.224 | 0.100 |
| Adjusted $R^2$ | 0.088 | 0.440 | -0.033 | -0.201 |

*Notes:* This table presents the results of our model for the variables on position of the members, a relation between each of the six positions variables and the contributions received from corporate elites (measured by the log of Contributions). See section 2.2 for detailed definitions of these variables. Columns 1 to 4 present results from pooled, random effect, and fixed effect models respectively,numbers in parentheses are robust standard errors (clustered at individual level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table A.5: Connections and Ideology

| | *Dependent variable: log(Contributions)* | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Party Connections | 0.002*** | 0.002*** | | |
| | (0.001) | (0.001) | | |
| Non-Party Connections | −0.021** | 0.011 | 0.087*** | 0.116*** |
| | (0.009) | (0.009) | (0.009) | (0.008) |
| ideology(L) | 0.092 | 0.035 | 0.014 | 0.028 |
| | (0.085) | (0.073) | (0.070) | (0.065) |
| Ideology(Moderate(L)) | −0.145* | −0.082 | 0.019 | 0.010 |
| | (0.087) | (0.072) | (0.069) | (0.063) |
| Ideology(Moderate(R)) | 0.061 | 0.042 | −0.024 | 0.031 |
| | (0.082) | (0.074) | (0.075) | (0.066) |
| Ideology(R) | 0.162* | 0.081 | −0.049 | −0.010 |
| | (0.089) | (0.082) | (0.079) | (0.071) |
| Ideology(FR) | 0.093 | 0.072 | 0.063 | 0.083 |
| | (0.083) | (0.073) | (0.070) | (0.066) |
| Member/Year Effects | *No* | *Yes/No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,442 | 4,442 | 4,442 | 4,442 |
| $R^2$ | 0.095 | 0.445 | 0.224 | 0.100 |
| Adjusted $R^2$ | 0.088 | 0.440 | -0.033 | -0.201 |

*Notes:*This table presents the results of our model for the variables on Connection and Ideology of the members,a relation between these variables and the contributions received from corporate elites (measured by the log of Contributions). See section 2.2 for detailed definitions of these variables.Columns 1 to 4 present results from pooled, random effect,and fixed effect models respectively, numbers in parentheses are robust standard errors(clustered at individual level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

# Appendix B

# Appendix to Chapter 3

## B.1 Graphs

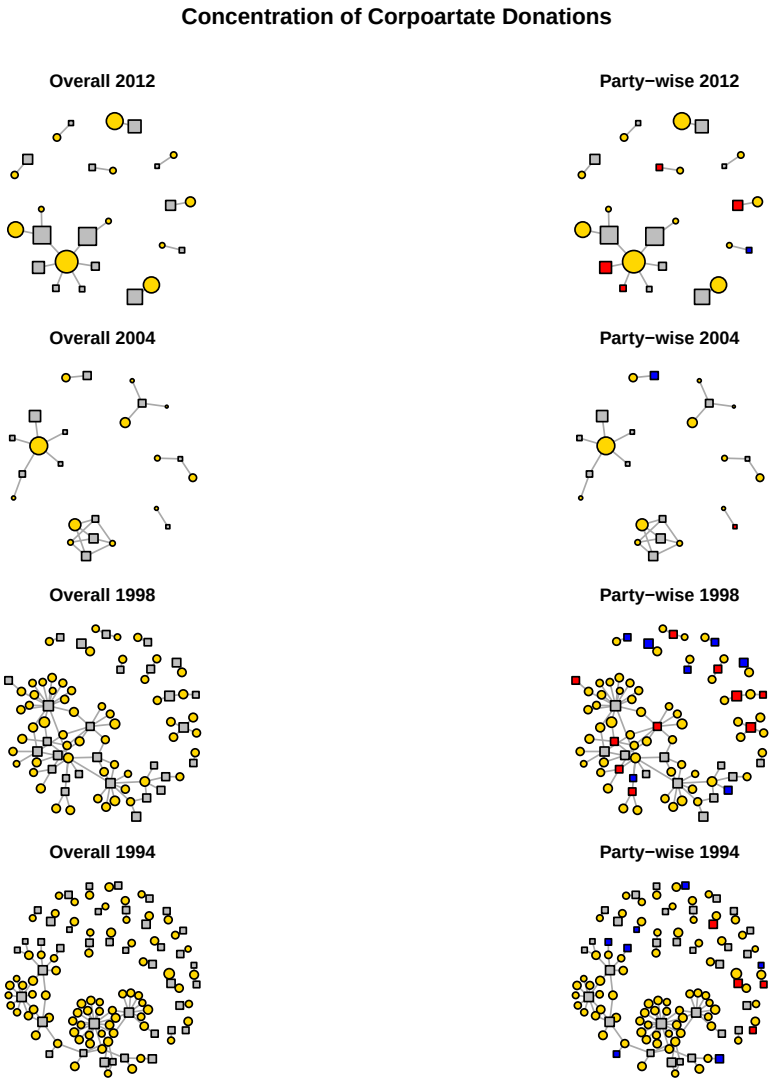


Figure B.1: Concentration of donations overtime

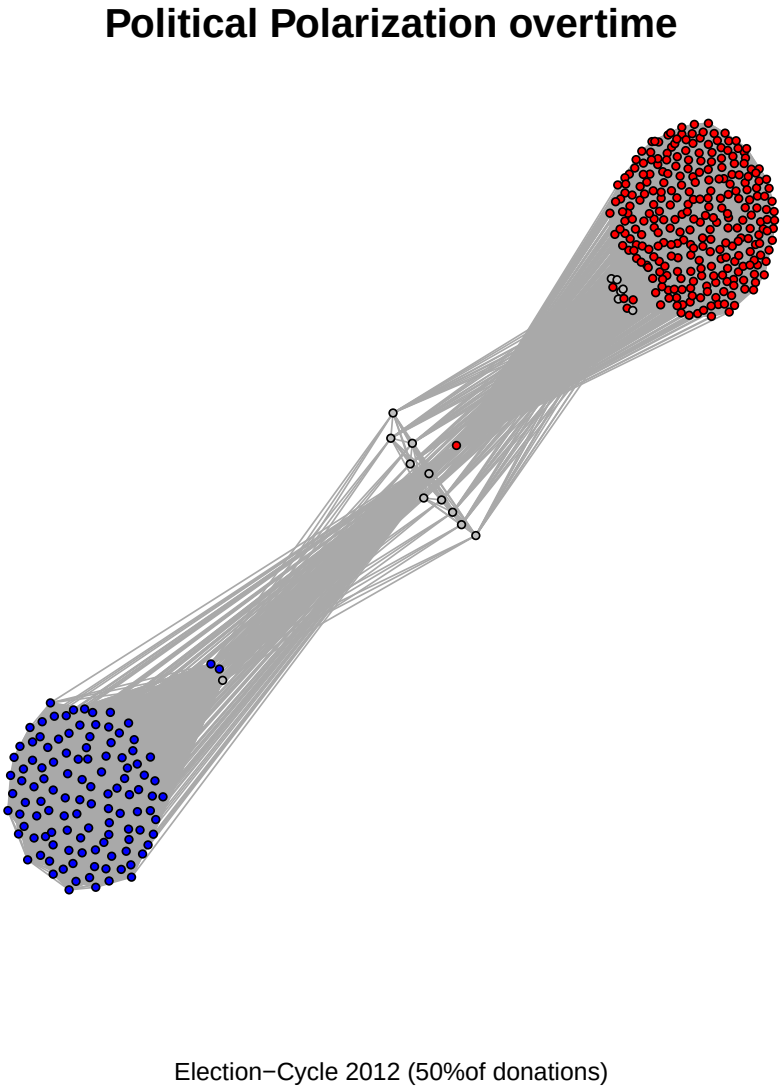


Figure B.2: Political polarization of Top Donors (50% donations in EC-2012)

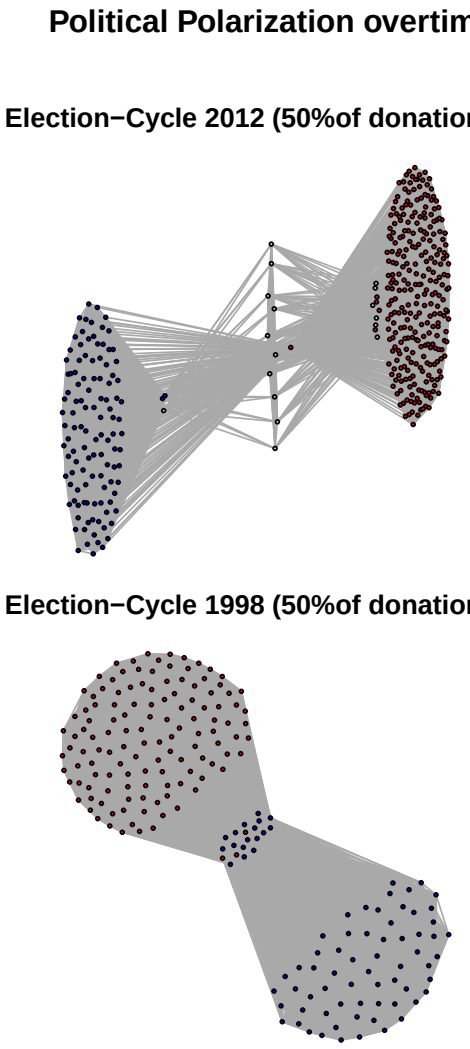


Figure B.3: Political polarization overtime

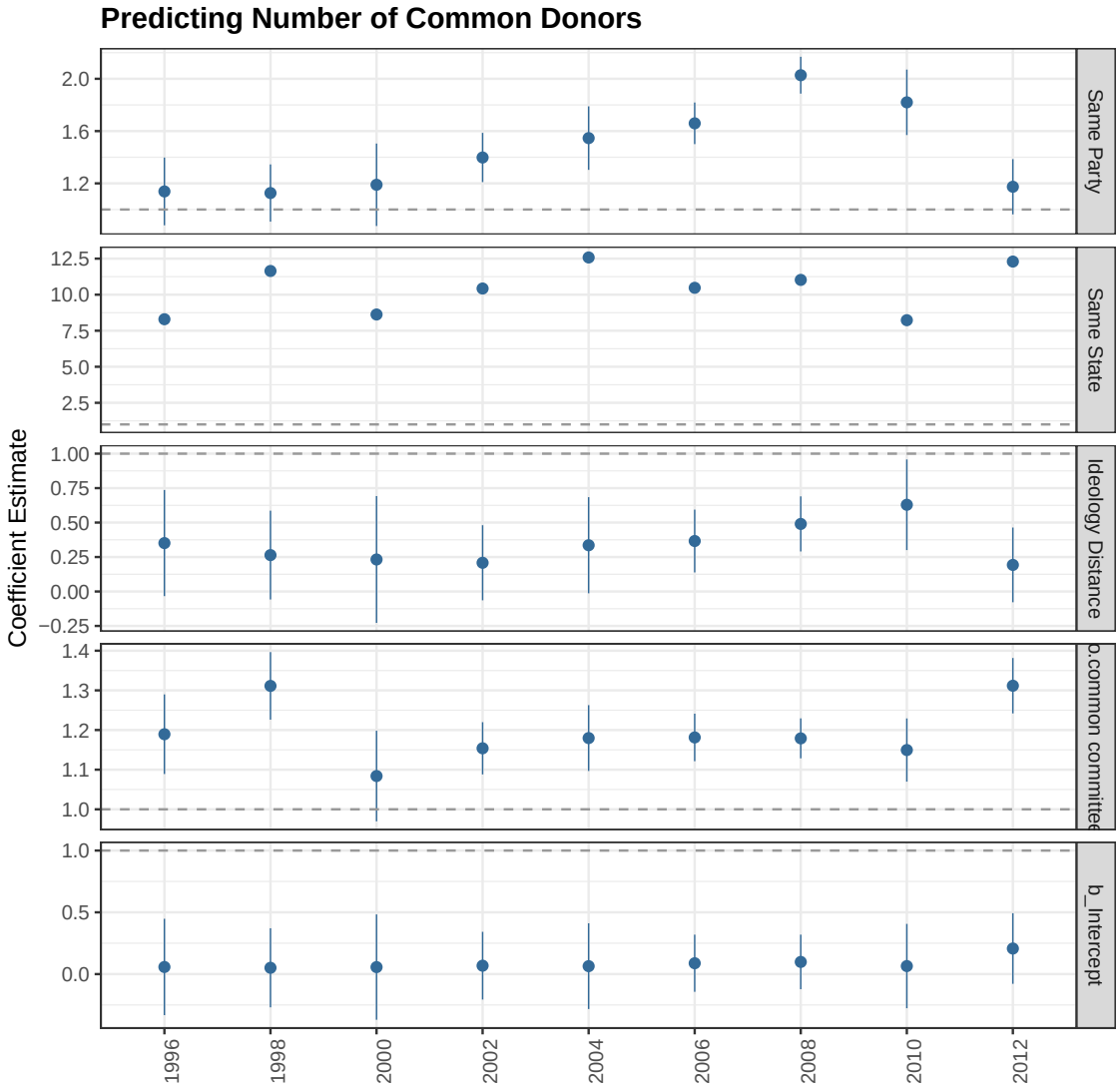


Figure B.4: Coefficient Estimates and Confidence Intervals: Recipient Data (Forward Looking Committee Membership.

## B.2 Data Details

Table B.1: Data on Directors and Executives

| **Corp. Group** | **No.of Individuals** | **Companies** | **Years** |
|---|---|---|---|
| Top Management | 35917 | 2360 | since Inception |
| Board Members | 33570 | 2360 | since inception |

Table B.2: Data Description

| | E-C | No of Donors | No.of Recipients | No.of donations |
|---|---|---|---|---|
| 1 | 1980 | 350 | 364 | 1,051 |
| 2 | 1982 | 315 | 381 | 866 |
| 3 | 1984 | 540 | 480 | 1,510 |
| 4 | 1986 | 709 | 570 | 1,910 |
| 5 | 1988 | 1,116 | 728 | 3,461 |
| 6 | 1990 | 1,504 | 1,003 | 4,059 |
| 7 | 1992 | 2,154 | 1,344 | 7,044 |
| 8 | 1994 | 1,489 | 1,179 | 5,197 |
| 9 | 1996 | 3,929 | 2,325 | 14,525 |
| 10 | 1998 | 5,082 | 3,583 | 20,675 |
| 11 | 2000 | 6,865 | 4,556 | 29,855 |
| 12 | 2002 | 8,316 | 5,738 | 36,109 |
| 13 | 2004 | 10,674 | 6,373 | 47,487 |
| 14 | 2006 | 16,036 | 8,353 | 66,955 |
| 15 | 2008 | 25,562 | 9,589 | 90,349 |
| 16 | 2010 | 20,578 | 9,875 | 74,052 |
| 17 | 2012 | 31,689 | 9,008 | 100,765 |

Table B.3: Summary Statistics for Selected Variables: All Election-Cycles

| **Statistic** | **N** | **Mean** | **St. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Election-Cycle:1980 | | | | | |
| N. Common Recipients | 666 | 0.2 | 0.6 | 0 | 4 |
| Same Company | 666 | 0.02 | 0.1 | 0 | 1 |
| Same Sector | 666 | 0.1 | 0.3 | 0 | 1 |
| Same State | 666 | 0.1 | 0.2 | 0 | 1 |
| Same Congressional District | 378 | 0.1 | 0.3 | 0 | 1 |
| Same Company-State | 666 | 0.1 | 0.3 | 0 | 1 |
| Same Company-District | 666 | 0.03 | 0.2 | 0 | 1 |
| Election-Cycle:1982 | | | | | |
| N. Common Recipients | 703 | 0.1 | 0.3 | 0 | 4 |
| Same Company | 703 | 0.01 | 0.1 | 0 | 1 |
| Same Sector | 703 | 0.1 | 0.3 | 0 | 1 |
| Same State | 703 | 0.1 | 0.2 | 0 | 1 |
| Same Congressional District | 465 | 0.04 | 0.2 | 0 | 1 |
| Same Company-State | 703 | 0.1 | 0.2 | 0 | 1 |
| Same Company-District | 703 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1984 | | | | | |
| N. Common Recipients | 1,524 | 0.1 | 0.4 | 0 | 4 |
| Same Company | 1,524 | 0.01 | 0.1 | 0 | 1 |
| Same Sector | 1,524 | 0.1 | 0.4 | 0 | 1 |
| Same State | 1,524 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 1,034 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 1,524 | 0.05 | 0.2 | 0 | 1 |

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Table B.3: – continued from previous page

| **Statistic** | **N** | **Mean** | **St. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Same Company-District | 1,524 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1986 | | | | | |
| N. Common Recipients | 5,995 | 0.1 | 0.3 | 0 | 5 |
| Same Company | 5,995 | 0.01 | 0.1 | 0 | 1 |
| Same Sector | 5,995 | 0.1 | 0.3 | 0 | 1 |
| Same State | 5,995 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 4,095 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 5,995 | 0.05 | 0.2 | 0 | 1 |
| Same Company-District | 5,995 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1988 | | | | | |
| N. Common Recipients | 13,170 | 0.1 | 0.5 | 0 | 9 |
| Same Company | 13,170 | 0.005 | 0.1 | 0 | 1 |
| Same Sector | 13,170 | 0.1 | 0.3 | 0 | 1 |
| Same State | 13,170 | 0.04 | 0.2 | 0 | 1 |
| Same Congressional District | 8,857 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 13,170 | 0.1 | 0.2 | 0 | 1 |
| Same Company-District | 13,170 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1990 | | | | | |
| N. Common Recipients | 32,342 | 0.04 | 0.2 | 0 | 7 |
| Same Company | 32,342 | 0.003 | 0.1 | 0 | 1 |
| Same Sector | 32,342 | 0.1 | 0.3 | 0 | 1 |
| Same State | 32,342 | 0.05 | 0.2 | 0 | 1 |

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Table B.3: – continued from previous page

| **Statistic** | **N** | **Mean** | **St. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Same Congressional District | 18,360 | 0.1 | 0.3 | 0 | 1 |
| Same Company-State | 32,342 | 0.05 | 0.2 | 0 | 1 |
| Same Company-District | 32,342 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1992 | | | | | |
| N. Common Recipients | 93,961 | 0.1 | 0.4 | 0 | 10 |
| Same Company | 93,961 | 0.003 | 0.1 | 0 | 1 |
| Same Sector | 93,961 | 0.1 | 0.3 | 0 | 1 |
| Same State | 93,961 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 61,075 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 93,961 | 0.1 | 0.2 | 0 | 1 |
| Same Company-District | 93,961 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1994 | | | | | |
| N. Common Recipients | 7,260 | 0.1 | 0.4 | 0 | 7 |
| Same Company | 7,260 | 0.003 | 0.1 | 0 | 1 |
| Same Sector | 7,260 | 0.1 | 0.3 | 0 | 1 |
| Same State | 7,260 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 5,253 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 7,260 | 0.05 | 0.2 | 0 | 1 |
| Same Company-District | 7,260 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1996 | | | | | |
| N. Common Recipients | 683,865 | 0.1 | 0.4 | 0 | 15 |
| Same Company | 683,865 | 0.002 | 0.05 | 0 | 1 |

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Table B.3: – continued from previous page

| **Statistic** | **N** | **Mean** | **St. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Same Sector | 683,865 | 0.1 | 0.3 | 0 | 1 |
| Same State | 683,865 | 0.04 | 0.2 | 0 | 1 |
| Same Congressional District | 454,581 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 683,865 | 0.1 | 0.2 | 0 | 1 |
| Same Company-District | 683,865 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:1998 | | | | | |
| N. Common Recipients | 942,711 | 0.1 | 0.3 | 0 | 20 |
| Same Company | 942,711 | 0.003 | 0.1 | 0 | 1 |
| Same Sector | 942,711 | 0.1 | 0.3 | 0 | 1 |
| Same State | 942,711 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 583,451 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 942,711 | 0.1 | 0.2 | 0 | 1 |
| Same Company-District | 942,711 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:2000 | | | | | |
| N. Common Recipients | 2478,651 | 0.2 | 0.5 | 0 | 22 |
| Same Company | 2478,651 | 0.003 | 0.05 | 0 | 1 |
| Same Sector | 2478,651 | 0.2 | 0.4 | 0 | 1 |
| Same State | 2478,651 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 1933,561 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 2478,651 | 0.1 | 0.2 | 0 | 1 |
| Same Company-District | 2478,651 | 0.01 | 0.1 | 0 | 1 |

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Table B.3: – continued from previous page

| **Statistic** | **N** | **Mean** | **St. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Election-Cycle:2002 | | | | | |
| N. Common Recipients | 3180,226 | 0.04 | 0.3 | 0 | 24 |
| Same Company | 3180,226 | 0.003 | 0.1 | 0 | 1 |
| Same Sector | 3180,226 | 0.2 | 0.4 | 0 | 1 |
| Same State | 3180,226 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 2569,345 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 3180,226 | 0.1 | 0.3 | 0 | 1 |
| Same Company-District | 3180,226 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:2004 | | | | | |
| N. Common Recipients | 7259,955 | 0.2 | 0.5 | 0 | 40 |
| Same Company | 7259,955 | 0.002 | 0.05 | 0 | 1 |
| Same Sector | 7259,955 | 0.2 | 0.4 | 0 | 1 |
| Same State | 7259,955 | 0.05 | 0.2 | 0 | 1 |
| Same Congressional District | 6046,503 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 7259,955 | 0.1 | 0.3 | 0 | 1 |
| Same Company-District | 7259,955 | 0.01 | 0.1 | 0 | 1 |
| Election-Cycle:2006 | | | | | |
| N.Common Recipients | 3000,000 | 0.04 | 0.3 | 0 | 38 |
| Same Company | 3000,000 | 0.002 | 0.05 | 0 | 1 |
| Same Sector | 3000,000 | 0.2 | 0.4 | 0 | 1 |
| Same Company-State | 3000,000 | 0.1 | 0.3 | 0 | 1 |
| Same Company-District | 3000,000 | 0.02 | 0.1 | 0 | 1 |
| Same Congressional District | 2552,282 | 0.1 | 0.2 | 0 | 1 |

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Table B.3: – continued from previous page

| **Statistic** | **N** | **Mean** | **St. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Same State | 3000,000 | 0.05 | 0.2 | 0 | 1 |
| | | | | | |
| Election-Cycle:2008 | | | | | |
| N.Common Recipients | 3000,000 | 0.1 | 0.4 | 0 | 19 |
| Same Company | 3000,000 | 0.002 | 0.1 | 0 | 4 |
| Same Sector | 3000,000 | 0.1 | 0.4 | 0 | 4 |
| Same State | 3000,000 | 0.04 | 0.2 | 0 | 1 |
| Same Congressional District | 2538,992 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 3000,000 | 0.1 | 0.3 | 0 | 1 |
| Same Company-District | 3000,000 | 0.01 | 0.1 | 0 | 1 |
| | | | | | |
| Election-Cycle:2010 | | | | | |
| N.Common Recipients | 3000,000 | 0.02 | 0.2 | 0 | 34 |
| Same Company | 3000,000 | 0.003 | 0.1 | 0 | 4 |
| Same Sector | 3000,000 | 0.1 | 0.3 | 0 | 3 |
| Same State | 3000,000 | 0.04 | 0.2 | 0 | 1 |
| Same Congressional District | 2540,679 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 3000,000 | 0.1 | 0.2 | 0 | 1 |
| Same Company-District | 3000,000 | 0.01 | 0.1 | 0 | 1 |
| | | | | | |
| Election-Cycle:2012 | | | | | |
| N. Common Recipients | 3000,000 | 0.1 | 0.4 | 0 | 16 |
| Same Company | 3000,000 | 0.003 | 0.1 | 0 | 4 |
| Same Sector | 3000,000 | 0.1 | 0.4 | 0 | 4 |
| Same State | 3000,000 | 0.04 | 0.2 | 0 | 1 |

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Table B.3: – continued from previous page

| **Statistic** | **N** | **Mean** | **St. Dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Same Congressional District | 2410,563 | 0.1 | 0.2 | 0 | 1 |
| Same Company-State | 3000,000 | 0.1 | 0.3 | 0 | 1 |
| Same Company-District | 3000,000 | 0.01 | 0.1 | 0 | 1 |

# Appendix C

# Appendix to Chapter4

## C.1 Additional Graphs

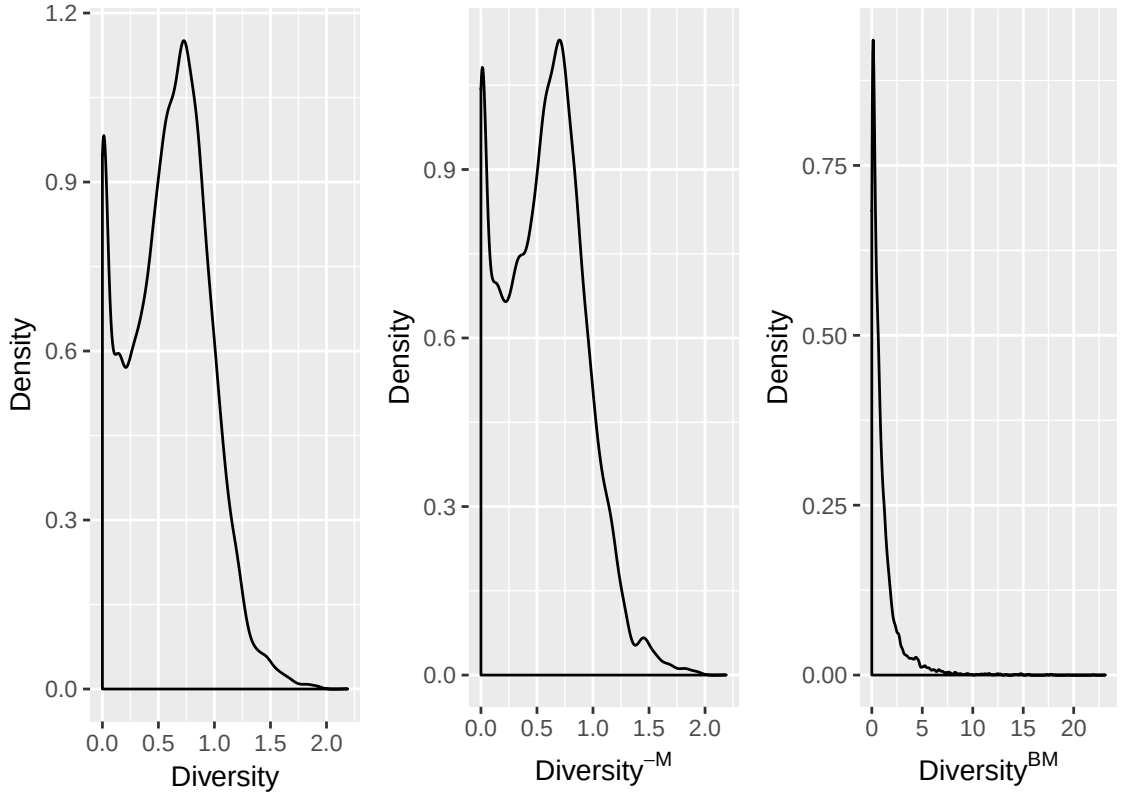


Figure C.1: Diversity Measures w.r.t Corporate Elite Category

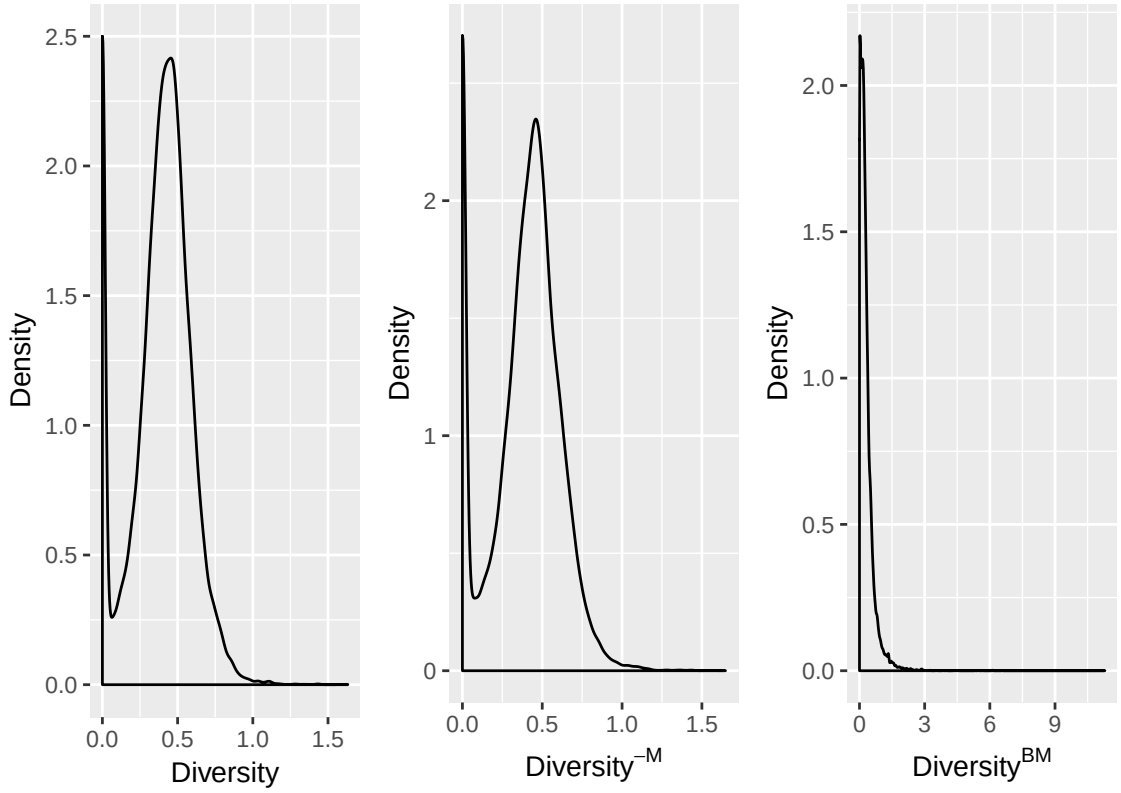


Figure C.2: Diversity Measures w.r.t Corporate Elite Category(Alternative-1)

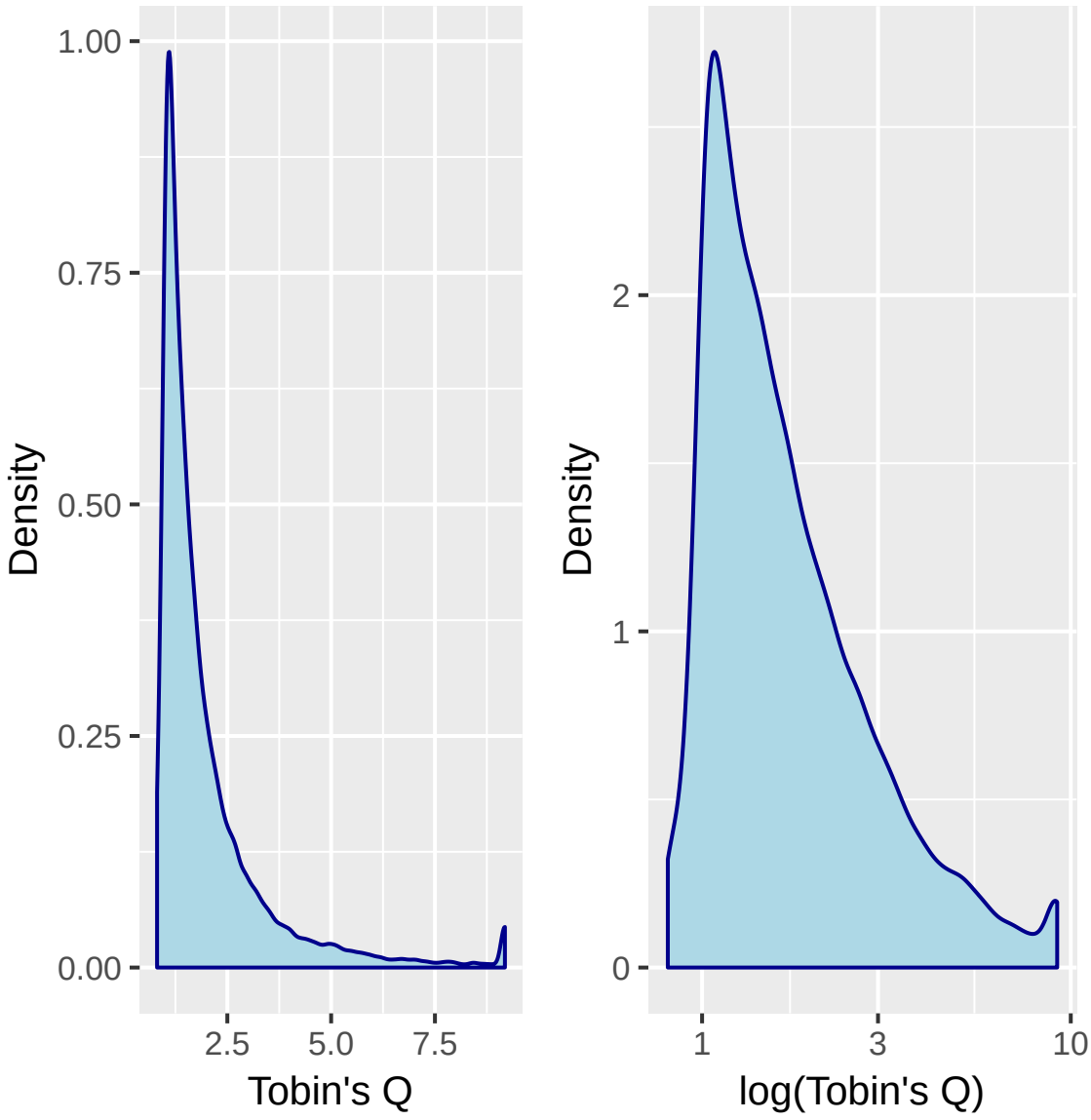


Figure C.3: Dependent Variable: Tobin's Q

## C.2 Definitions of Variables

Table C.1: Definition of variables

| Variables | Definitions |
|---|---|
| Ideology | It is the estimated ideological positions provided by Bonica (2014),this data set provides the CFscore as the measure of ideology for each individual contributor based on their personal donations to candidates to Congress. |
| ENP | A measure for local political diversity which is the extent to which a district is politically competitive, a standard measure used in Political Science, the Effective Number of Parties(ENP), as proposed by Laakso and Taagepera (1979) |
| Diversity | This is the overall diversity among all the firm's Directors and top Management |
| Diversity$^{-M}$ | This is the measure of Diversity among the board members (excluding the other executives group) |
| Diversity$^{BM}$ | This is the measure of Diversity between the management and board, (Computed as the diversity between executives and non-executive Directors) |

Continued on next page.

| Variables | Definitions |
|---|---|
| Tobin's Q | Ratio of the market value of a firm to the replacement cost of the firm's assets, it is taken from Bloomberg, which computes it as follows: (MarketCap+Total Liabilities+ Preferred Equity+Minority Interest) / TotalAssets |
| Assets | The total of all short and long-term assets as reported on the Balance Sheet, taken from Bloomberg |
| Leverage | Leverage ratio in the percentage that defines the total amount of debt relative to assets, taken from Bloomberg |
| Board Size | Number of Directors on the company's board, (self-Computed from the hand-collected data on Board and management) |
| Prop.Ind.Dir | The proportion of independent (outside) directors given a board (self-Computed by matching the board data set with top management data set of each firm |

## C.3 Alternative Measures of Board Diversity

### C.3.1 Non-Donors Are Representative of the U.S. Population

Table C.2: Board Diversity and Firm Performance - Pooled OLS Results

| | *Dependent variable:* | | |
|---|---|---|---|
| | Tobin's Qt+1 | | |
| | (1) | (2) | (3) |
| $\text{Diversity}_{it}$ | $0.118^{***}$ | | |
| | (0.036) | | |
| $\text{Diversity}_{it}^{-\mathcal{M}}$ | | $0.109^{***}$ | |
| | | (0.035) | |
| $\text{Diversity}_{it}^{\mathcal{BM}}$ | | | 0.002 |
| | | | (0.017) |
| log assets | $-0.057^{***}$ | $-0.057^{***}$ | $-0.055^{***}$ |
| | (0.006) | (0.006) | (0.006) |
| Leverage | $-0.002^{***}$ | $-0.002^{***}$ | $-0.002^{***}$ |
| | (0.0004) | (0.0004) | (0.0004) |
| log Board Size | $0.038^{***}$ | $0.041^{***}$ | $0.036^{**}$ |
| | (0.014) | (0.014) | (0.017) |
| Prop.Ind.Dir | $0.149^{***}$ | $0.151^{***}$ | $0.145^{***}$ |
| | (0.033) | (0.034) | (0.038) |
| Constant | 0.319 | 0.318 | $0.844^{***}$ |
| | (0.456) | (0.397) | (0.319) |
| Ind/year Effects | $Yes$ | $Yes$ | $Yes$ |
| Observations | 27,102 | 27,003 | 24,845 |
| $R^2$ | 0.391 | 0.391 | 0.389 |
| Adjusted $R^2$ | 0.389 | 0.389 | 0.387 |

*Notes:* This table presents the results of (4.4) a pooled OLS regression that examines a relation between each of the three Ideological Diversity measures and firm value,(measured by the log of Tobin's Q, one period ahead).

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it}$$

See text for detailed definitions of the diversity measures, Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are also included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.3: Directors Political Diversity and Firm Performance: First Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Diversity$_{it}$ | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| ENP | 0.067*** | 0.070*** | 0.021** | 0.022** | 0.010 |
| | (0.009) | (0.009) | (0.009) | (0.009) | (0.013) |
| log assets | | | −0.004 | 0.00004 | −0.00004 |
| | | | (0.003) | (0.003) | (0.003) |
| Leverage | | | −0.0002 | 0.0001 | 0.0001 |
| | | | (0.0002) | (0.0002) | (0.0002) |
| log Board Size | | | 0.104*** | 0.102*** | 0.067*** |
| | | | (0.008) | (0.008) | (0.010) |
| Prop.Ind.Dir | | | −0.116*** | −0.124*** | −0.097*** |
| | | | (0.022) | (0.022) | (0.022) |
| Constant | 0.249*** | 0.258*** | 0.219*** | 0.185*** | 0.115* |
| | (0.016) | (0.039) | (0.030) | (0.044) | (0.069) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 5,068 | 5,061 | 3,815 | 3,814 | 3,814 |
| $R^2$ | 0.013 | 0.048 | 0.156 | 0.198 | 0.224 |
| Adjusted $R^2$ | 0.013 | 0.036 | 0.155 | 0.183 | 0.207 |

*Notes:* This table presents the results of the first-stage (4.6) of the 2SLS estimator in (4.7). We regress Diversity$_{it}$ (overall firm diversity) on the instrumental variable, local political diversity, as measured by the number of effective parties ENP. The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.4: Directors Political Diversity and Firm Performance: Second Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Tobin's Qt+1 | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| $\text{Diversity}_{it}$ | $-1.144^{***}$ | $-0.825^{***}$ | $-5.722^{*}$ | $-3.235^{*}$ | $-1.526$ |
| | (0.399) | (0.303) | (3.085) | (1.721) | (3.695) |
| log assets | | | $-0.129^{***}$ | $-0.049^{***}$ | $-0.047^{***}$ |
| | | | (0.025) | (0.013) | (0.012) |
| Leverage | | | $-0.004^{***}$ | $-0.001$ | $-0.001$ |
| | | | (0.001) | (0.001) | (0.001) |
| log Board Size | | | $0.716^{**}$ | $0.375^{**}$ | 0.155 |
| | | | (0.339) | (0.186) | (0.251) |
| Prop.Ind.Dir | | | $-0.369$ | $-0.246$ | $-0.005$ |
| | | | (0.381) | (0.231) | (0.345) |
| Constant | $1.026^{***}$ | $0.996^{***}$ | $2.490^{***}$ | $1.657^{***}$ | $0.932^{*}$ |
| | (0.154) | (0.121) | (0.807) | (0.420) | (0.517) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,146 | 4,145 | 3,680 | 3,680 | 3,680 |
| $R^2$ | 0.001 | 0.277 | 0.002 | 0.097 | 0.242 |
| Adjusted $R^2$ | 0.001 | 0.265 | 0.0004 | 0.079 | 0.225 |

*Notes:* This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on all Director's diversity $\text{Diversity}_{it}$. The specification estimated is (4.7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}$ are the predicted values obtained from (4.6) as reported in Table C.3. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.5: Non-Executive Directors Diversity and Firm Performance: First Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $\text{Diversity}_{it}^{-\mathcal{M}}$ | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| ENP | 0.070*** | 0.071*** | 0.017* | 0.018* | 0.018 |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.014) |
| log assets | | | −0.001 | 0.002 | 0.002 |
| | | | (0.003) | (0.003) | (0.003) |
| Leverage | | | −0.0002 | 0.0001 | 0.0001 |
| | | | (0.0002) | (0.0002) | (0.0002) |
| log Board Size | | | 0.111*** | 0.110*** | 0.082*** |
| | | | (0.009) | (0.009) | (0.011) |
| Prop.Ind.Dir | | | −0.181*** | −0.190*** | −0.167*** |
| | | | (0.023) | (0.024) | (0.024) |
| Constant | 0.247*** | 0.259*** | 0.221*** | 0.190*** | 0.126* |
| | (0.017) | (0.041) | (0.033) | (0.048) | (0.070) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,848 | 4,841 | 3,792 | 3,791 | 3,791 |
| $R^2$ | 0.013 | 0.048 | 0.172 | 0.213 | 0.228 |
| Adjusted $R^2$ | 0.013 | 0.034 | 0.170 | 0.198 | 0.211 |

*Notes:* This table presents the results of the first-stage (4.6) of the 2SLS estimator in (4.7). We regress $\text{Diversity}_{it}^{-\mathcal{M}}$ (Non-Executive Directors Diversity) on the instrumental variable, local political diversity, as measured by the number of effective parties ENP. The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.6: Non-Executive Directors Diversity and Firm Performance: Second Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Tobin's Qt+1 | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| $\text{Diversity}_{it}^{-\mathcal{M}}$ | $-1.065^{***}$ | $-0.747^{**}$ | $-6.278$ | $-3.596$ | $-0.663$ |
| | (0.393) | (0.301) | (4.095) | (2.325) | (1.844) |
| log assets | | | $-0.111^{***}$ | $-0.039^{***}$ | $-0.043^{***}$ |
| | | | (0.023) | (0.015) | (0.009) |
| Leverage | | | $-0.005^{***}$ | $-0.001$ | $-0.001^{*}$ |
| | | | (0.002) | (0.001) | (0.001) |
| log Board Size | | | $0.810^{*}$ | 0.436 | 0.107 |
| | | | (0.471) | (0.267) | (0.153) |
| Prop.Ind.Dir | | | $-0.809$ | $-0.509$ | 0.028 |
| | | | (0.730) | (0.439) | (0.294) |
| Constant | $0.995^{***}$ | $0.966^{***}$ | $2.587^{**}$ | $1.705^{***}$ | $0.819^{***}$ |
| | (0.152) | (0.122) | (1.034) | (0.534) | (0.310) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,027 | 4,026 | 3,658 | 3,658 | 3,658 |
| $R^2$ | 0.001 | 0.280 | 0.0003 | 0.069 | 0.342 |
| Adjusted $R^2$ | 0.001 | 0.268 | -0.001 | 0.050 | 0.327 |

*Notes:* This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on board diversity $\text{Diversity}_{it}^{-\mathcal{M}}$. The specification estimated is (4.7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}^{-\mathcal{M}}$ are the predicted values obtained from (4.6) as reported in Table C.5. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

### C.3.2 Non-Donors are Representative of the Population of all Directors

Table C.7: Board Diversity and Firm Performance - Pooled OLS Results

| | *Dependent variable:* | | |
|---|---|---|---|
| | Tobin's Qt+1 | | |
| | (1) | (2) | (3) |
| $\text{Diversity}_{it}$ | 0.084 | | |
| $\text{Diversity}_{it}^{-\mathcal{M}}$ | | $0.089^{***}$ | |
| | | (0.029) | |
| $\text{Diversity}_{it}^{\mathcal{BM}}$ | | | 0.001 |
| | | | (0.019) |
| log assets | $-0.058$ | $-0.059^{***}$ | $-0.057^{***}$ |
| | | (0.006) | (0.006) |
| Leverage | $-0.002$ | $-0.002^{***}$ | $-0.002^{***}$ |
| | | (0.0004) | (0.0004) |
| log Board Size | 0.033 | $0.035^{**}$ | $0.037^{**}$ |
| | | (0.015) | (0.017) |
| Prop.Ind.Dir | 0.162 | $0.164^{***}$ | $0.153^{***}$ |
| | | (0.035) | (0.039) |
| Constant | 0.634 | $0.633^{***}$ | $0.849^{***}$ |
| | | (0.148) | (0.315) |
| Ind/year Effects | $Yes$ | $Yes$ | $Yes$ |
| Observations | 25,695 | 25,631 | 24,203 |
| $R^2$ | 0.395 | 0.395 | 0.394 |
| Adjusted $R^2$ | 0.392 | 0.392 | 0.392 |

*Notes:* This table presents the results of (4.4) a pooled OLS regression that examines a relation between each of the three Ideological Diversity measures and firm value,(measured by the log of Tobin's Q, one period ahead).

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it}$$

See text for detailed definitions of the diversity measures, Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are also included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.8: Directors Political Diversity and Firm Performance: First Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $\text{Diversity}_{it}$ | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| ENP | $0.106^{***}$ | $0.106^{***}$ | $0.045^{***}$ | $0.046^{***}$ | 0.016 |
| | (0.010) | (0.010) | (0.010) | (0.011) | (0.015) |
| log assets | | | 0.001 | $0.008^{**}$ | $0.007^{**}$ |
| | | | (0.003) | (0.003) | (0.003) |
| Leverage | | | −0.00004 | 0.0002 | 0.0002 |
| | | | (0.0002) | (0.0002) | (0.0002) |
| log Board Size | | | $0.137^{***}$ | $0.133^{***}$ | $0.107^{***}$ |
| | | | (0.008) | (0.008) | (0.010) |
| Prop.Ind.Dir | | | $-0.102^{***}$ | $-0.109^{***}$ | $-0.091^{***}$ |
| | | | (0.023) | (0.023) | (0.024) |
| Constant | $0.096^{***}$ | 0.041 | −0.050 | $-0.147^{***}$ | $-0.158^{**}$ |
| | (0.018) | (0.041) | (0.034) | (0.050) | (0.072) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,308 | 4,303 | 3,465 | 3,464 | 3,464 |
| $R^2$ | 0.028 | 0.066 | 0.176 | 0.233 | 0.245 |
| Adjusted $R^2$ | 0.028 | 0.051 | 0.175 | 0.217 | 0.227 |

*Notes:* This table presents the results of the first-stage (4.6) of the 2SLS estimator in (4.7). We regress $\text{Diversity}_{it}$ (overall firm diversity) on the instrumental variable, local political diversity, as measured by the number of effective parties ENP. The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.9: Directors Political Diversity and Firm Performance: Second Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Tobin's Qt+1 | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| Diversity$_{it}$ | $-0.896^{***}$ | $-0.694^{***}$ | $-2.865^{***}$ | $-1.947^{***}$ | $-2.204$ |
| | (0.279) | (0.221) | (1.033) | (0.744) | (3.309) |
| log assets | | | $-0.097^{***}$ | $-0.029^{**}$ | $-0.028$ |
| | | | (0.013) | (0.012) | (0.024) |
| Leverage | | | $-0.004^{***}$ | $-0.001$ | $-0.001$ |
| | | | (0.001) | (0.001) | (0.001) |
| log Board Size | | | $0.499^{***}$ | $0.298^{***}$ | 0.287 |
| | | | (0.152) | (0.108) | (0.362) |
| Prop.Ind.Dir | | | 0.015 | $-0.066$ | $-0.059$ |
| | | | (0.138) | (0.108) | (0.313) |
| Constant | $0.846^{***}$ | $0.899^{***}$ | $1.082^{***}$ | $0.813^{***}$ | 0.536 |
| | (0.084) | (0.095) | (0.128) | (0.166) | (0.519) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 3,669 | 3,669 | 3,354 | 3,354 | 3,354 |
| $R^2$ | 0.001 | 0.289 | 0.004 | 0.160 | 0.141 |
| Adjusted $R^2$ | 0.001 | 0.276 | 0.002 | 0.142 | 0.119 |

*Notes:* This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on all Director's diversity Diversity$_{it}$. The specification estimated is (4.7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}$ are the predicted values obtained from (4.6) as reported in Table C.8. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.10: Non-Executive Directors Diversity and Firm Performance: First Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | $\text{Diversity}_{it}^{-\mathcal{M}}$ | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| ENP | 0.112*** | 0.112*** | 0.048*** | 0.049*** | 0.022 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.015) |
| log assets | | | 0.002 | 0.008** | 0.008** |
| | | | (0.003) | (0.003) | (0.003) |
| Leverage | | | −0.0001 | 0.0002 | 0.0002 |
| | | | (0.0002) | (0.0002) | (0.0002) |
| log Board Size | | | 0.142*** | 0.140*** | 0.114*** |
| | | | (0.008) | (0.008) | (0.011) |
| Prop.Ind.Dir | | | −0.157*** | −0.166*** | −0.147*** |
| | | | (0.023) | (0.024) | (0.024) |
| Constant | 0.096*** | 0.046 | −0.041 | −0.132** | −0.123 |
| | (0.019) | (0.047) | (0.036) | (0.054) | (0.090) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 4,195 | 4,190 | 3,449 | 3,448 | 3,448 |
| $R^2$ | 0.029 | 0.066 | 0.179 | 0.234 | 0.245 |
| Adjusted $R^2$ | 0.029 | 0.051 | 0.178 | 0.218 | 0.227 |

*Notes:*This table presents the results of the first-stage (4.6) of the 2SLS estimator in (4.7). We regress $\text{Diversity}_{it}^{-\mathcal{M}}$ (Non-Executive Directors Diversity) on the instrumental variable, local political diversity, as measured by the number of effective parties ENP. The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

. Prop.Ind.Dir is the proportion of Independent directors in the board,detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C.11: Non-Executive Directors Diversity and Firm Performance: Second Stage

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Tobin's Qt+1 | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| $\text{Diversity}_{it}^{-\mathcal{M}}$ | $-0.804^{***}$ | $-0.610^{***}$ | $-2.589^{***}$ | $-1.732^{**}$ | $-1.400$ |
| | (0.264) | (0.210) | (0.938) | (0.679) | (2.029) |
| log assets | | | $-0.093^{***}$ | $-0.028^{**}$ | $-0.031^{*}$ |
| | | | (0.013) | (0.012) | (0.018) |
| Leverage | | | $-0.004^{***}$ | $-0.001$ | $-0.001$ |
| | | | (0.001) | (0.001) | (0.001) |
| log Board Size | | | $0.476^{***}$ | $0.279^{***}$ | 0.211 |
| | | | (0.144) | (0.105) | (0.236) |
| Prop.Ind.Dir | | | $-0.095$ | $-0.136$ | $-0.060$ |
| | | | (0.167) | (0.130) | (0.297) |
| Constant | $0.826^{***}$ | $0.889^{***}$ | $1.096^{***}$ | $0.847^{***}$ | $0.690^{**}$ |
| | (0.082) | (0.096) | (0.125) | (0.162) | (0.332) |
| Ind/year Effects | *No* | *Yes/No* | *No* | *Yes/No* | *Yes/Yes* |
| Observations | 3,610 | 3,610 | 3,339 | 3,339 | 3,339 |
| $R^2$ | 0.002 | 0.298 | 0.003 | 0.170 | 0.217 |
| Adjusted $R^2$ | 0.001 | 0.285 | 0.002 | 0.152 | 0.197 |

*Notes:* This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on board diversity $\text{Diversity}_{it}^{-\mathcal{M}}$. The specification estimated is (4.7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \phi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}^{-\mathcal{M}}$ are the predicted values obtained from (4.6) as reported in Table C.10. Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in table C.1 in Appendix C. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

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