THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

Three Essays on Economic and Political Inequality in the United States

Alberto Parmigiani

LSE, Department of Government

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A papà

Declaration

I certify that the thesis I have presented for examination for the PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it). The copyright of this thesis rests with the author. Quotation from it is permitted, provided that full acknowledgement is made. This thesis may not be reproduced without my prior written consent. I warrant that this authorisation does not, to the best of my belief, infringe the rights of any third party.

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Statement of Inclusion of Co-authored Work

I confirm that Chapter 2, "Income Inequality and Campaign Contributions: Evidence from the Reagan Tax Cut", is the result of equal contribution between myself and my supervisor, Professor Valentino Larcinese.

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Abstract

This thesis, structured in three articles, studies the interplay between economic inequality and political influence in the United States in the last four decades. By making use of campaign contributions as a proxy for political influence, the dissertation analyses the impact of rising income inequality on public policy decision. In the introduction, I discuss the relationship between the level of economic disparities and political inequality in advanced contemporary democracies and I describe in detail the system of finance of politics in the United States.

The first article of the thesis analyses the concentration of campaign contributions to members of Congress in relation to their legislative behaviour. It argues that a skewed structure of political funds makes legislators more dependent from a relatively smaller number of donors, and thus less committed in representing their constituencies. In this sense, I find that legislators with a more concentrated distribution of donations are less active in sponsoring bills, delivering speeches and appearing before committees.

The second article studies the effect of the 1986 Tax Reform Act on political donations. This policy involved a large cut in marginal tax rates which was disproportionately higher for richest income owners, thus increasing income inequality. I show that this landmark reform of the second Reagan administration caused an increase of contributions from the top ten percent of income owners. I conclude that the erosion of tax progressivity through this regressive tax policy, by reshaping the donor pool towards the right tail of the income distribution, has represented a crucial step in the spiral between economic inequality and uneven political influence of the last four decades.

In the third paper, I use voter registration and individual campaign contributions data to study the rising ideological polarization of donors in the United States. By tracking the party affiliation of registered voters over time in a selected sample of states, I build a time-varying measure of ideology for donors. In this way, I document the rise in the ideological polarization of a very politically active part of public opinion.

Contents

List of Figures

List of Tables

Introduction

The United States exhibit the highest level of economic inequality in Western democracies. The most recent statistic for the Gini coefficient is 41.5 in 2019, while the same index of post-income household inequality displays a value of 34.6 in 1979 (World Bank, 2023). During the same period, the concentration of campaign contributions to candidates to federal and state offices has enormously increased. The rise of economic inequality and the system of politics finance in the United States have spurred an enormous volume of academic research and a remarkable amount of criticism in public opinion. Surprisingly, the connection between these two topics has not been empirically examined as much as their interdependence would have suggested. This doctoral thesis intends to fill this gap in the literature, developing three articles that study the interplay between economic inequality and political influence from different angles.

In this introduction, I reflect upon the interconnections between economic inequality and political influence in contemporary advanced democracies. In light of recent evidence showing that public policies largely over-represent the richest groups of society, I conceptualize the role of politics finance as a potential multiplier of economic disparities and connect it with the broader topic of political inequality. Then, I will zoom in on the specific system in the United States, which displays peculiar features in the panorama of rich democracies. In this context, I shortly review the multifaceted influence of campaign contributions on public policy, from final votes in Congress to systemic effects on the legislative agenda. Then, I critically discuss the formal and empirical literature in political science and political economy on these topics. Finally, I emphasize the relevance of studying aggregate campaign contribution flows in relation to the distribution of economic resources. In this fashion, I argue that the system of campaign contributions in United States is intrinsically unequal, by empirically showing that the rise in income inequality in these four decades has gone together with a rise in the concentration of individual donations.

Economic Inequality and Political Influence

In an ideal democracy, political equality between all citizens presupposes that they possess the same ability to influence public decisions. This equality does not only result in the right to vote, but also in the effective participation of all members of the *demos* that should have the same opportunities to form and express a deliberate opinion on policy choices. Hence, the definition of political equality concerns the principle of "equal consideration" (Dahl, 1991) or the idea that "all voices are expressed and given equal hearing" (Verba, 2003, p. 677). Contemporary democracies stand quite further from these ideals for various reasons, which I shortly emphasize here.

The structure of modern economies implies large disparities in the economic resources of citizens, thus conflicting with the principles of political equality (e.g. Dahl, 2007). In contemporary democratic systems with universal suffrage, the political participation in elections of richest citizens has nearly always been at higher levels than the rest of the population (e.g. Verba *et al.*, 1978; Gallego, 2015; Matsubayashi and Sakaiya, 2021). Similarly, unequal participation along the income distribution regards a number of other political actions such as being member of a party, protesting, lobbying and signing petitions (Beramendi *et al.*, 2022).

Another key element of political inequality concerns the selection and reproduction of political elites to whom citizens delegate power to govern. Elected legislators are more likely to be male and older than the average citizen, and they generally have higher levels of education (Beramendi *et al.*, 2022). The share of representatives coming from working class professions is extremely low, perhaps the largest difference with respect to the population at large (e.g. Carnes, 2020; O'Grady, 2019).

Finally, public policy in nearly all rich democracies appears to be more responsive to the policy preferences of richest groups in society than the rest of citizens.[1]. This disconnect jeopardizes the notion of political equality, as it transforms a divide between citizens based on income, which is to a certain extent a natural consequence of the structure of modern capitalist economies, into a disparity in political influence that potentially violates the conditions necessary for political equality. Studying whether the finance of politics act as a multiplier of economic disparities into the realm of political inequality in the United States represents the ultimate objective of this thesis.

[1] Gilens (2012) for the United States; Elsässer *et al.* (2021) for Germany, Elkjær (2020) for Denmark; Persson (2021) for Sweden; Mathisen (2023) for Norway; Lupu and Tirado Castro (2022) for Spain; Lupu and Warner (2022) for a comparative perspective.

Campaign Contributions Channeling Economic Resources into Political Inequality

A healthy democracy provides political parties with the necessary resource endowments to inform voters about their platforms, assuring an open debate in which every party experiences the same opportunity to win elections. Hence, the regulation of political finance, namely the sources of these endowments, constitutes an important aspect of a democratic regime. An effective regulatory framework represents a bulwark against special interests gaining access to policymakers or influencing their behaviour in office, by offering their resources to finance the political system (e.g. Hall and Wayman, 1990; Kalla and Broockman, 2016; Fouirnaies, 2018).

Capturing policy through the power of money clearly infringes the principle of equal consideration or equal voice described above. In this sense, a system of private campaign finance potentially distorts political representation in a substantive manner, thus comporting with the striking evidence of unequal responsiveness of policy decisions in many advanced democracies.[2]

Many studies show that political donations indeed impact public policies in a way that is favourable to wealthy interests (e.g. Gilens *et al.*, 2021; Mian and Sufi, 2010; Grier *et al.*, 2023). As structural factors mentioned above already give advantage to richest groups of the population in the game of politics, the financing of electoral campaigns provides an additional fruitful channel for economic elites to enlarge their political power. By connecting the skewed economic distribution of resources with political inequality in participation and representation through financing elections, namely the most important political events in a democracy, unregulated campaign donations act as a multiplier of economic disparities. Moreover, in a period of increasing economic inequality, the prospects for rich individuals and interest groups to leverage their financial resources prove especially beneficial.

Politics Finance in the United States: A Short Description

The system of political finance in the United States is unique in the contemporary democratic world, both in terms of very rich data availability for researchers and very permissive regulations for prospective donors. Effectively, the foundation of the Federal Electoral Commission (FEC) in 1974 and the subsequent mandatory reporting requirements of all contributions above the threshold of 200$ per electoral

[2]Public systems of campaign finance entail a series of other challenges that are not discussed in this thesis. The interested reader could benefit from the excellent overview of campaign finance systems in the contemporary Western world and the concrete proposals for reform in Cagé (2020). For recent attempts to introduce partial public funding in states or cities in U.S., see Kilborn and Vishwanath (2022) and Yorgason (2021).

cycle provide social scientists with high quality data since the 1980 election cycle. Historically, the most important regulations about donations have been set by Supreme Court's rulings, which have always been characterized by a tenuous defense of the right to donate, on the premises that money given to electoral campaigns represents a form of self-expression, or free speech, which is protected under the First Amendment. To avoid the "opportunity or the appearance of corruption", the only limitations regard the direct financing of candidates' campaigns, but any other spending, called "independent" spending, fits into the broad category of free speech and is not subject to limits.[3] This distinction has been popularized with the names of *hard* vs *soft money*, with the latter being *de facto* unlimitedly spent by millionaires and billionaires to finance their favourite political causes. The ruling in *Buckley v. Valeo* introduced these principles for individual donations in 1976, and the more recent *Citizens United* ruling extended this framework to corporate donations in 2010, on the principle that corporate interests should be entitled of the same right of self-expression than citizens.

This extremely simplified history of campaign finance laws suggests that rich citizens have always had the possibility, one way or another, to leverage their wealth to influence politics.[4] When regulations constrained their capacity to give directly to candidates, they could donate unrestricted sums to other types of recipients that could receive unlimited resources (e.g. Skocpol and Hertel-Fernandez, 2016); when corporations had to abide by relative low limits, before *Citizens United*, owners and senior managers in the companies could step in (e.g. Gordon *et al.*, 2007; Fremeth *et al.*, 2013). In this sense, the system of campaign finance in the United States clearly represents a channel through which wealthy individuals have the ability to transform their economic resources into political power.

The Effect of Contributions on Public Policy: Existing Evidence

The relevance of studying the impact of campaign contributions on public policy is motivated by the argument that political decisions have played a crucial role in

[3] At the time of writing, limits for individual donors are: \$3,300 per election cycle for contributions to candidates; \$5,000 per calendar year for contributions to Political Action Committees (PACs) per calendar year; \$41,300 per calendar year for contributions to national party committees; \$123,900 per account, per calendar year to additional national party committees for expenses related to the Presidential race.

[4] In this short historical overview of campaign finance regulations, I have deliberately omitted a number of meaningful events, with the rationale that they have not represented a real obstacle for big donors. Partial exceptions are the Bipartisan Campaign Reform Act of 2002 which successfully curbed unlimited expenditures, at least to a certain degree, and the Supreme Court rulings *McCuntcheon v. FEC* in 2014 which on the contrary abolished the cumulative limit in place for individual donors to contribute to multiple candidates.

the evolution of economic inequality. The sharp rise in economic disparities has not resulted only from trade openness in a globalized world, or the disruptive changes of Information Technology, but also from the policy changes that have accompanied and shaped these economic transformations (Bartels, 2008; Piketty, 2014; Hacker and Pierson, 2010).

An exhaustive list of the several mechanisms through which campaign donations influence public policy is beyond the scope of this introduction.[5] At the federal level, the literature has historically found small or null effects of the impact of contributions on final votes in Congress. Recently, a plethora of studies employing novel causal inference techniques, uncover a significant impact of donations, by focusing on specific industries (Mian and Sufi, 2010; Mian *et al.*, 2014; Grier *et al.*, 2023) or on moments in which the attention of the public is crowded out by other newsworthy events such as natural disasters (Kaplan *et al.*, 2019). Moreover, legislators can reciprocate to donors in hidden fashions that are often not detectable by statistical analyses (e.g. McKay, 2020). The first chapter of this thesis suggests another mechanism for the influence of contributions on the behaviour of members of Congress, based on the distribution of their campaign donations. At the state level, changes in campaign finance laws at the state level exhibit notable consequences both in terms of electoral and policy outcomes. Hall (2016) estimates that corporate contributions bans benefit Democratic party's receipts of contributions and consequently, its electoral performance at the legislature level. Gilens *et al.* (2021) shows that states where *Citizens United* Supreme Court's decision allowed independent expenditure that were previously banned, implemented policy decisions in favour of corporate interests, including reductions in corporate tax rates. Other studies employing changes at the federal level in campaign finance regulation face the challenge that, as emphasized in the short overview above, richest groups have always found a successful loophole to transfer large amount of money into the political system, at least after 1976 (e.g. Hansen *et al.*, 2015).

Campaign Contributions and Economic Inequality: The State of the Art

The most renowned accounts of the evolution of economic and political inequality in the United States hint at campaign contributions as one of the channels through which wealthy elites obtain political influence (Bartels, 2008; Hacker and Pierson, 2010; Gilens, 2012). Nonetheless, the scholarly attention on the relationship between the topics of economic inequality and political donations has arguably been limited in formal and empirical studies in political economy and political science. Formal

[5] See Weschle (2023), for a recent literature review of this topic in the political science literature.

models of campaign contributions have mostly focused on campaign contributions as a means of transmitting information to voters (e.g. Ashworth, 2006). In this sense, these models account for the trade-off between policy influence of donors, being them rich individuals, interest groups or corporations, and the information-augmenting role of campaign advertising made possible by these donations (e.g. Prat, 2002; Coate, 2004). The distortions of a private system of political finance appear then to be compared against a counterfactual world without campaign money at all. While the comparative statics of these models deepens our understanding of the costs and benefits of the current system and its possible reforms, they do not consider the broad issue of inequality that stems from the U.S. system.

Campante (2011) represents the most important exception.[6] He adapts the Meltzer and Richard (1981) classical model of redistribution and inequality, adding campaign contributions as a normal good. Hence, individuals support their preferred party both by voting for it and donating to it a fixed fraction of their initial wealth. This simple set-up implies an endogenous wealth bias induced in the political process in equilibrium. Effectively, Campante (2011) finds that the policy that prevails in equilibrium is the one preferred by an actor who is wealthier than the median voter, and thus parties will adapt their platforms to pander to this richer citizen. Moreover, an increase in inequality drives this wealth bias even further, as parties then adjust their policy positions to attract the votes and contributions of the indifferent citizen, who is now someone at a higher percentile in the distribution of wealth.

The incredibly vast empirical literature on political donations in the United States has mostly focused on the motivations for contributing, in an effort to distinguish between the 'ideological consumption' motive of donating to the most favourite party or politician (e.g. Ansolabehere *et al.*, 2003) and the 'strategic investment' motive of individual and corporate interests seeking policy influence (e.g. Ovtchinnikov and Pantaleoni, 2012; Fouirnaies and Hall, 2018; Stuckatz, 2022). Other important works have examined the distortions of the current system of donations on the competitiveness of the electoral process, such as widening the incumbency advantage (e.g. Fouirnaies and Hall, 2014). Nonetheless, some studies have analysed the relationship between donation flows and economic inequality trends. Bonica *et al.* (2013) show that campaign contributions have become increasingly concentrated in recent decades, as less than 0.01 percent of the voting age population accounted for almost half of total contributions in 2012. The donations of the *Forbes 400* wealthiest individuals have risen over time, strongly correlating with increases in

[6] See also Bouton *et al.* (2022b) for a model of political fundraising of parties finding a similar income effect in equilibrium.

wealth inequality (Bonica and Rosenthal, 2018). Overall, this evidence suggests that the increase in top contributions could be linked with the rise of economic inequality, creating a vicious circle where "established wealth may contribute to preserve or increase wealth by items like the carried interest deduction, the diminished estate tax, and special treatment for the fossil fuels sector" (Bonica and Rosenthal, 2018, p. 43).

This thesis centers on the observation that political donations are one of the channels through which groups that differ in their income and wealth carry different weights over the policy process, independently of their motivations for giving. This argument rests on the evidence that the political preferences of rich citizens are more extreme than the rest of the population, and especially wealthy donors tend to be more conservative on economic issues (Page *et al.*, 2013; Broockman and Malhotra, 2020).[7] In this sense, the study of aggregate patterns of contributions from different income owners reveals the relative force of the various groups, in one of many possible forms in which political inequality manifests itself. Moreover, this analysis gains relevance in a period of incredibly high increase in economic inequality as the one we are living today. In what follows, I will provide a short description of the evolution of campaign donations in relation to socioeconomic characteristics such as income and education. Even if not definitive, the patterns described in this analysis, with a clear increase in the share of contributions coming from the top ten percent of income owners, provide suggestive evidence that the interplay between the rise in income inequality and the concentration of campaign donations mutually reinforce economic and political inequality.

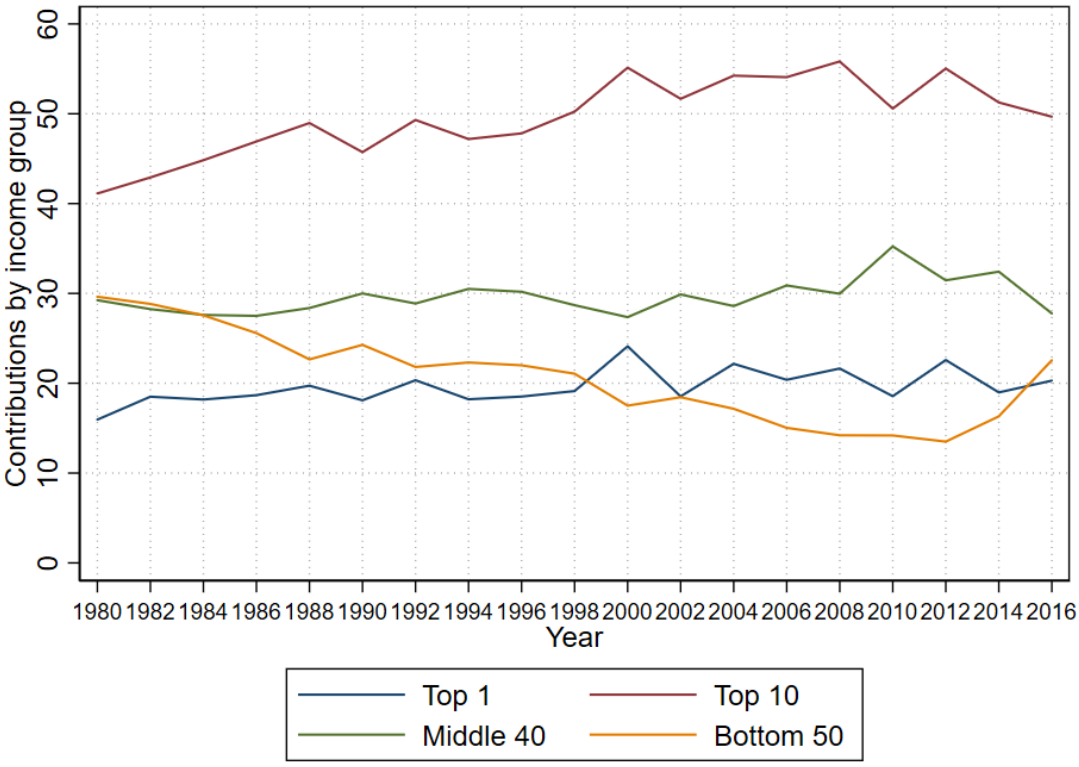
Campaign Contributions as an Intrinsically Unequal System

Individual donors are spatially concentrated in the same places, mostly cities, for both parties (Gimpel *et al.*, 2006). People living in the zip codes from where the lion's share of campaign donations originate, exhibit distinctive political preferences (Bramlett *et al.*, 2011). Moreover, Bouton *et al.* (2022a) find that the spatial distribution of small and large donors in the map of U.S. counties is remarkably similar. In light of the link between economic inequality and political influence of contributions, this evidence on the spatial distribution of donors begs the question of the relationship between the rise in income disparities and the concentration of donations. In order to do so, I investigate the trends of income inequality and individual donations at the level of Census tracts. A smaller geographical entity than zip codes, with an average

[7] Tellingly, affluent Americans in the top five percent of the distribution of income or wealth believe that intelligence and hard work are the primary motivations for success, disproportionately more than the rest of the population (Suhay *et al.*, 2021).

population slightly below four thousand inhabitants, Census tracts present very high income inequality (Gaubert *et al.*, 2021a) and larger concentration of poverty than in counties (Gaubert *et al.*, 2021b; Reardon and Bischoff, 2011).

Figure 1: Contributions by Census tract percentiles in average income (as percent of total contributions in each election cycle)



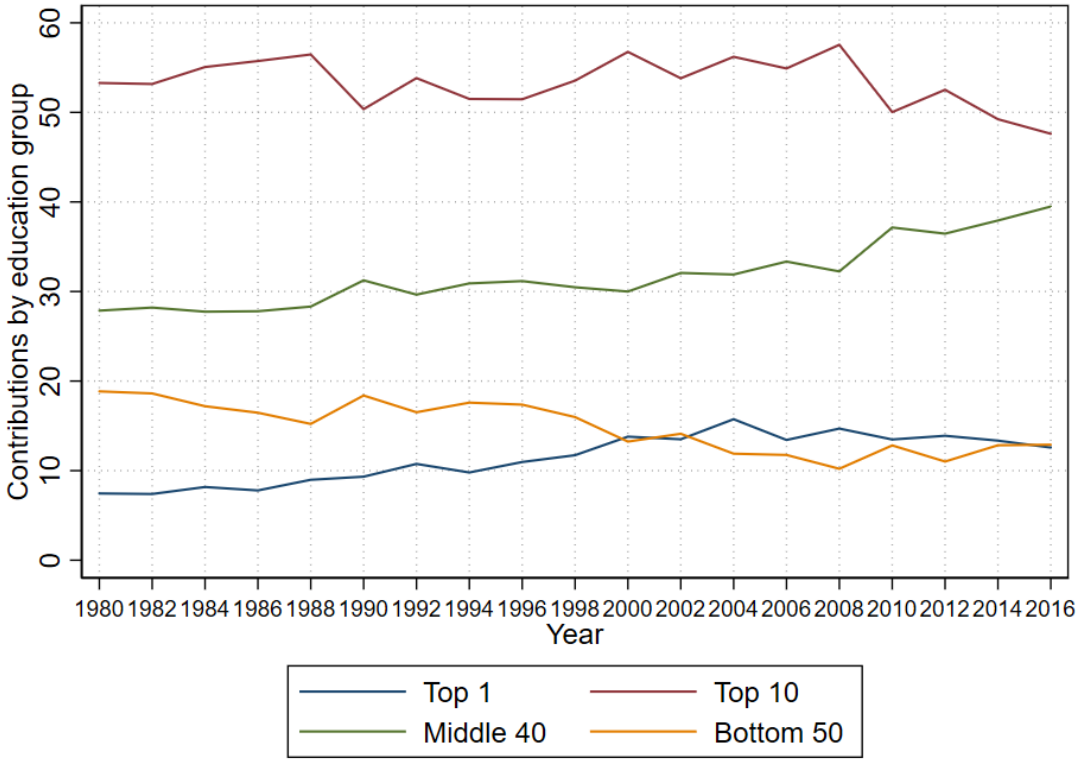
Note. The figure shows, for each two-year electoral cycle from 1980 to 2016, the share of total individual contributions coming from all the Census tracts that belong to the four different groups. Except for 2010 onwards, income data at the Census tract level is available only in decennial Census years. I linearly interpolate them given the available data.

I divide Census tracts based on their average income and then I calculate how many individual donations hail from each group of tracts, as a share of the total amount. With data from 1980 to 2016, I have the capacity to look at the evolution of these patterns over time. First of all, I find that the share of contributions coming from the ten percent of Census tracts with the highest average income was slightly in excess of 40 percent at the beginning of the period and amounted to between 50 and 55 percent at the end of the period (Figure 1). On the opposite, the bottom half of Census tract in the income distribution contributed between 15 and 30 percent of total donations, with a strong declining trend that appears to start changing direction in the last years in the sample. The rest of the Census tracts, between the median and the top

ten, remains at around 30 percent of the total share of contributions throughout. Remarkably, the one percent of tracts with largest average income carries roughly the same weight, if not a larger one for nearly all the second half of the period, than the entire bottom half.

This graph provides descriptive evidence that the concentration of contributions by individuals has risen together with the income distribution.[8] A natural question is whether this pattern varies considering other socioeconomic variables instead of income. Then, I simply employ the number of graduates with respect to the total population over twenty-five years old, and I replicate the same analysis (Figure 2).

Figure 2: Contributions by Census tract percentiles in share of graduates (as percent of total contributions in each election cycle)



Note. The figure shows, for each two-year electoral cycle from 1980 to 2016, the share of total individual contributions coming from all the Census tracts that belong to the four different groups. The exact category in Census Bureau data is "percent of population over 25 years old, with a bachelor's degree or higher" education attainments. Except for 2010 onwards, education data at the Census tract level is available only in decennial Census years. I linearly interpolate them given the available data.

[8] A longer examination on the concentration of donations at the top of the income distribution with a regression analysis, as well as the description of the data sources, can be found in Larcinese and Parmigiani (2023, pp. 8–14).

On one hand, the results are strikingly similar, displaying a clear overrepresentation of Census tracts with the top ten share of graduates, and roughly the same share of contributions from the top one percent and the bottom half of tracts.[9] On the other hand, the trends here are different, as the ten group of tracts with the highest level of education presents a constant evolution over time, if not slightly declining in the last years of the period, while the middle forty group of tracts (belonging to the part of the distribution between the median and the 90th percentile) increases their share of contributions by around ten points. In any case, these simple descriptive graphs empirically show the deep inequality of the political donations made by individuals between 1980 and 2016.

To summarize the entire argument, let's start from the assumption that public policies influence the level and trend of economic inequality, as previous evidence has suggested. Then, I have documented that contributions have the potential, at least in some specific moments or critical junctures in the policy process, to shape public policy. Hence, contributions and inequality are theoretically and empirically linked. As I have shown that the rise in inequality has gone together with an increase of the inequality of donation flows, these feedback cycles result in a spiral of economic wealth and political influence. This argument is the subject of the second chapter of this thesis that shows that a specific policy increasing income inequality, such as the Reagan tax cut of 1986, has also reshaped the donor pool towards the high end of the income distribution. A political decision that indubitably enlarged income disparities in the population caused a redistribution of the relative forces of individual donors, thus reinforcing political inequalities.

Finally, the third chapter of the thesis is based on a description of individual donors in three states, with regard to their ideology of contributions and party identification. As elected legislators pander to the preferences of this group, which is characterized by higher wealth than the average voter, a thorough description of their political behaviour is warranted. Making use of extremely rich administrative data at the individual level, I document the rise in the ideological polarization of individual donors in the last two decades, including a description of the inequality of donations among contributors affiliated to the Republican and Democratic parties.

[9] Census tracts in the top ten distribution of income partially overlap with the ones in the top ten distribution of education, but not dramatically: the correlation is equal to 0.61 and slightly increasing over time.

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Chapter 1

The Negative Agenda Power of Campaign Contributions: Evidence from U.S. Congress

Abstract

What is the relationship between the concentration of campaign contributions and the legislative behaviour of elected representatives? In this paper, I analyze the association between the distribution of donations and three very relevant legislative activities of members of Congress: sponsorship of bills, speechmaking on the floor and witness appearances before committees. I find that the concentration of contributions negatively correlates with all these endeavours. The interpretation of this result is that a very skewed structure of political funds makes legislators more dependent from a relatively smaller number of donors and thus less responsive to the preferences of voters. In other words, the more one legislator depends on her top donations, the more she would be willing to represent the interests of donors vis-à-vis the interests of voters. For bill sponsorship, the negative correlation is stronger for topics related to redistribution, such as health and housing policy proposals. These findings represent an empirical assessment of negative agenda power of interest groups and individuals giving large donations, over a period of more than thirty-five years. I conjecture that this complex mechanism of influence of campaign contributions could have ultimately limited Congressional legislation on issues related to economic inequality. Overall, the results of this study show that the concentration of campaign contributions distorts legislators' incentives to the representation of their constituencies, thus reinforcing criticism of the U.S. system of campaign contributions.

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1.1 Introduction

"*Fundraising devours the time and attention of political leaders, leaving them too busy to handle their public responsibilities effectivily.*"

Supreme Court Justice John Paul Stevens[1].

Do campaign contributions influence the legislative behaviour of members of Congress? In the literature, the study of the effect of campaign contributions on the behaviour of politicians in office has generally led to mixed results (e.g. Ansolabehere *et al.*, 2003). Historically, the majority of empirical studies on this matter analyses roll call votes of members of Congress, probably not the right place to look for the illegal bribery of exchanging votes for donations (Snyder, 1992). Recent works employing novel causal inference techniques have found some positive results, narrowing the focus to specific industries or moments in the policy agenda (e.g. Grier *et al.*, 2023; Kaplan *et al.*, 2019).

I study this topic by focusing on the *concentration* of campaign donations to each member of Congress, in a long period of time (1980-2014) during which economic disparities have considerably widened. The inequality within contribution flows has also remarkably increased in this period. Bonica *et al.* (2013) show that the increase in contributions between 1980 and 2012 from the top 0.01 percent of individual donors exceeds by a great deal the increase in the same fraction of the income distribution. As I show below, this concentration is also reflected in the distribution of donations to each member of Congress, as the top ten percentiles of contributions represent on average almost half of the total funds received in each campaign, with an increasing trend over time.

To be sure, the ability to give money to political causes rests on having money in the first place. Indeed, existing studies using surveys of donors show that, after other factors linked to legislative behaviour determine whether to contribute to a candidate or not, the size of the donation depends on income and wealth of givers (Barber *et al.*, 2017; Barber *et al.*, 2019). Moreover, in their iceberg theory of contributions Chamon and Kaplan (2013) note that recorded donations are just a limited fraction of the ones that interest groups threaten to make, so that the influence of donors to legislators is much bigger than the observed amount of contributions.

Overall, contributions are generally thought to buy access to legislators and influence the allocation of their scarce time in office (e.g. Hall and Wayman, 1990; Kalla

[1]In dissent to *Randall v. Sorell*, 528 US 230 (2006), as quoted in Daley and Snowberg (2011, p. 325).

and Broockman, 2016). Indeed, members of Congress devote an impressively high amount of time to fundraising activities. Former representative Walt Minnick, a conservative Democrat from Idaho, declared in 2012 that in his two years in office he used to spend "two or three hours a day trying to raise money" (Glass *et al.*, 2012). Senator Alan Simpson, a Republican representative of the state of Wyoming, openly stated: "When we were spending so much time raising money, we simply could not devote quality time to thoughtful decisions and debate. It lowered the substance of our work."[2] In a model daily schedule presented by the Democratic Congressional Campaign Committee to incoming freshmen in 2013, the majority of the working hours are devoted to fundraising: four hours by phone, one or two hours in constituents visits and one hour in strategic outreach such as breakfasts and meets and greets. In this planner, only two hours are dedicated to committee or floor work (Grim and Siddiqui, 2013).

I adopt a very simple framework in which members of Congress represent two distinct groups: voters and donors. The former prefer the legislator to involve in legislative activities, the latter prefer the status quo or small beneficial policy changes. As members of Congress require the support of both groups, this framework defines a trade-off between the preferences of the two groups. Here, the straightforward intuition for studying the concentration of donations is that a legislator is more captured by her big donors when they represent a larger share of her total funds. In this case, she would be more willing to listen to the requests of this group of donors whose money funds a big part of her campaign, at the detriment of the requests of voters. A more disperse donorate does not wield the same influence to the legislator, with respect to a very skewed structure of contributions. In this sense, the precise identity of donors, whether they are very wealthy individuals, corporate interests, or single-issue PACs, does not matter for the validity of the argument. Similarly, this work does not distinguish between the courting of these big donors, namely the countless hours devoted to phone calls, fundraising events and other activities of this sort, and legislative endeavours performed exclusively to reciprocate to donors, such as small policy changes that are often very difficult to detect in the aggregate (McKay, 2020). In both cases, the observable consequence would be a decrease in activities to represent voters in Congress.

This work examines two legislative endeavours related to agenda setting, such as bill sponsorship and speechmaking and one related to public policy decisions, such as witness appearances before committees, where members of Congress discuss the allocation of federal funds. Campaign donors appear to appreciate the details

[2]The Boston Globe, March 10, 2006; quoted in Daley and Snowberg (2011, p. 324).

of Congressional work. For example, a long stream of literature investigates the relationship between PACs donations and committee roles of members of Congress (e.g. Poole and Romer, 1985; Romer and Snyder, 1994). Powell and Grimmer (2016) are able to identify the effect of committee roles on campaign contributions by using so-called committee exiles, namely the removal from committees of incumbent members of Congress after a wave election. As the mechanism for this removal follows complicated rules related to the electoral results and the seniority of members, it is arguably exogenous. After members abandon their committee roles, PACs representing industries under the legislation of the committees, largely decrease their contributions.

The focus on the agenda is motivated by an early tradition that equates "the second face of power" to the ability to get issues in and off the agenda (Bachrach and Baratz, 1963). In this sense, negative agenda power consists in the partial or total elimination of some topics from the debate. In a seminal contribution, Schattschneider (1957) posits that political conflicts could be interpreted as battles to change the status quo by those unhappy with it, versus economic elites basically just pushing back against the wind of change. More recently, Hacker and Pierson (2010) argue that the influence of organized business groups leads to policy drifts and "nondecisions" that increase economic inequality. Recent theoretical works emphasize the need to look at the agenda setting part of policy process and not only at final roll-call votes to develop accurate models of the effect of interest groups on policymaking (Godwin *et al.*, 2012). Perhaps for the intrinsic complexity of measuring it in a quantitative fashion, this form of power has not been extensively examined in empirical political science and political economy studies. This project aims to advance this literature by showing the connection between the Congressional agenda, in terms of legislative proposals on various topics, and the influence of large campaign donations. In this sense, time series analyses show that at the aggregate level economic inequality, measured by the top one percent share of income, correlates negatively with the amount of debate in Congress over social welfare legislation (Epp, 2018), providing suggestive evidence of the relevance of this agenda setting channel.

Motivated by the broad phenomena of the rise of inequality in income and in campaign contributions, the empirical analysis focuses on the relationship between campaign contributions of members of Congress and their legislative behavior. I show that on average elected representatives sponsor fewer bills when a higher share of their contributions comes from the top ten percentiles of their distribution of donations. This pattern is particularly strong for bills on so called social-safety net topics, namely health, social welfare and housing. Furthermore, the same, legislator-

specific measure of concentration of political donations displays a strong negative correlation with other two legislative activities: speechmaking on the Congress floor, and appearances as witnesses before Congressional hearings. These results are robust after controlling for a large set of variables related to the donations received and legislator characteristics, including electoral safety. Crucially, they hold with legislator fixed effects. The interpretation of this result is that a more skewed structure of political funds makes legislators more dependent from a relatively smaller number of donors, and thus less responsive to the interests of their constituencies. This study thus uncovers a subtle mechanism through which the concentration of campaign contributions distorts the incentives of representation of the interests of donors vis-à-vis the interests of voters.

The structure of the paper is as follows. Section 1.2 presents the data and the methodology. Section 1.3 displays the results of the empirical analysis of the legislative activity of Congress members as a function of their political donations. It contains subsections dedicated to the analysis of bills, speeches, appearances, as well as robustness checks. Section 1.4 discusses the interpretation of the findings. Section 1.5 concludes.

1.2 Data and Methodology

The empirical analysis combines information on campaign contributions of successful candidates that won a seat in the elections for the House of Representatives and the Senate between 1980 and 2014, with information on their legislative behaviour in office. Data for political donations comes from the Database on Ideology, Money in Politics, and Elections (DIME) v2.0 (Bonica, 2016). The Policy Agenda Database provides clean data for legislative proposals of every elected representative in both chambers between 1978 and 2016. I complement this data with information about Congress members from the Center of Effective Lawmaking. Finally, data on electoral results comes from MIT Election Data Lab and DIME. Additional analyses on speechmaking on the floor of House and Senate and appearances as witness before Congressional committees make use of databases constructed respectively by Gentzkow *et al.* (2019) for the period 1980-2010, and Snyder and Strömberg (2010) for the period 1982-2004. The unit of observation is a federal candidate in an election year in which she gets elected in the House and Senate and then remains a member of Congress for the entire following legislature (N=7,805).[3] I consider all reported contributions

[3]I do not consider members of Congress for which there is no information about campaign contributions. This missing data regards a negligible fraction of members of Congress and it is mostly

from private individuals, corporations or Political Action Committees (PACs) that directly finance candidates to Congress, thus excluding self-financing contributions and general contributions to political parties that are not attributable to specific candidates.

Let's start with a description of the contributions data. Interestingly, the biggest donors in absolute terms are PACs coordinated by the two main parties, followed by other famous Political Action Committees.[4] More precisely, national committees of the Republican and Democratic party have contributed 1.7 billion dollars to all the campaigns between 1980 and 2014, amounting to 4.7 percent of all donations. Overall, the top hundred donors (out of more than 4 million unique contributors) donated more than 23.4 billion dollars, out of the total 36.7 billion for all contributions of this type in this period (63.7 percent).[5] These figures are inflated by the biggest contributor, the Democratic PAC Actblue, a conduit for small donations, donating mainly to Congressman Alan Grayson in 2012.[6] Excluding this outlier, the top hundred PACs donate still almost one fourth of all donations. Moreover, the biggest donors to each unit of observation –a candidate to Congress by election year– are similarly concentrated.[7] The top hundred donations, out of more than thirteen million unique contributions to a single unit of observation, amount to almost 20 billion dollars, 54 percent of the total in the sample.

I construct a variable that measures the concentration in the distribution of contributions for every single unit of observation, called *Capture*. It measures the concentration in the top ten percent of the distribution of contributions, within each legislator's sources of funding. The rationale for the construction of this variables relates to the idea that a legislator is more *captured* when a higher share of her donations comes from a limited number of donors, relative to the total number of her sources of funding.[8] These contributors that belong to the top ten percentiles of

due to incumbent legislators "recycling" contributions from the previous electoral campaign.

[4] In turn, PACs, including party PACs, receive contributions from individuals and interest groups. I disregard all these contributions in this analysis, since I am only interested in the direct donations to candidates for Congress. Hence, I admittedly neglect the inequality in the sources of funding of PACs. In other words, the reconstruction of the indirect pattern of large contributions from individual or corporate donations to party committees, and then from them to candidates for Congress is beyond the scope of this work. To avoid these concerns, I run the entire analysis excluding national party PACs and find that all the main findings hold (results not shown).

[5] These amounts are adjusted for inflation, with 2000 as base year.

[6] The relevance of small donations for the campaigns of members of Congress has risen substantially in 2012 and has followed an increasing trend since then (Bouton et al., 2022). Before 2012, small donors represent on average a negligible portion of donations to candidates to Congress.

[7] These are not unique contributions, because sometimes the same contributor donates more than one time to the same candidate in the same election year.

[8] The average number of donors is 844, but there are more than seven hundred observations with less than 100 donors. The main results are not affected if I drop them.

a specific candidate could even be small donors compared to the average donors in the sample. Thus, I constructed another list of the relatively biggest donors related to *Capture*, the main independent variable. These donors are the ones that figure in the top ten percentiles of the distribution of contributions for the highest number of candidates. The top three donors in this list are: *Realtors PAC* of real estate owners, that figure in the top ten percentile of donations to 7244 candidates, and then *Automobile and Truck Dealers* (5170) and *American Medical PACs* (5048). These PACs are not in the very first position for their donations in absolute terms –they were respectively in the 7th, 22nd and 14th positions.[9] Appendix Section 1.B provides a list of the top thirty donors in absolute and relative terms. Interestingly, individuals still represent a majority of overall donors in the high tail of candidates' distributions, even if their share is on average more than three times smaller than contributions from committees.[10]

Figure 1.1: Distribution of *Capture* variable: Histogram

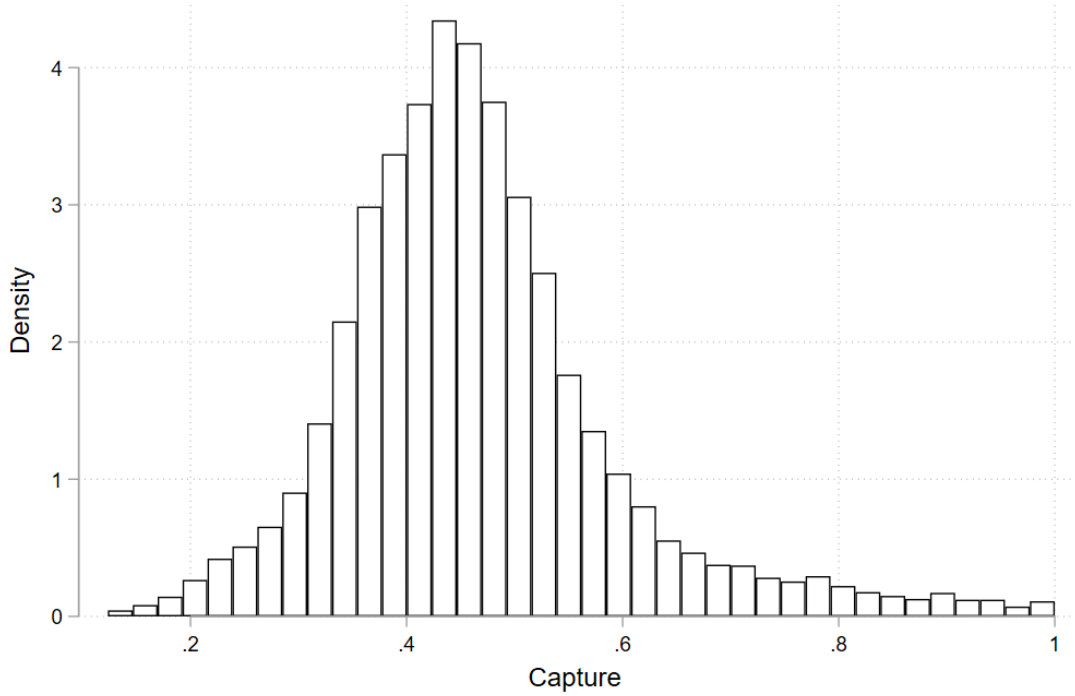


Figure 1.1 shows the distribution of the variable *Capture*, characterized by very high

[9]This pattern potentially unveils a strategic targeting of candidates with large enough donations to figure in the high tail of their distribution. This mechanism remains beyond the scope of this study.

[10]In the universe of contributions that figure in the top ten percentiles of candidates' funding, there are 734,554 donations from individuals and 571,205 donations from committees. An individual donation accounts on average for 0.04 percent of all contributions of one candidate, while a committee donation accounts on average for 1.3 percent.

variation, from a minimum of 0.12 (almost perfect equality of contributions) to a maximum of 1 (perfect inequality). The mean of *Capture* amounts to 0.47, meaning that the top ten percent of donations of each representative on average contributes for almost half of the total amount received. In line with evidence on increasing concentration of contributions, this variable displays an increasing trend over time. This measure aims to represent the extent to which a legislator is captured by, or dependent from, her top contributors, regardless of the fact that they are big or small donors considering the whole spectrum of donations to candidates to Congress. The rationale of this analysis deserves a further explanation. Let's suppose a legislator represent two competing interests: voters and donors. On average, voters would surely prefer her to be active in legislative activities like authoring bills, delivering speeches and supporting federal spending in their districts. Donors are a multifaceted group, but I assume, following a stream of literature starting from Schattschneider (1960), that big donors such as interest groups and very wealthy individuals are happy with the status quo, so that on average they prefer the legislator not to be active in making policy changes. Let's also suppose a legislator needs the backing of both groups to get elected and face a trade-off for the representation of their competing interests, with time being a very scarce resource in office (see Daley and Snowberg, 2011, for a theoretical model based on this dichotomy).

Then, a legislator is more captured by her big donors when they represent a larger share of her total funds. In this case, she would be more willing to listen to the requests of these groups of donors, with respect to a situation in which her contributions are more dispersed, even within the top ten percentiles of the distribution. Most likely, the process would be the following: a small number of donors giving (relatively) big donations would ask the legislator some favours in exchange to their money. In practice, each donor could ask for a specific policy change in one area, or could promote a non-decision in another policy area.[11] This favour could regard a minor legislative amendment in a committee (e.g., McKay, 2018; McKay, 2019), or "adding or subtracting a crucial sentence in a several-hundred-page House resolution" (Powell and Grimmer, 2016, p.976). The legislator would employ time and effort by delivering these (non)policy changes, thus giving relatively less attention to the needs of her voter base. At the same time, the legislator would spend time and effort to court big donors in order to make sure they will fund her re-election campaign. Those donors that appeared in the right tail of the distribution of contributions for a member of Congress can be thought of "high maintenance" donors, whose continuous

[11]The paradigmatic case for the latter case is the National Rifle Association, whose ultimate goal is openly to impede any policy change in gun control legislation.

support takes the legislator away from representing the interests of voters. These two mechanisms, the exchange of policy favours and the time spent courting relatively big donors, are observationally equivalent and not mutually exclusive. Crucially, the observable consequence is for both a decrease in legislative activities carried out to represent voters.

Effectively, the identification of the exchange of favours between donors and legislators is beyond the scope of this work, even if previous research has amply demonstrated the plausibility of this mechanism (e.g., Ovtchinnikov and Pantaleoni, 2012; Fouirnaies and Hall, 2018). At the same time, I am unable to quantify the time devoted to fundraising by candidates to Congress. For this purpose, Langbein (1986) uses a random sample of 92 House members from the 95th Congress to examine their activities, especially the amount of time dedicated to interest groups. She estimates that one hour of legislator's time costs between 10,000 and 15,000 dollars. Data for this study comes from a survey administered by the Commission on Administrative Review of the U.S. House of Representative. To the best of my knowledge, there are unfortunately no recent examples of similar undertakings. Moreover, this work remains agnostic on the influence of specific categories of donors, either very rich individuals or powerful interest groups, on the legislative process.[12] What this study is able to show though is that the concentration of donations to candidates for Congress, regardless of the specific patterns of giving of unique big donors or powerful interest groups, negatively correlates with many legislative activities, providing for the first time empirical evidence for the mechanism of negative agenda power of campaign contributions. In other words, political donations wield a type of power that relates to the ability of getting policymakers to avoid that certain topics take center stage in the agenda.[13]

Following Fergusson (2014), I also construct an index (HHI) that resembles the Herfindahl Hirschman index of market concentration, namely the sum of the squares of the shares of every contribution by the same donor, to each unit of observation. This measure accounts for the concentration of each legislator's distribution across the entire spectrum of her donations. Since this variable is surely suboptimal to study the concentration at the top end of the distribution, I include it only in robustness checks. Finally, to avoid the *Capture* variable being biased by the total amount of contributions received, I add a variable that controls for the overall money collected

[12] Admittedly, this argument does not consider the informational channel of contributions, namely the signals that the donations received can give to voters in terms of the abilities of the legislator (e.g., Prat et al., 2015). The mechanistic nature of the variable *Capture*, which takes into account relatively and not absolutely big donors, motivates this assumption.

[13] See Witko et al. (2021) for a similar argument on speechmaking about economic issues.

by each unit of observation, adjusted for inflation, and a variable with the same amount squared. Robustness checks show that different functional forms of the total amount and the inclusion of a variable of count of the number of unique contributions received do not affect the results.
The main question here is whether the variable of concentration of contributions correlates with the following legislative outcomes of interest in the subsequent session of Congress: bill sponsorship, speechmaking on the Chamber floors and witness appearances before committees. To the best of my knowledge, this study represents the first attempt to examine empirically the association between members of Congress specific distribution of campaign contributions and their legislative behaviour when elected.

The model estimates the following panel specification:

$$Y_{jt} = \alpha_{jt} + \beta_t + \gamma_i Capture_{jt-1} + \eta_i M_{jt-1} + \epsilon_{jt},$$

where Y_{jt} is the legislative outcome of interest by member of Congress j at time t, α_{jt} is a set of time-varying controls for legislator, β_t represents election year fixed effects, $Capture_{jt-1}$ is the variable of concentration of contributions for legislator j at time t-1, and M_{jt-1} is a vector of controls for donations received by legislator j at time t-1 that include the total amount of contributions, the total amount squared, and in robustness checks the HHI and the number of unique contributions.
Legislator controls include candidate gender, ideology, seniority, member of Democratic party, member of majority party, percentage of vote in last election, chair of a committee, speaker, leader of majority party, leader of minority party. Robust standard errors are clustered at the legislator level. The main specification adopts state fixed effects. Robustness checks alternatively include state per electoral cycle fixed effects for the entire sample, or congressional districts instead of state fixed effects for members of the House; if anything results display smaller confidence intervals. Given the very low turnover in Congress, I can include member of Congress fixed effects as well. Table 1.A.1 displays summary statistics for the main dependent and independent variables.

1.3 Results

"*Here we are forced to raise money all the time. I don't worry about money influencing our votes. But I worry about the energy it takes. I just don't know how people find time to think or reflect.*"

Senator Nancy Kassebaum (R-KS)[14].

1.3.1 Sponsorship of bills

I start the analysis with legislative proposals. Previous work suggests that how a successful candidate is funded matters in term of her legislative behaviour once in office. Epp (2018) shows that members of Congress that receive a higher proportion of contributions by small donors, namely individuals that donate less than $200, proposed more bills and on a more variegated set of topics, between 2010 and 2014. The analysis in this work extends considerably the period of analysis, bringing it to almost four decades and, perhaps crucially, focuses on the top part of candidates distribution of contributions, arguably the most important for policy influence.
Given existing evidence, I expect that legislators that rely more on big donations would be less active in sponsorship of legislation, and that this association would be greater for topics related to social safety-net. The intuition is that the concentration of each legislator's funds, regardless of where they come from top donors or not, could potentially limit the amount of her legislative proposals, through the change in the incentives of representation of donors' and voters' interests.
Bills sponsorship is an important activity of members of Congress, arguably more closely related to the individual discretion of legislators than final roll-call votes, often heavily influenced by party dynamics (Rocca and Gordon, 2010). As a classic study suggests, bill sponsorship entails three types of costs, resource, opportunity and political costs, which need to be offset by the benefits of this endeavour, in the individual decision making process of the single legislator (Schiller, 1995). In this sense, bill sponsorship is a multidimensional and versatile activity, while yes-no roll-call voting is unidimensional. Crucially, one potential benefit of this legislative endeavour is the possibility to shape the debate in Congress and in public opinion, as Schiller (1995) shows for the U.S. Senate.

[14]As quoted in Daley and Snowberg (2011, p. 325).

For legislative proposals, I consider the number of bills and joint resolutions proposed, excluding less important types of legislation, such as resolutions and concurrent resolutions, in both chambers. Then, in the baseline regression I use the variable that distinguishes "important" bills from commemorative ones, manually coded by the Policy Agenda Project. To distinguish further, I consider the subset (less than 10 percent of the total) of these proposals that have been reported by a committee, an indication that the proposal has been taken into legislative consideration. On average, legislators sponsor around eighteen bills for each two-year period in Congress, of which sixteen are deemed as important in this classification, and just two get a report by a committee. Moreover, the Policy Agenda Project classifies each proposal into 21 major categories and 220 subcategories. According to this classification, every proposal could only regard one specific topic.[15] Following Epp and Borghetto (2018), I merge the categories of proposals in four macro categories: Economy, Social Order, Social Safety Net and a residual category.[16]

Table 1.1 shows the results for three subsets of legislative proposals: 'important' bills, bills that have been reported to committees, and 'important' bills that have been reported to committees.[17] In robustness checks, I use data from the Center of Effective Lawmaking and show that its alternative classification of the advancement of bills in the legislative agenda delivers the same results. In the first three columns, I use state and year fixed effects; in the last three columns, I use year and legislator fixed effect.[18]

First of all, the share of contributions from donors in the top ten percent of the distribution of members of Congress donations exhibits a negative and strongly significant correlation on the number of proposals across the board. To quantify the size of the coefficient, one standard deviation increase in the *Capture* variable in the first column is correlated with a reduction of 0.89 important bills proposed, corresponding to 5.6 percent of the average number of this type of legislative proposals signed by a member of Congress in a two-year electoral cycle. The magnitudes are

[15] In this sense, this specification contains a certain degree of arbitrariness. I am not aware of any other alternative database that carries out this classification.

[16] Appendix contains the details of this classification.

[17] The number of proposals that have been reported to a committee is generally very small at the level of the legislator, especially when I look at different bill (macro) categories. For this reason, in the remainder of this paper I use the number of 'important' legislative proposal as the dependent variable for the baseline specification.

[18] On one hand, the specification without fixed effects exploits both the variation within and between members of Congress in the entire period, avoiding to give disproportionate weight to the members of Congress that remain in office for decades. On the other hand, the inclusion of fixed effects absorbs unobservable variation at the level of the candidate, such as personal characteristics related to the ability of collecting money, and it has often been recommended in this type of studies for this reason (e.g. Ansolabehere *et al.*, 2003).

Table 1.1: Important and Reported Bills

	Important	Reported	Imp. Reported	Important	Reported	Imp. Reported
Capture	-6.88***	-1.21***	-0.91***	-7.61***	-1.25***	-0.96***
	(1.26)	(0.28)	(0.26)	(1.30)	(0.31)	(0.30)
Majority Party	3.49***	1.57***	1.54***	3.62***	1.54***	1.53***
	(0.36)	(0.08)	(0.07)	(0.40)	(0.09)	(0.09)
Ideology	-3.29*	-0.92***	-0.72**	-4.98	-0.82	-0.75
	(1.92)	(0.31)	(0.28)	(3.55)	(0.58)	(0.56)
Democratic	-1.75	-0.72***	-0.62***	-2.24	-2.02	-2.03
	(1.56)	(0.26)	(0.24)	(4.57)	(1.36)	(1.32)
Female	2.30***	-0.01	0.03	/	/	/
	(0.80)	(0.12)	(0.10)	/	/	/
Percentage votes	-2.14*	-0.91***	-0.68***	0.22	-0.26	-0.14
	(1.28)	(0.27)	(0.25)	(1.27)	(0.29)	(0.28)
Seniority	0.68***	0.13***	0.13***	0.84	0.06	0.09
	(0.07)	(0.01)	(0.01)	(0.66)	(0.06)	(0.06)
Speaker	-8.40***	-1.51***	-1.41***	-6.99***	-1.13**	-1.03**
	(1.60)	(0.46)	(0.45)	(1.33)	(0.44)	(0.45)
Majority Leader	-0.83	0.11	0.01	-0.21	0.31	0.22
	(0.77)	(0.27)	(0.25)	(0.81)	(0.29)	(0.27)
Minority Leader	-2.52**	-0.38***	-0.37***	-2.40*	-0.13	-0.12
	(1.11)	(0.14)	(0.12)	(1.23)	(0.20)	(0.18)
Committee Chair	7.57***	4.64***	4.43***	6.87***	4.12***	3.95***
	(0.97)	(0.39)	(0.35)	(0.95)	(0.38)	(0.34)
Committee Rank	0.22	-0.49***	-0.49***	-0.32	-0.92***	-0.88***
	(0.70)	(0.15)	(0.14)	(0.77)	(0.20)	(0.20)
Year Fixed Effects	✓	✓	✓	✓	✓	✓
State Fixed Effects	✓	✓	✓			
MC Fixed Effects				✓	✓	✓
Observations	7822	7822	7822	7822	7822	7822
R^2	0.16	0.31	0.33	0.17	0.31	0.33
Mean Dep Var	16.01	2.14	1.85	16.01	2.14	1.85

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

slightly bigger in the other specifications. Regarding the other control variables, being a member of the majority party in the chamber and being chair of a committee display the biggest positive coefficients. Seniority, as expected, displays a large positive correlation with the number of sponsored legislative proposals, but the significance disappears with legislator fixed effect. In line with previous work (Anzia and Berry, 2011; Volden *et al.*, 2013), I find that female legislators on average sponsor significantly more bills, but this remains true only for important bills. Finally, the speaker and members of the minority party leadership on average sponsor a lower number of bills, and a conservative ideology exhibits a small negative coefficient.
The control for percentage of votes in previous elections merits a further note. The effect of electoral safety is ex ante ambiguous. On one hand, a candidate elected with a high percentage of votes could consider her seat safe in the following election, thus

not providing effort for a costly legislative activity. In this sense, a large electoral success could negatively correlate with the number of bills sponsored. On the other hand, candidates with great electoral performance would probably be on average better legislators, hence suggesting a positive correlation. Moreover, there is some evidence that PACs step up contributions for incumbents that experience tight races (Gimpel *et al.*, 2014), so that both the treatment and the dependent variable might be affected. Overall, Table 1.1 shows that the coefficient of the electoral performance of members of Congress is negative, but remains significant only in the regression without legislator fixed effects. Regressions omitting this variable or interacting it with *Capture* produce virtually unchanged coefficients (results not reported).

Table 1.2: Important Bills and Joint Resolutions: Macro Categories

	Econ	Social Order	Social Safety-net	Econ	Social Order	Social Safety-net
Capture	-1.29***	-0.56*	-1.79***	-1.46***	-0.60*	-1.92***
	(0.42)	(0.30)	(0.46)	(0.45)	(0.31)	(0.48)
Percentage votes	-0.95**	-0.04	-0.29	-0.27	0.23	0.31
	(0.41)	(0.35)	(0.46)	(0.43)	(0.33)	(0.47)
Democratic	-0.44	0.32	-0.68*	0.26	0.08	-0.25
	(0.47)	(0.36)	(0.39)	(0.68)	(0.96)	(1.10)
Ideology	-0.56	0.06	-1.79***	-1.26	-1.17	-1.49
	(0.58)	(0.43)	(0.49)	(1.00)	(0.73)	(0.95)
Female	0.12	0.54***	1.40***	/	/	/
	(0.20)	(0.18)	(0.28)	/	/	/
Other MC Controls	✓	✓	✓	✓	✓	✓
State Fixed Effects	✓	✓	✓			
MC Fixed Effects				✓	✓	✓
Year Fixed Effects	✓	✓	✓	✓	✓	✓
Observations	7822	7822	7822	7822	7822	7822
R^2	0.16	0.31	0.33	0.17	0.31	0.33
Mean Dep Var	3.21	2.36	3.31	3.21	2.36	3.31

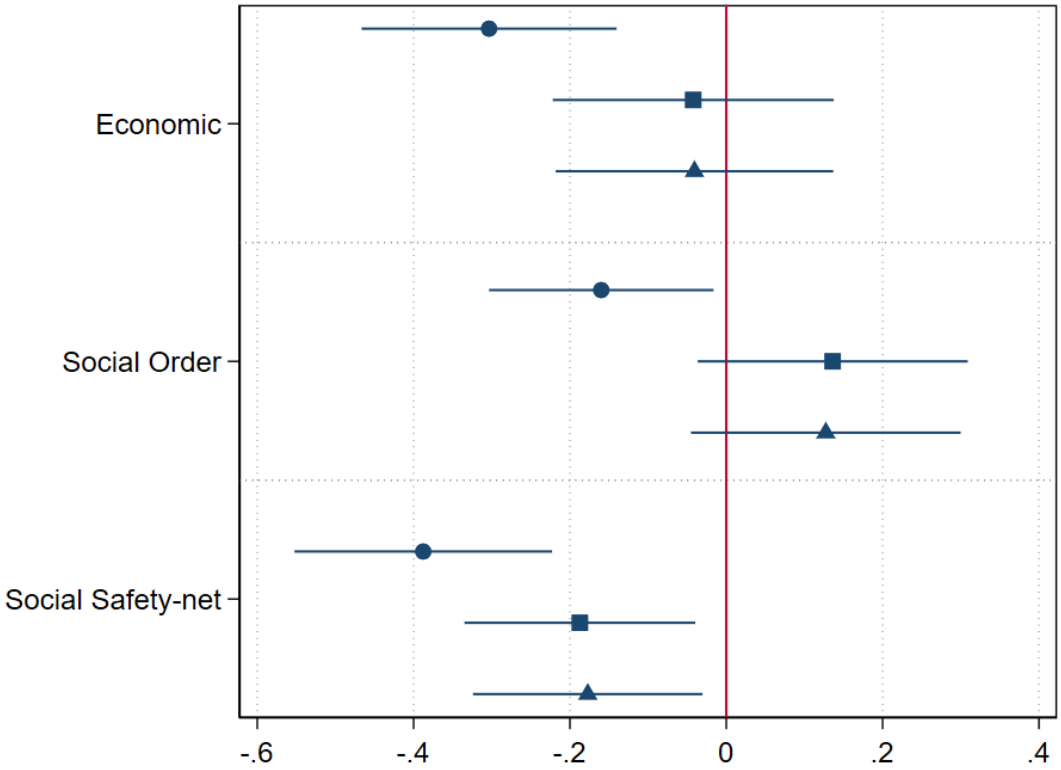
Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

At the level of macro categories, the correlation with the same variable of *Capture* is negative and significant for all three groups of topics: social order, economics and social safety-net topics, with increasing magnitude and level of significance (Table 1.2). Using the same calculation as before, one standard deviation in the *Capture* variable correlates with a 3.1 percent for topics related to social order, 5.2 percent for economics and 7 percent for social safety net.[19] As expected, more conservative members of Congress propose less legislation on these matters. After

[19]In the remainder of the paper, this is the default methodology to interpret the magnitude of the coefficients from regression tables, unless differently specified.

controlling for ideology, members of Democratic party actually appear to sponsor less legislation on social welfare (in the specification without fixed effects). Finally, the positive correlation between being a female legislator and bill sponsorship is seemingly concentrated on topics related to social order and social safety net, and not on economics. The other control variables are omitted as they behave as in Table 1.1.

Figure 1.2: Coefficient of Capture: Macro Categories of Bills



Note. Round markers indicate important bills, squared markers bills reported to committees, triangle markers important bills reported to committees. The figure displays confidence intervals at the 90 percent level.

Table 1.2 provides the first preliminary evidence that the number of non-commemorative legislative proposals regarding topics related to inequality is strongly negatively correlated to the extent to which a legislator is captured by her top sources of funding. For social safety net topics, *Capture* remains significant in regressions with dependent variable the number of reported legislative proposals and the number of important reported bills (Table 1.A.2 in the Appendix). Instead, it is not significant at all for the other two macro categories; for social order, the coefficient is even positive, albeit not significant. Figure 1.2 displays these results by comparing the coefficients of *Capture*

with normalized dependent variables for the three macro categories of bills, for each specification (important, reported, and important reported bills). Within the broad macro category of social safety-net, the variable of concentration of contributions is significant also at the level of reported and important reported legislation for the categories of health and social welfare (Table 1.A.3).

Looking at the main 21 categories from the Policy Agenda database, the coefficient is significant at five percent level for important legislative proposals related to the following topics: health, agriculture, labour, environment, energy, social welfare, housing, domestic commerce, technology, international affairs and public lands (Table 1.A.4 and Table 1.A.5). The magnitude of the negative correlation is biggest for the legislative categories of housing (11.2 percent) and health (10.3 percent).

The analysis at the level of subcategories shows that the main result holds for many redistributive topics, related to health care, labour and housing reforms – more specifically, legislation over health insurance, medical facilities, medical liability; employee benefits, government unemployment insurance and fair labour standards; community development and low-income assistance for housing; general domestic commerce policy and consumer safety. Nonetheless, other subcategories for which the *Capture* variable is significant, are surely not related to redistribution, such as crime control, defense readiness, international organizations, national holidays.[20] Overall, it is difficult to identify a comprehensively cohesive pattern in these results, potentially also because every proposal has been coded only in one subcategory. Still, this more granular analysis confirms that the concentration of contributions negatively correlates with non-commemorative bills, for general redistributive issues concerning health, labour and housing policies.

Now, I investigate the heterogeneity of the main findings by party, chamber and over time, trying in this way to shed light on these results. First, I look at the interaction effect between partisanship and the measure of concentration of contributions. The differential impact of the *Capture* variable on members of Congress of the two main parties is ex ante ambiguous. Following Hacker and Pierson (2010) and Piketty (2018), I would on one hand expect the outcome of negative agenda power to be concentrated in Democratic politicians, since they claim a kind of elite capture of the Democratic party, responding to the demands of economic elites more than those of ordinary people. On the other hand, one might hypothesize that big donors are generally more aligned with the preferences of Republican legislators. Moreover, the

[20]The other categories significant at the 5 percent level are: monetary policy, health RD, subsidies to farmers, waste disposal, air pollution, natural gas and oil, energy RD, immigration, banking, prisons, law and crime family issues, military personnel, telecommunications, broadcast, trade agreements, human rights, general operations agreements and claims against the government.

mechanistic nature of the *Capture* variable makes especially difficult to predict party heterogeneity. Indeed, the negative correlation between the variable of *Capture* and the number of important legislative proposals remains valid for members of both main parties, but it is generally stronger for Republican party members (Table 1.3). This remains true both splitting the sample, with and without legislator fixed effects, or with an interaction variable of *Capture* and party, even if the latter is barely significant at 90 percent level.[21]

Regarding the two legislative bodies, I find a negative coefficient of the *Capture* variable for members of both the House of Representatives (N=6478) and the Senate (N=1344), with similar magnitudes (Table 1.A.6). This result is particularly relevant given the many institutional features that makes the Senate a gatekeeping institution for policies related to inequality (e.g. Enns *et al.*, 2014; Stepan and Linz, 2011). In Section 1.4, I discuss the different length of office of senators in relation to the main findings.

Table 1.3: Important Legislative Proposals: Partisanship

	Dem	Rep	Dem	Rep	All
Capture	-6.37***	-9.27***	-6.61***	-7.73***	-5.31***
	(1.92)	(1.69)	(1.97)	(1.73)	(1.90)
Republican					3.70*
					(2.01)
Republican* Capture					-3.91*
					(2.35)
MC Controls	✓	✓	✓	✓	✓
State and Year Fixed Effects	✓	✓	✓	✓	✓
MC Fixed Effects			✓	✓	
Observations	4183	3560	4183	3560	7743
R^2	0.17	0.16	0.18	0.18	
Mean Dep Var	16.90	15.02	16.90	15.02	16.03

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Finally, I check how this general negative correlation evolves over time, finding that the coefficient decreases in the last ten years of the sample. More precisely, dividing the sample in three, the main result is substantively smaller in the last period, including the election years from 2004 to 2014 (Table 1.A.7). More research

[21] Regressions in Table 1.3 exclude 80 members of Congress elected as independent.

is needed to understand whether this declining pattern might be attributed to the rise of small donations.[22].

1.3.2 Speechmaking on the Congress floor

"*Congress is so strange. A man gets up to speak and says nothing. Nobody listens and then everybody disagrees.*"

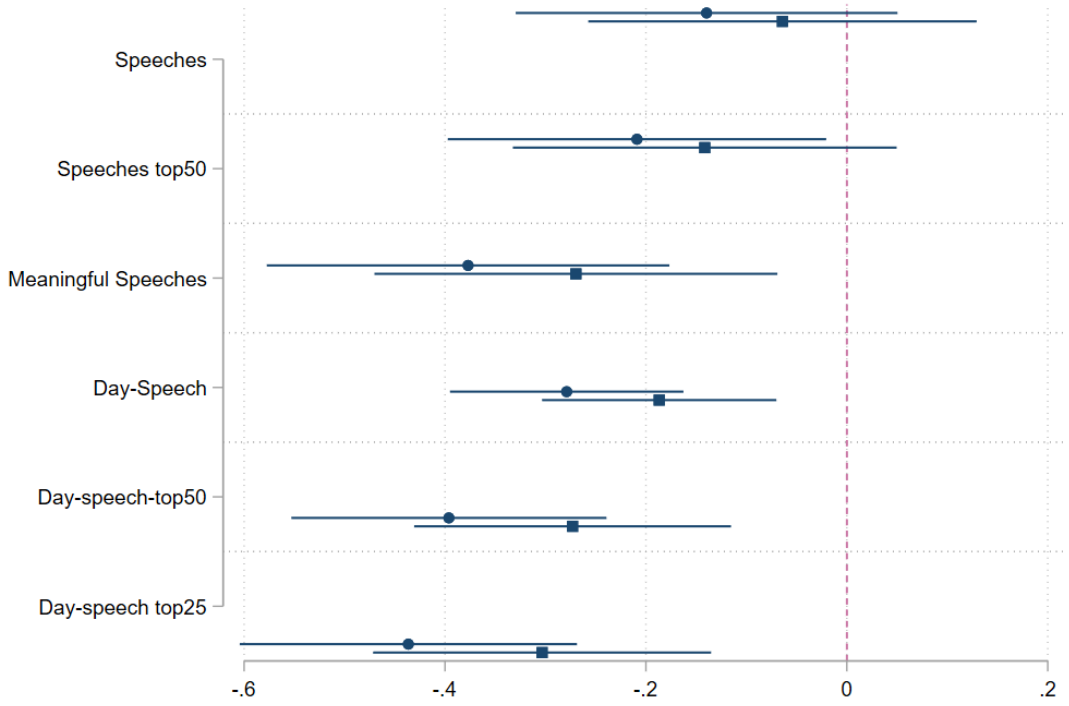
Boris Marshalov, a Russian visitor during Cold War[23].

Another form of negative agenda power that could theoretically be influenced by contributions regards the willingness of legislators to deliver speeches on the floor of the House or the Senate. Witko *et al.* (2021) links campaign donations to this legislative activity in Congress, finding that the economic priorities of speeches of legislators are influenced by the type of contributions they receive: labour donations increase attention to lower classes priorities, corporate donations to upper class ones. While this finding concerns the topic of the oral addresses, my question here is different: does the structure of political donations received influence the decision to deliver a speech in the first place?
To explore this possibility, I make use of the dataset collected by Gentzkow *et al.* (2019), containing all text spoken in these two Chambers.[24] From each legislature between 1980 and 2010, I construct variables that count the number of speeches by each member of Congress in each session. A great fraction of these oral interventions are actually very short, with the median number of words in each legislature between 29 and 72, interestingly decreasing over time, as other studies have noticed (Witko *et al.*, 2021, p. 70). Then, I create variables that count the number of speeches with an above-median number of words, and the number of speeches in the first quartile, i.e. the 25 percent longest speeches in each legislature (always longer than 150 words and increasing over time). At least in terms of their length, these are surely meaningful speeches. In order to avoid giving too much weight on one specific day of legislative activity with a high number of speeches, I build a variable that

[22]This argument is left untested in this occasion, as the data includes only partially small donations (see Bouton *et al.*, 2022, for a discussion of the data and the relevance of unitemized campaign contributions)
[23]Wiley (1947, p. 58), as quoted in Witko *et al.* (2021, p. 62).
[24]More precisely, the bound version of these files cuts the very short sentences that could not be considered in any way speeches.

counts the number of days in which a legislator intervenes on the floor. Finally, I combine the two ideas, creating the last two variables that account for the number of days in which a legislator delivers at least one speech longer than the median word count and at least one speech in the first quartile of longest speeches.[25]
The rationale behind these measures rests in the intuition that meaningful speechmaking is a costly activity, surely more than roll-call voting and it is, as bill sponsorship, a versatile and multidimensional endeavour. The opportunities for a legislator to speak in Congress are limited and many elements factor in the decision whether to do it or not. Journalists scrutinize the content of speeches and opponents are ready to capitalize on any misstep. Furthermore, a non negligible fraction of public opinion watches the live coverage of Congress on C-Span (Gennaro and Ash, 2023).

Figure 1.3: Speechmaking: coefficient of *Capture* variable for different dependent variables



Note. Round markers indicate regressions without MC fixed effects, squared markers indicate regressions without MC fixed effects. The figure displays confidence intervals at the 90 percent level.

Figure 1.3 shows the coefficients of the *Capture* variable with 90 percent confidence intervals, in regressions with dependent variable the measures of speechmaking above

[25]The correlation between these measures is very high; they correlate one with the other, in the order they have been presented, as it follows: r=0.975, 0.857, 0.884, 0.996, 0.956.

described, normalized for easing the comparison. The round markers indicate specifications without legislator fixed effects; the square markers indicate specifications with legislator fixed effects. It appears evident that there is a strong negative correlation of *Capture* with the variables indicating meaningful speechmaking. The significance of the coefficients increases with the stringency of the variable: while insignificant for the simple number of speeches, the *Capture* variable reaches conventional level of statistical significance for the number of speeches in the first quartile of length (p-value < 0.05), and for all the variables that count the number of days (p-value < 0.01).[26] The magnitude of the coefficient is sizable: one standard deviation increase in the share of funding coming from the top ten percentiles of donations correlates with a 5 percent decrease of days in which a member of Congress delivers at least one long speech, namely an oral address that belongs to the top quartile in terms of number of words for that specific legislature. Regarding the heterogeneity of this result, the effect is clearly concentrated in Democratic politicians, for whom the coefficient is larger and more precisely estimated than Republican members of Congress (results not shown).

1.3.3 Appearances Before Congressional Hearings

Finally, I explore whether the concentration of contributions influences another activity of members of Congress, namely appearances as witnesses before Congressional hearings. This is a very costly activity that members of the House carry out to represent the interests of their constituencies. On average, legislators do it 3.5 times per Congress making it the most costly legislative endeavour of the three considered in this work. As explained in Snyder and Strömberg (2010, p. 390), "to build the case that a project deserves funding, a representative may have to gather data and hire experts to discuss impacts on their district, their state, and the nation" and this requires time and effort. From their article, I take the variables *Appearances* and *Appearances A-W&M* that respectively count the number of appearances as witnesses before all Congressional committees and the number of appearances before the Ways and Means or the Appropriations committee, arguably the most important ones for the purpose of fund allocation. In their piece, Snyder and Strömberg (2010) show that media coverage of legislators' behavior, as measured geographically by the congruence between newspaper markets and congressional districts, displays a large and significant positive effect on the number of appearances, for both variables.
Table 1.4 shows the results for appearances before all committees. All regressions

[26] Table 1.A.8 and Table 1.A.9 are the corresponding regression tables.

include the entire set of controls of the main specification, plus a series of district characteristics from Snyder and Strömberg (2010) replication data, and notably their measure of congruence.[27]

Table 1.4: Witness Appearances before Congressional Hearings

	(OLS)	(Poisson)	(NegBin)	(OLS)	(Poisson)	(NegBin)
Capture	-0.10*	-0.03*	-0.03**	-0.06*	-0.05**	-0.05**
	(0.06)	(0.02)	(0.02)	(0.04)	(0.02)	(0.02)
Congruence	0.54**	0.13***	0.09***	0.25*	0.08*	0.07*
	(0.23)	(0.05)	(0.03)	(0.13)	(0.05)	(0.04)
All Committees	✓	✓	✓			
W&M and Appropriation				✓	✓	✓
MC and district Controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓		✓		
Year and District Fixed Effects			✓		✓	✓
Observations	3960	3960	3960	3960	3960	3960
Mean Dep Var	3.52	3.52	3.52	1.54	1.54	1.54

Standard errors clustered at the legislator level in parenthesis.

*p<0.10, ** p<0.05, *** p<0.01

First, I run an adapted version of the main specification with district fixed effects from Snyder and Strömberg (2010) paper, in column 1. Then, I use a Poisson and a negative binomial specification, the one preferred by the authors for their analysis of the media effect, in column 2 and 3. The rest of the table replicates the same estimation with dependent variable the number of appearances before the Ways and Means or the Appropriations committee.[28] The coefficient of the variable of *Capture* is negative and significant across the board, showing that the concentration of contributions negatively correlates with this very costly activity of legislators, even when I include the media congruence variable. The negative impact of the variable of *Capture* is not negligible, even if smaller than the effect of local media. The two variables are normalized so that the coefficients show that the effect of media congruence is between three to five times bigger for all appearances. One standard deviation increase in the concentration of contributions correlates with a reduction of appearances as witness before committees by 2.7 percent in the

[27] I do not include congruence in the analysis of bills and speeches because the data on media coverage is available for a smaller time period. In any case, the inclusion of this variable in the main regressions does not alter the main findings (results not reported).

[28] The decision to use state instead of district fixed effects in some specifications is simply due to the estimation computationally requiring to use the former, as it does not converge with the latter.

preferred specification.[29] The impact of *Capture* from campaign contributions on this legislative endeavour is valid only for Republican House members, as trimmed samples with democratic legislators never display any significant coefficient (results not reported).

The results presented in Section 1.3.3 demonstrate that legislators' degree of dependence from a relatively small number of donors also affects a legislative activity directly related to the representation of the interests of their constituencies. This finding then confirms the results found for bill sponsorship and speechmaking on a legislative act not related to agenda setting, suggesting a more general mechanism of influence. A high level of capture shifts a legislator trade-off more towards the interests of donors, diminishing the effort employed in this political endeavour.

1.3.4 Robustness Checks

First of all, I replicate the analysis for bills and speeches using a Poisson maximum likelihood estimation technique, when possible. This method fits the nature of the dependent variables, that count the number of proposals and speeches on the floor by each legislator. Nearly all results remain unaffected and the most important ones in Tables 1-4 display a greater or equal statistical significance with this method (results not shown).[30] Similarly, none of the results are affected if I exclude positive or negative outliers in the main dependent and independent variables, nor if I winsorize them (results not shown).

Now, I include other controls of various sort to study the stability of the main findings. First, I use the so called CFscore calculated by Bonica (2014) as an alternative measure of ideology with respect to the first dimension of DW Nominate score. As shown in Column 1 of Table 1.5, results are unchanged.[31] Then, I add dummies for being chair of a subcommittee, or member of a power committee (as defined in Volden *et al.*, 2013).[32] Column 2 displays the results with these two additional variables. As a robustness check for the money raised by candidates during the campaigns, I

[29] For consistency with the rest of the empirical analysis, I control for the percentage of vote in the previous election cycle as a proxy for electoral safety of members of Congress. Snyder and Strömberg (2010) use instead three dummies for open seat, close and uncontested races. If I employ those controls instead, results are almost unchanged.

[30] Some regressions with a specific category or subcategory of legislative proposals as dependent variable technically require to be estimated with a smaller amount of control variables, thus diminishing the overall predictive power. This is not the case for any of the findings in the Tables 1-4.

[31] I privilege DWNom in the main specification because the measure by Bonica is itself based on campaign contribution data.

[32] These variables are not in the main specification because they are not available for the entire sample.

test whether other non-linear functional forms of the controls for the total amount of contribution change the results. Indeed, it is possible that the impact of the contributions raised on the amount of legislative proposals is different depending on how much money a candidate raises in an election year. To test non-linearity beyond the squared variable of total amount received, I include other polynomial forms, but they are never significant (column 3).

Table 1.5: Robustness Checks: Additional Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capture	-7.75***	-3.84***	-7.18***	-10.46***	-4.06**	-6.30***	-10.38***	-9.41***
	(1.35)	(1.11)	(1.53)	(1.73)	(1.69)	(1.86)	(1.82)	(1.86)
CFscore	-2.21*							
	(1.15)							
Chair SubCommittee		3.21***			3.35***	3.43***		
		(0.46)			(0.49)	(0.52)		
Power Committee		1.15**			1.09**	2.48***		
		(0.52)			(0.52)	(0.56)		
Number Donors				0.00	-0.00	-0.00		
				(0.00)	(0.00)	(0.00)		
HHI				6.33***	-0.25	0.17	6.87***	3.93
				(2.16)	(1.76)	(1.86)	(2.25)	(2.39)
Capture × Tot. Contributions							-0.00**	0.00
							(0.00)	(0.00)
MC Controls	✓	✓	✓	✓	✓	✓	✓	✓
Other Controls for Amount			✓		✓	✓		
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
MC Fixed Effects						✓		✓
Observations	7109	6454	7032	7124	5799	5799	7822	7822
R^2	0.13	0.12	0.16	0.26	0.19	0.17	0.16	0.26

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Column 4 includes the number of distinct donors and an Herfindahl Hirschman index (HHI), following Fergusson (2014). Interestingly, HHI exhibits a positive and significant coefficient in some regressions, at the same time making the one of the *Capture* variable bigger. To be sure, HHI is a measure of concentration of contributions for the entire spectrum of donations, so that a high value of this index could indicate a concentration in middle to large donations that partially signals politician competence.[33] In this sense, the index can be interpreted as a control variable for the variable of *Capture*, assuring that it focuses only on the concentration at the top of the distribution. The variable of count of single donations received by each candidate exhibits an insignificant coefficient. In column 5 and 6, I include all new controls with and without fixed effects, again confirming the negative and

[33]Indeed, the correlation between HHI and *Capture* is relatively low: 0.51.

strongly significant coefficient of *Capture*. Finally, I include in the main specification the interaction of the *Capture* variable with the total amount of donations, which is significant only in column 7 without fixed effects. Even taking into account the higher fundraising ability of some members of Congress, which is absorbed by the fixed effects in the last column, the *Capture* variable negatively correlates with the legislative production of 'important' bills.

Another robustness check regards bill sponsorship only. I use an alternative set of variables for legislative proposals, by the Center for Effective Lawmaking, which includes the number of bills sponsored by each legislator, without dividing them by topics. The main result holds for "all bills", proposals called "substantive bills" and for "substantive bills" with action in committee, for both specifications with and without candidate fixed effects (Table 1.A.10 and Table 1.A.11). In the specification that includes fixed effect, the second last category of action beyond committee remains significant (Table 1.A.11). Finally, the influence of *Capture* on proposals that become public laws instead appears significant only in the specification without fixed effects (Table 1.A.10). Overall, this further check confirms the argument on negative agenda power of donations.

1.4 Discussion

"*The simple fact is our entire legislative schedule is set around fundraising.*"
Rick Nolan (D-MN) [34].

In the previous sections, I show that top contributions negatively correlate with important legislative outcomes that involve different levels of effort of members of Congress. Although these findings are robust to a number of additional controls and specifications, it is possible that the order of causality is reversed. The latter possibility would entail that legislators strategically use legislative activities to attract future contributions. For example, Rocca and Gordon (2010) find that members of Congress that sponsor more bills on labour and gun control legislation receive more donations from PACs advocating for these issues. The possibility of reverse causality of this sort is, at least partially, testable. Table 1.A.12 performs placebo tests to examine whether the legislative outcomes of interests influence the concentration of contributions in the following legislature. The variable *Capture* is not significantly correlated with any of the dependent variables in the main analysis,

[34] As quoted in Langhorne (October 12, 2018).

in any specification. Tellingly, the legislative outcomes of interest do not display any predictive power on the amount of contributions received either. Moreover, the main findings on bills and speeches hold employing the cycle-to-cycle change in legislative production of each member of Congress (results not shown).

Another way to support the interpretation of the main results would concern trimmed sample analyses of representatives elected for the first time, for which there is no previous legislative behavior and of retiring politicians, namely politicians that were not running for office in the following race. Mian and Sufi (2010) show null results for the effect of contributions to a subsample of retiring legislators on the Emergency Economic Stabilization Act approved in the House of Representatives in 2008, presenting it as suggesting evidence for a causal effect of donations on the behavior of elected representatives. The interpretation is the following: legislators do not need to fund an upcoming electoral campaign anymore, so they are not influenced by contributions in their voting decision in the House.

Neither of these additional exercises lead to the expected results (results not shown). On newly elected politicians, the reason might be that the overwhelming majority of them has past political experience, which can lead to previous relationships with donors, or at least can provide them information about their future performance in Congress. Moreover, the turnover in Congress is very low, as only 12.5 percent of the sample of legislators is composed of non-incumbents. For retiring politicians, the still significant result could be partially explained by the fact that legislators that died during their last term, and legislators that are followed by their son in their seats are a substantial fraction of operationally-defined retiring legislators. Alternatively, legislators could still be affected by the negative agenda power of contributions, for possible future career after politics –for example, big corporations would potentially discard politicians sponsoring many bills on social welfare.

As mentioned above, the main results for bill sponsorship are very similar for the two bodies, even if one may wonder whether senators require a different analysis. Indeed, senators stay in office for six years, a three-time longer period than members of the House and the pattern of legislative proposals by senators may follow the course of their entire six-year period in office. Nonetheless, the variable of *Capture* is constructed for this two-year time frame, since every two year approximately one-third of the seats is up for elections, and contributions may obviously vary according to this. For this reason, I consider all legislators with the same two-year bracket in the main analysis. In Table 1.A.13 I decompose the result between the two-year periods across the election for each senator (more precisely, the impact of *Capture* in the two years before the election, on the number of bills in the first

two years in office for newly elected senators) and the other periods. The coefficient is only statistically significant for the periods across the elections, suggesting that the pattern of donations in the Senate could not rule out a somewhat complicate mechanism of selection of politicians by donors. On the other hand, this finding might just reflect the fact that the great majority of contributions are collected in the two years before the corresponding election cycle for each senator.

1.5 Conclusion

In this paper, I explore the connections between political donations and legislative activities of federal legislators, focusing on the concentration of contributions of members of Congress. I find that interest groups and individuals giving large donations exhibit negative agenda power over the amount of bills, speeches and committee appearances by members of Congress. By devoting time and effort to big donors, politicians in office produce less legislative change than it would be beneficial for their constituencies. The result for bill sponsorship is greater for topics related to redistribution, thus suggesting a relationship between the concentration of contributions and policy choices on issues regarding economic inequality.

This paper makes two important contributions to the literature. First, it provides a very simple framework to explain the effect of concentration in donations to elected officials. This explanation centers on a mechanistic argument on the distribution of sources of funding of each member of Congress, which remains agnostic on the specific category of donors exercising policy influence. The identity of very rich individual donors or incredibly powerful interest group is not what matters to measure the aggregate effect. Instead, the relative weight of the top ten percent of donors for each member of Congress, remains key for understanding their legislative behaviour, regardless of their position in the ranking of biggest donors in absolute term (see the rankings of donors in Section 1.B). To sum it up, it is not who exactly donates to a legislator, but how much her biggest donations matter in the overall distribution of her campaign donations. This argument is innovative since existing works on campaign donations rarely focus on the inequality within contribution flows, and they usually do not provide the necessary framework to study their effect on relevant outcomes (for exceptions, see Epp, 2018; Fergusson, 2014).

Second, this work investigates the impact of campaign contributions on a larger set of legislative outcomes, for a period of many decades. This analysis starts from the intuition that a very skewed structure of political funds makes legislators more dependent on a relatively smaller number of donors and thus less responsive to the

interests of voters. In other words, the concentration of campaign contributions distorts the incentives of legislators to put effort for the representation of their constituencies. This mechanism explains the negative correlation on bill sponsorship, speechmaking and appearances before Congressional committees to support federal spending in their district, found for members of the House. Moreover, the empirical investigation of bills shows that the negative correlation with the concentration of contributions remains significant only for topics related to social safety net, when the dependent variable is the very restricted set of legislative proposals that has been reported by committees. Even without a causal mechanism, this finding represents the first empirical assessment of negative agenda power of relatively large donations over Congressional attention of topics related to social safety-net. The negative relationship between big donations and sponsorship of bills regarding redistributive topics suggests that economic elites' giving to members of Congress could play a gatekeeping role on policy discussion of these issues. This mechanism could contribute to explain the arguable small amount of Congressional discussion on these topics, in a period of wide economic disparities. Tellingly, the negative impact of contributions is strongest for bills on health policy. The incredibly poor U.S. public health and welfare system calls for further research on this understudied connection. More specifically, it remains unclear whether the impact of concentration of donations on speeches and appearances could be ultimately linked to an agenda setting role over issues related to economic inequality, as it is the case for bills.

Finally, these results also speak to the debate about unequal responsiveness in the American polity (e.g. Gilens, 2012; Gilens and Page, 2014). Indeed, the ability of big donors to transform their wealth into political influence is especially important given the distinct preferences of the richest Americans, found as consistently more conservative than the usually surveyed top ten percent, and particularly on matters related to redistribution, such as government spending in health care and social security programs (Page *et al.*, 2013; Page *et al.*, 2018). In any case, I believe that these findings confirm the belief that campaign contributions distorts the incentives for representation of elected representatives in complex fashions, thus reinforcing criticism over the system of campaign finance in the United States.

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1.A Appendix A - Additional Tables

Table 1.A.1: Descriptive Statistics

	N	Mean	Std Dev	Min	Max
Bills	7,822	17.98	16.18	0	181
Important Bills	7,822	15.98	14.40	0	154
Imp Bills Econ	7,822	3.19	4.23	0	70
Imp Bills Soc Order	7,822	2.37	3.49	0	52
Imp Bills Soc Safety-net	7,822	3.30	4.61	0	51
Reported Bills	7,822	2.14	3.40	0	45
Imp Reported Bills	7,822	1.85	3.16	0	35
Capture	7,822	0.47	0.13	0.12	1
CaptureTop5	7,822	0.35	0.14	0.07	1
Tot Contributions	7,822	3,507,589	1.51e+08	49.63	1.06e+10
Num Contributions	7,822	844.30	2,616.68	1	133,616
Democratic	7,822	0.53	0.50	0	1
Majority	7,822	0.56	0.50	0	1
Ideology	7,822	0.02	0.44	-0.78	1
Female	7,822	0.13	0.33	0	1
Speaker	7,822	0.002	0.04	0	1
Maj Leader	7,822	0.02	0.12	0	1
Min Leader	7,822	0.02	0.13	0	1
Chair Committee	7,822	0.07	0.26	0	1
Seniority	7,822	5.85	4.24	1	30
Speeches	6,504	285.36	563.17	1	21,284
Speeches 50p	6,504	142.01	231.69	1	7,489
Speeches 75p	6,504	70.75	85.38	0	1,245
Days-Speech	6,504	62.49	45.64	1	319
Days-Speech 50p	6,504	58.93	44.40	1	299
Days-Speech 75p	6,504	44.21	38.77	0	292
Appearances	3,960	3.52	3.78	0	28
Appearances A-W&M	3,960	1.54	2.20	0	21
Congruence	3,960	0.45	0.24	0.03	0.96

Table 1.A.2: Reported Legislation: Macro Categories

	Rep. Econ	Rep. Soc Order	Rep. Safety-Net	Rep. Econ	Rep. Soc Order	Rep. Safety-Net
Capture	-0.04	0.12	-0.16**	-0.00	0.16	-0.24**
	(0.09)	(0.10)	(0.08)	(0.11)	(0.11)	(0.12)
MC Controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓
MC Fixed Effects				✓	✓	✓
Observations	7822	7822	7822	7822	7822	7822
R^2	0.10	0.09	0.06	0.11	0.10	0.07
Mean Dep Var	0.25	0.27	0.19	0.25	0.27	0.19

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.3: Reported Legislation: Health and Social Welfare

	Soc Welfare	Health	Soc Welfare	Health
Capture	-0.04*	-0.14**	-0.04*	-0.16*
	(0.02)	(0.06)	(0.03)	(0.09)
MC Controls	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓
MC Fixed Effects			✓	✓
Observations	7822	7822	7822	7822
R^2	0.02	0.04	0.02	0.04

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.4: Important Bills: Different Categories

	Health	Agriculture	Labour	Environment	Energy
Capture	-0.44***	-0.28**	-0.21**	-0.27***	-0.29**
	(0.00)	(0.03)	(0.04)	(0.01)	(0.01)
MC Controls	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓
Observations	7822	7822	7822	7822	7822
R^2	0.07	0.01	0.02	0.03	0.17
Mean Dep Var	0.01	0.00	0.01	0.01	0.02

The dependent variables are normalized to make coefficients comparable.
Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.5: Important Bills: Different Categories

	Soc. Welfare	Housing	Dom. Comm.	Tech.	Int. Affairs	Pub. Lands
Capture	-0.25**	-0.34***	-0.28***	-0.25**	-0.23**	-0.19**
	(0.02)	(0.00)	(0.00)	(0.04)	(0.03)	(0.04)
MC Controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓
Observations	7822	7822	7822	7822	7822	7822
R^2	0.02	0.03	0.07	0.03	0.06	0.05
Mean Dep Var	0.00	0.01	0.02	0.02	0.01	0.01

The dependent variables are normalized to make coefficients comparable.
Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.6: Important Legislation: House and Senate

	House	Senate	House	Senate
Capture	-4.18***	-8.04***	-6.38***	-7.70***
	(1.12)	(2.41)	(1.23)	(2.45)
MC Controls	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓
MC Fixed Effects			✓	✓
Observations	6478	1344	6478	1344
R^2	0.13	0.25	0.13	0.26
Mean Dep Var	13.01	30.14	13.01	30.14

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.7: Important Legislative Proposals: Trend over Time

	(1980-1990)	(1992-2002)	(2004-2014)	(1980-1990)	(1992-2002)	(2004-2014)
Capture	-9.24***	-10.24***	-3.38*	-3.94*	-8.11***	-4.28**
	(2.36)	(2.02)	(1.79)	(2.15)	(2.10)	(2.03)
MC controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓
MC Fixed Effects				✓	✓	✓
Observations	2589	2683	2550	2589	2683	2550
R^2	0.10	0.20	0.17	0.11	0.20	0.18
Mean Dep Var	17.04	14.01	17.07	17.04	14.01	17.07

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.8: Speechmaking on the floor of House and Senate

	Speeches	Speeches 50p	Speeches 75p	Day-speech	Day-speech 50p	Day-speech 75p
Capture	-0.14	-0.21*	-0.38***	-0.28***	-0.40***	-0.44***
	(0.12)	(0.11)	(0.12)	(0.07)	(0.10)	(0.10)
MC Controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓
R^2	0.03	0.03	0.03	0.06	0.06	0.06
Observations	6504	6504	6504	6504	6504	6504

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.9: Speechmaking on the floor of House and Senate, with MC fixed effects

	Speeches	Speeches 50p	Speeches 75p	Day-speech	Day-speech 50p	Day-speech 75p
Capture	-0.06	-0.14	-0.27**	-0.19***	-0.27***	-0.30***
	(0.12)	(0.12)	(0.12)	(0.07)	(0.10)	(0.10)
MC Controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓
MC Fixed Effects	✓	✓	✓	✓	✓	✓
R^2	0.03	0.03	0.03	0.06	0.06	0.06
Observations	6504	6504	6504	6504	6504	6504

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.10: Bills ans Joint Resolutions: Center for Effective Lawmaking Database

	All	Substantive	Sub-Committee	Sub-Beyond Comm.	Sub Significant	Public Law
Capture	-4.30***	-4.13***	-0.66**	-0.23	0.03	-0.32**
	(1.19)	(1.12)	(0.26)	(0.23)	(0.16)	(0.16)
MC Controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓
Observations	6860	6860	6860	6860	6860	7822
R^2	0.13	0.12	0.16	0.26	0.19	0.17

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.11: Bills ans Joint Resolutions: Center for Effective Lawmaking Database, MC Fixed Effects

	All	Substantive	Sub-Committee	Sub-Beyond Comm.	Sub Significant	Public Law
Capture	-5.88***	-5.61***	-1.10***	-0.61**	-0.05	-0.25
	(1.33)	(1.24)	(0.30)	(0.29)	(0.17)	(0.16)
MC Controls	✓	✓	✓	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓	✓	✓	✓
MC Fixed Effects	✓	✓	✓	✓	✓	✓
Observations	6860	6860	6860	6860	6860	7822
R^2	0.13	0.12	0.16	0.26	0.19	0.17

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

Table 1.A.12: Placebo Estimations: exchanging Dependent and Independent Variable

	(1)	(2)	(3)
Imp Bills	0.00		
	[0.25]		
Meaningful Speeches		0.00	
		[0.64]	
Appearances			-0.00
			[0.46]
MC Controls	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓
Observations	7452	7452	3898
R^2	0.20	0.20	0.35
Mean Dep. Var.	0.47	0.46	0.46

The dependent variable of these regression is Capture.
P-value in squared parenthesis. *p<0.10, ** p<0.05, *** p<0.01

Table 1.A.13: Important Bills in the Senate: Decomposition in two years after elections and following four years

	All	Year 1-2	Year 3-6
Capture	-8.04***	-10.18**	-5.51
	(0.00)	(0.03)	(0.13)
MC Controls	✓	✓	✓
Year and State Fixed Effects	✓	✓	✓
Observations	1344	531	813
R^2	0.40	0.49	0.41

Standard errors clustered at the legislator level in parenthesis.
*p<0.10, ** p<0.05, *** p<0.01

1.B Appendix B - Supplementary Information

Top30 donors (in absolute terms) to congressional candidates

This is a list of donors that contribute the highest sum of money -adjusted for inflation- to the universe of candidates to Congress for election years 1980-2014. Names are as they appear in FEC contribution data.

1. Actblue
2. National Republican Congressional Committee Expenditures
3. Democratic Congressional Campaign Committee
4. Democratic senatorial Campaign Committee
5. National Republican senatorial Committee
6. Mcmahon, Linda
7. Realtors Political Action Committee
8. Republican National Committee Expenditures Aka Republican National Committee
9. NRA Political Victory Fund
10. Technology Network Federal Political Action Committee Technet
11. AFL CIO COPE Political Contributions Committee
12. Club for Growth PAC
13. Linda Mcmahon for Senate 2012 inc
14. American Medical Political Action Committee
15. International Association of Fire Fighters Firepac
16. US Chamber of Commerce
17. National Education Association Political Action Committee
18. Service Employees Int'l Union Committee on Political Education Political Campaign Comm
19. UAW V CAP UAW Voluntary Community Action Program
20. Attorneys Congressional Campaign Trust of The Association of Trial Lawyers of America
21. Democratic Republican Independent Voter Education Committee Drive Committee
22. Dealers Election Action Committee of the National Automotive Dealers Association
23. Thorpe, A. S.
24. Machinists Non Partisan Political League
25. International Brotherhood of Electrical Workers PA
26. American Bankers Association Bankpac
27. Build Political Action Committee of The National Association of Home Builders
28. Committee on Letter Carriers Political Education Letter Carriers Political Action Fund

29. League of Conservation Voters Inc Political Action Committee Lcv Earth Fund
30. United Food Commercial Workers International Union Active Ballot Club

Top30 donors (in relative terms) to congressional candidates

This is a list of donors that belong for the highest number of times to the top 10 percent part of the distribution of contributions to candidates to Congress for election years 1980-2014. Names are as they appear in FEC contribution data.

1. Realtors Political Action Committee
2. [Ironworkers Political Action League/Voluntary Contributors For Better Government/Citigroup][35]
2. Automobile and Truck Dealers Election Action Committee
3 American Medical Political Action Committee
4. AFL CIO COPE Political Contributions Committee
5. National Republican Congressional Committee Expenditures
6. Attorneys Congressional Campaign Trust of The Association of Trial Lawyers of America
7. UAW V CAP UAW Voluntary Community Action Program
8. Build Political Action Committee of The National Association of Home Builders
9. American Bankers Association Bankpac
10. Democratic Republican Independent Voter Education Committee Drive Committee
11. Democratic Congressional Campaign Committee
12. National Education Association Political Action Committee
13. International Brotherhood of Electrical Workers Committee on Political Education
14. Machinists Non Partisan Political League
15. National Beer Wholesalers' Association Political Action Committee Nbwa PAC
16. UPSPAC
17. Committee on Letter Carriers Political Education Letter Carriers Political Action Fund
18. American Dental Political Action Committee
19. National Rifle Association Institute for Legislative Action
20. Carpenters' Legislative Improvement Committee
21. Laborers Political League

[35]These lists make use of the identifiers coded by Bonica (2014). In an impressive endeavor, DIME Database contains an ID for each donor, actually grouping consistently multiple family members and corporations that change name over the years. This comes with a (negligible) number of mistakes. For example, the same ID here includes many intrinsically different contributors such as: an interest group of iron workers; a PAC supporting a democratic senator; the PAC of the multinational investment bank Citigroup.

22. Active Ballot Club, A Dept Of United Food Commercial Workers Int'l Union
23. National Association of Life Underwriters Political Action Committee
24. American Federation of Teachers Committee on Political Education
25. Air Line Pilots Association Political Action Committee
26. Credit Union Legislative Action Council of Credit Union National Association
27. CWA COPE Political Contributions Committee
28. Transportation Political Education League
29. Engineers Political Education Committee
30. Service Employees Int'l Union Committee On Political Education Political Campaign Comm

Categories of Bills (*Policy Agenda Project*)

- 1. Macroeconomics
- 2. Civil Rights
- 3. Health
- 4. Agriculture
- 5. Labor
- 6. Education
- 7. Environment
- 8. Energy
- 9. Immigration
- 10. Transportation
- 12. Law and Crime
- 13. Social Welfare
- 14. Housing
- 15. Domestic Commerce
- 16. Defense
- 17. Technology
- 18. Foreign Trade
- 19. International Affairs

- 20. Government Operations
- 21. Public Lands
- 23. Culture

Macro Categories of Bills (*Epp and Borghetto, 2018*)

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- Economy: 1, 5, 15, 18
- Social Order: 9, 12, 16
- Social Welfare: 3, 6, 13, 14
- Other: 2, 4, 7, 8, 10, 11, 17, 19, 20, 21, 23

Chapter 2

Income Inequality and Campaign Contributions: Evidence from the Reagan Tax Cut

Abstract

What is the relationship between economic and political inequality? Campaign contributions are often mentioned among the possible channels creating opportunities for richer people to exert disproportionate influence on policymakers. At the same time, by exacerbating economic disparities, public policies that favour the wealthy might also give them a greater relative weight in the donor pool, hence creating a self-reinforcing spiral between material wealth and political influence. We study the effect of the 1986 Tax Reform Act, a remarkable tax cut that, following the prevailing doctrine about optimal income taxation at the time, decreased the marginal tax rates disproportionately at the top of the income distribution. Using data at the Census tract level, we show that this policy decision caused a spike in contributions from the groups of citizens that benefited the most from it, namely the top ten percent of the income distribution. This result is robust to several alternative specifications and holds when controlling for other provisions of the tax policy. The increase in individual donations regards both parties with similar magnitudes and it does not display any heterogenous effect with respect to other observable characteristics of recipients of contributions. This finding is entirely driven by the extensive margin, namely new donors who started to donate after the tax reform, and it holds for donations for House, Senate and Presidential races. Our conclusion is that the erosion of tax progressivity has contributed to rise the political clout of wealthy individuals, via campaign donations, and that the Tax Reform Act, a landmark policy of the second Reagan administration, has been a crucial step in the spiral between economic inequality and uneven political influence of the last four decades.

For helpful discussions and comments we would like to thank Giovanni Angioni, Dan Berliner, Laura Garcia Montoya, Mathilde Emeriau, Ronnie Razin, Lorenzo Sileci, Leila Travaglini and all participants to the Bolzano Joint Political Economy and Applied Microeconomics workshop in 2022.

2.1 Introduction

Modern democracies are based, in principle, on the idea that all citizens should be politically equal and carry the same weight in the processes that lead to public policy formation. In practice, however, political influence can be heavily asymmetric for various reasons which can be traced back to differences in wealth, in networking opportunities or in political awareness. Since electoral campaigns are costly, their financing represent one avenue through which wealthy donors can try to influence policy-makers and, in some cases, gain access to them. It is not surprising then to observe the study of campaign contributions receiving increasing attention, particularly in the United States, where the transparency of the funding system offers ample opportunities for data analysis (e.g. Cagé, 2020; Weschle, 2023).

Consistently with the view that richer citizens exert disproportionate influence, public policy appears to be responsive to the policy preferences of Americans in the top ten percent of the income distribution but virtually uncorrelated with the preferences of the remaining ninety percent of the population (Gilens, 2012). Indeed, several studies about economic and political inequality in the United States indicates campaign contributions as one of the channels through which wealthy elites obtain political influence (Bartels, 2008; Hacker and Pierson, 2010; Gilens, 2012). More recent works focus on how members of Congress respond to donations, showing that legislators cater to the political preferences of wealthy donors more than to their broad electoral constituencies (Canes-Wrone and Gibson, 2019; Canes-Wrone and Miller, 2022). These findings become especially relevant since preferences of rich voters tend to be more liberal than those of the remaining population on social issues like abortion and gay rights and more conservative on economic issues, like taxation, social spending and market regulation (Page *et al.*, 2013; Broockman and Malhotra, 2020).

To be sure, individuals can donate to political campaigns for a number of reasons. For example, contributions have been modeled as a form of ideological consumption, distinct from policy influence (e.g. Ansolabehere *et al.*, 2003). Nonetheless, recent studies have confirmed that contributions also work as an instrumental way of gaining leverage on political decisions (e.g. Fouirnaies and Hall, 2018). Hence, if campaign contributions provide political influence, then rich donors can steer economic policy in a direction which potentially creates greater economic inequality. In turn, greater economic inequality might induce even further concentration in campaign contributions and political influence. This means that, even in democratic systems, economic inequality and political inequality can mutually reinforce each other in a vicious spiral leading to increasing concentration of both economic and

political power in the hands of a small oligarchy.

For the spiralling to take place, we need both an impact of campaign contributions on public policy and an impact of public policy on campaign contributions. On the first link, convincing causally identified evidence is gradually emerging (Kalla and Broockman, 2016; Fouirnaies, 2018). We are not aware, however, of any work directly addressing the second link: does increased economic inequality (and particularly policy-induced inequality) cause an increase in the concentration of campaign contributions? If the idea of a spiral of inequality is certainly not novel (e.g. Kelly, 2020) and can be traced back to a Krugman (1996) article with this title, the empirical study at micro level of this link represent, to the best of our knowledge, an advancement in the literature.

In this paper, we analyse the evolution of campaign contributions after a tax policy decision that benefited disproportionately wealthy citizens, greatly increasing their disposable income. We find that the 1986 Tax Reform Act (TRA), adopted by the second Reagan administration, cutting taxes disproportionately for citizens at the top of the income distribution, caused a remarkable increase in political donations from these groups. Using data at the Census tract level, we show that the TRA has led to an increase in contributions from individuals that belonged to the richest part of the population. To identify the effect of the TRA, we use a generalized difference-in-differences estimation with an intensity of treatment that varies with the percent of income saved along the income distribution as a consequence of the reform. We then create different intensity of treatment variables accounting for the top ten, middle forty and bottom fifty parts of the income distribution, finding that only the richest group increased their donations after the TRA.

We believe these findings fill an important gap in the literature on the increased political clout of moneyed elites in American politics. We show that policy decisions, such as tax cuts, magnify the political clout of economic elites who already derived policy influence from their material wealth (e.g. Hacker and Pierson, 2020). In simple words, very rich citizens favour tax cuts that increase their disposable income and their potential contributions to aligned legislators. In turn, this makes contributions even more concentrated at the top of the income distribution, thus making the preferences of the wealthiest groups even more important than before.

The structure of the paper is as follows. Section 2.2 Section 2 discusses the importance of individual campaign contributions in relation to policy decisions. Section 2.3 Section 3 provides the background of the approval of the TRA. Section 2.4 Section 4 describes the data. Section 2.5 Section 5 reports our main results on the impact of the tax cut on campaign contributions. Section 2.6 Section 6 and Section 2.7 7

elaborate on the main findings, examining the heterogenity of the results, on the side of recipients and donors, respectively. Section 2.8 Section 8 concludes.

2.2 Campaign Contributions and Public Policy

Since the 1980s, when data on campaign contributions from the Federal Election Commission started to be reliable, political scientists have extensively studied political donations in the United States (e.g. Snyder, 1990). While seminal accounts of the evolution of economic inequality in the United States (e.g. Bartels, 2008; Hacker and Pierson, 2010; Gilens, 2012) suggest that contributions might be one of the most relevant channels through which wealthy elites and interest groups influence policy decisions, empirical evidence on this link has been rather sketchy so far.

The concentration of campaign contribution has risen in recent decades. Bonica *et al.* (2013) find that the number of individuals donating to campaigns has markedly increased from 1980 to 2012, but inequality in contributions has risen as well, so that 0.01 percent of the voting age population accounted for more than 40 percent of total contributions in 2012. Surveys of donors reveal that, after other factors linked to ideological positions are taken into account, the size of the donation depends on a donor's income and wealth (Barber *et al.*, 2017; Barber *et al.*, 2019). Bonica and Rosenthal (2018) analyse the contributions of members of Forbes 400, finding that they correlate with increases in wealth inequality. This evidence suggests that the increase in top contributions could be linked with the rise of economic inequality, creating a vicious circle where "established wealth may contribute to preserve or increase wealth by items like the carried interest deduction, the diminished estate tax, and special treatment for the fossil fuels sector" (Bonica and Rosenthal, 2018, p. 43).

Digging into this relationship is especially important since the richest Americans tend to be consistently more conservative on economic issues than the usually surveyed top ten percent, particularly on matters related to redistribution (Page *et al.*, 2013; Page *et al.*, 2018). A more specific survey of big donors similarly shows that Republican contributors are significantly more conservative on economic issues than Republican voters and this difference increases for top 1 percent donors (Broockman and Malhotra, 2020).

To sum up, campaign contributions patterns might induce legislators to overweight the political preferences of economic elites, which tend to be more conservative than the rest of the population on economic and fiscal matters. We are not aware, however,

of any detailed study concerning the other side of the vicious spiral between material wealth and political influence. When legislators respond to the political preferences of their wealthy donors, they will be more likely to implement policies that might increase their political clout, hence leading to further concentration of political influence and then more policies aimed at protecting the interests of economic elites. A tax cut is a paradigmatic example of this mechanism. Regressive tax cuts have never been a popular policy favoured by a majority of the population (Saez and Zucman, 2019). Nevertheless, there have been at least five tax cuts in the last forty years in the United States which have mostly benefited the richest income groups. A possible consequence of greater available income for individuals benefiting from tax cuts could be an increase in their campaign contributions, making politicians depending even further on fewer donors. We show that this has been the case for the TRA, the largest tax cut of the top marginal tax rate in the history of the United States, and one of the largest in the democratic world (Saez and Zucman, 2019).

2.3 The 1986 Tax Reform Act

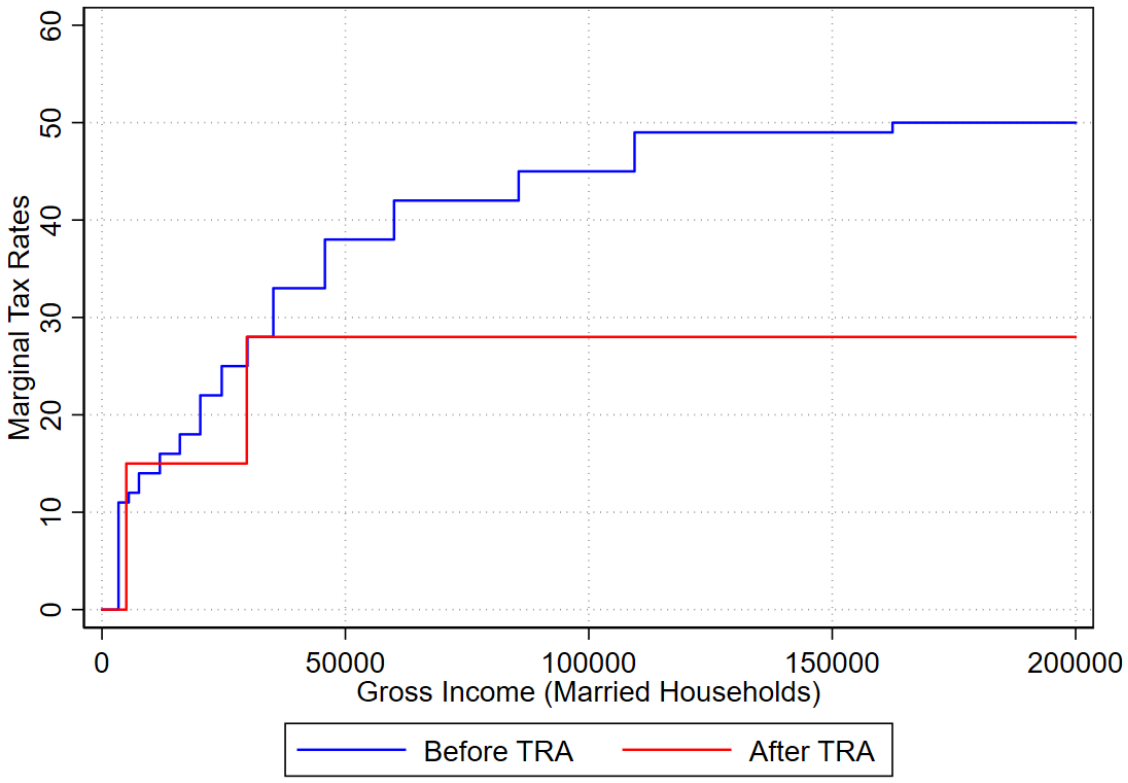
"*Trickle-down economics has never worked.*"
President Joe Biden, 28 April 2021.

The Tax Reform Act was signed into law on October 22, 1986 by President Ronald Reagan in his second term. Among many other provisions, the act slashed the highest marginal tax rate from 50 to 28 percent, the lowest value in democratic countries at that time. It followed the Economic Recovery Tax Act (ERTA) of 1982, the first tax cut by the first Reagan administration that decreased it from a 70 percent to a 50 percent rate. For a married individual, an individual income of at least $29750 (around $65000 adjusted in 2018 dollars) qualified for the highest income bracket at 28 percent rate. Above this figure, everyone paid the same marginal rate. The decrease in the tax rates went along with the stark simplification of just two income brackets at 15 and 28 percent rates, and a higher threshold for personal exemptions and standard deductions that excluded a few million citizens from the tax roll.[1] Figure 2.3.1 compares the marginal tax rates before and after the TRA.[2]

[1] Estimates diverge, but the figure probably amounted to around five million citizens (Auerbach and Slemrod, 1997). This provision was largely intended to adjust the threshold for the rampant inflation of the 1970s and 1980s.

[2] Given the mentioned interventions for low income owners, the left part of the graph should be interpreted with caution.

Figure 2.3.1: Marginal tax rates before and after TRA



At the same time, one of the most important objectives of the reform was to expand the tax base by fully taxing capital gains (previously only 40 percent of capital gains were taxable),[3] by reducing the scope of tax credits and by closing various loopholes (Saez and Zucman, 2019, pp. 51–54). The effectiveness of this increase in the tax base is still object of debate today, with moderate base broadening being the most common findings (Bakija and Steuerle, 1991; Gravelle and Hungerford, 2012). The TRA also decreased the statutory tax rate for corporate taxable income from 46 to 34 percent, at the same time expanding the base of corporate taxes by eliminating the investment tax credit and lengthening depreciation rates. Finally, the reform eliminated the so-called passive loss provision and a number of favorable tax provisions for specific industries, many of them created by the previous reform enacted in 1982. We return to these latter policy changes in Section 7. Overall, the aim of the TRA was to be revenue neutral.

The final legislative passage of the bill in Congress had ample bipartisan majority, with votes in favour by all powerful Democratic legislators, including future Presidential

[3]For capital gains taxed at the highest marginal rate this amounted to an increase in taxation from 20 (a 50 percent tax rate applied to 40 percent of capital gains) to 28 percent (a marginal rate of 28 percent applied to 100 percent of capital gains).

candidates Al Gore and John Kerry, and future President Joe Biden. Perhaps more surprisingly, it was difficult to find dissenting voices in academic circles. The prevalent ideas from optimal taxation theory at the time would recommend precisely a broadening of the tax base and a decrease in marginal tax rates, particularly at the top, with the aim of minimizing allocative distortions and supply-side disincentives. Concerns about the reduced progressivity of the tax schedule were often deemed of second order importance. In the very first issue of the *Journal of Economic Perspectives*, leading economists and tax specialists discussed the Tax Reform Act, mainly acclaiming this policy as a positive revolution in fiscal matters (Stiglitz and Taylor, 1987; Aaron, 1987) and praising the tax reduction for the average citizen. Joseph Pechman, for example, while expressing "serious reservations on the elimination of graduation at the top of the income scale", commended the act as a policy that "improves the fairness of the tax system and removes major distortions from the economy" (Pechman, 1987, pp. 22, 17). The beneficial effects to the working poor (who were removed from the pool of taxpayers) and the elimination of tax shelters for real estates encouraged analysts to even claim that the overall effect of the tax would have been progressive.

The assessment of this policy has changed over time, with more nuanced views expressed by influential academics around a decade after the TRA (e.g. Slemrod, 1995). Auerbach and Slemrod (1997) analyse the effect of the TRA on pre-tax income for rich individuals in the following year, finding a substantial increase and concluding that it is not possible to distinguish between tax shifting and labour supply increase. While they still defend the overall rationale of TRA, they admit that there is "little hard evidence of the fruits of this effort" (p.628) and show that public opinion judgement in 1986 on the law was very far from the almost unanimous votes of members of Congress and the large support from specialists in academia. By 1990 the public perception of the reform was even less positive: 37 percent of respondents in 1990 said that the fairness of the tax system had decreased as a consequence of TRA (the corresponding figure in 1986 to the same Gallup question was 20 percent), and only 9 percent said that it had increased (27 percent in 1986). Most people did not see much difference in both years (36 percent in 1986, 40 percent in 1990).

During the discussion in Congress, approval rates of this policy in the public were at best tepid, between 22 and 40 percent (Saez and Zucman, 2019, p. 45). In general, the very differentiated views about tax cuts among the public is confirmed by a large-scale survey administered in 2012 (CCES). Only 25% of the general public supported the extension of the Bush-era tax cuts for everyone, including the richest Americans, but the approval rate was substantially bigger among Republicans,

though still not reaching the majority of them (42%). The difference is striking with Republican donors: 62% favoured the proposal, and this percentage arrived at 80% for Republican donors with incomes in excess of $250,000 a year.[4] President Trump experienced similar lukewarm support for his 2018 tax cut, despite the massive backing of political groups affiliated with the Koch brothers (McCormick, 2019). Before the approval, the Associated Press also reported threats for inaction on tax policy, from a donor retreat organized by the Koch brothers, such as Texas-based donor Doug Deason: "get tax reform passed" if you want "my Dallas piggy back open up" (Sheffield, 2017).

Until recently, tax cuts have been largely thought to have a positive effect on economic growth. This would amount to an efficiency gains related to behavioural responses of high-income individuals increasing their labour supply. Reduced taxation at the top of the income distribution would then "trickle down" to other income groups. Ultimately, economic growth would "lift all boats". The consensus has shifted in more recent years, with convincing evidence showing how middle class income has stagnated while income inequality has increased. Recent works demonstrate that the fall in tax progressivity has been a major cause of the increase of wealth and income inequality (Hubmer *et al.*, 2017; Piketty *et al.*, 2018). A couple of recent papers analyse major tax reforms that have reduced progressivity. Rubolino and Waldenström (2020) analysed three reforms in the '80s in Australia, New Zealand and Norway using a synthetic control methodology. They find that the reduction of top marginal tax rates had a positive effect on the income share of the top percentile. Hope and Limberg (2022) find that major tax cuts on the rich implemented in 18 OECD countries in the last half century did not increase economic growth and did not decrease unemployment. In their study, they take a new approach to identify major tax reductions for high income individuals, based on a Bayesian latent variable that takes into account many different indicators related to taxes on the richest part of society. They found thirty country-year observations in their sample that meet their definition of large tax cut (two standard deviation shock to the latent variable). For the United States, the authors classify as major tax cuts the ERTA of 1982 and the TRA, object of this study.

2.4 Data

Our main sources of data are the DIME database (Bonica, 2016) and the Census Bureau. The DIME database contains amount, date and donor characteristics for

[4]Stein and Rowell (2016), as quoted in Hacker and Pierson (2020, p. 121).

each individual donation between 1979 and 2014. We include all registered individual contributions, including the ones directed to PACs and not-PACs committees.[5] Crucially, the DIME database also includes Census tract localization of nearly all individual donations. As Urban and Niebler (2014) argue for zip codes, employing a unit of analysis smaller than the county is crucial for studying the evolution of campaign contributions, given the stark differences in donation patterns of Census tracts (or zip codes) within the same county. Census tracts are smaller and more uniform than zip codes. There are more than 70 thousand tracts in the United States, with population between 1200 and 8000 people. We merge the information from DIME with Census Bureau data at Census tract level from the decennial Censuses of 1980 and 1990.

From Census Bureau (Geolytics re-adaptation), we get the number of families in small income ranges from 5,000 to 200,000 dollars in each Census tract.[6] From this data, we can reconstruct the entire income distribution of each tract, assuming a uniform distribution within each range. The few existing studies show that inequality between Census tracts is very high (Gaubert *et al.*, 2021a) and that the concentration of poverty in tracts appear higher than in counties (Gaubert *et al.*, 2021b; Reardon and Bischoff, 2011). To the best of our knowledge, this paper is the first to study the evolution of individual campaign contributions and income at the Census tract level.

2.5 The Effect of TRA on Campaign Contributions

The TRA is a complex policy with many provisions, as discussed above. We focus here on the large and heterogenous cut to income tax rates, and we build a treatment variable that correspond to the tax reduction experienced by the population of every tract, as a consequence of the tax cut enacted by the TRA. This variable is constructed by using the difference in tax rates for each income range. We then use this variable as an intensity of treatment in a generalized difference-in-differences specification.

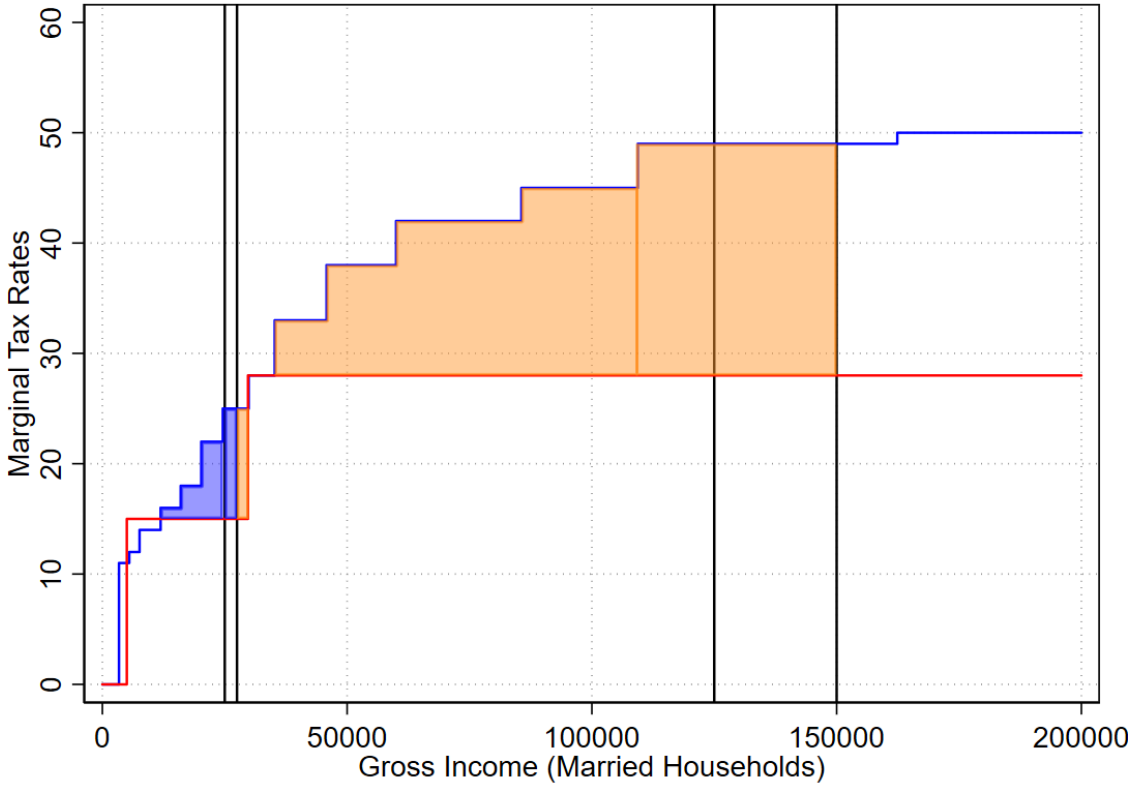
The TRA entailed a reduction of the tax burden for nearly every taxpayer, but the advantage varied substantially along the income distribution. Figure 2.5.1 displays this difference using two of the income ranges made available by Geolytics. It is evident that citizens earning a gross income between 25,000 and 27,500 dollars a year (the income range demarcated on the left) have a smaller net advantage than

[5] We do not consider contributions under $200 that have not been recorded by the FEC. Bouton *et al.* (2022) show this type of contributions started to rise dramatically largely after the end of the period of study in this work.

[6] The number and width of income ranges vary slightly between decennial Censuses. Figure 2.A.1 in the Appendix provides an example for the 1990 Census.

rich citizens earning 125,000 to 150,000 dollars a year (the income range demarcated on the right). In the graph, the increase in disposable income of the first group of citizens is the blue area, namely the integral of the difference of the two marginal tax rates until the 27,500 dollars line, while the net advantage for the richer group of citizens is the sum of the blue and the orange area, namely the integral of the difference until 150,000 dollar line.[7]

Figure 2.5.1: Tax reduction for different income ranges due to the TRA

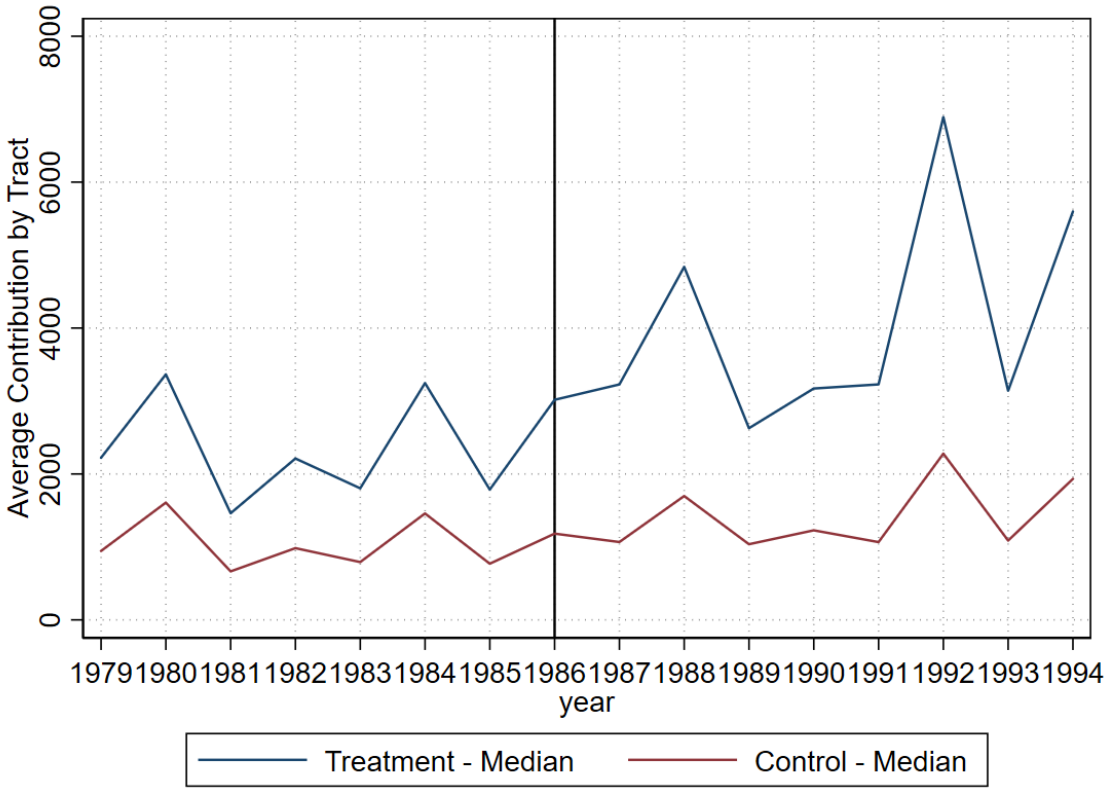


To build the intensity of treatment variable we assume a uniform distribution within each income range in each unit of observation and then we calculate the average federal income tax reduction for each range. The last range, including the families with income above $150,000, does not have an upper limit (and obviously does not have a midpoint). However, we can still calculate total tax savings for this group since we know the aggregate income of the tract. Note that this is a very conservative assumption, since distributions of income are known to be skewed toward the right tail. Appendix Section 2.B describes this procedure in greater details.

[7]Given that the TRA includes many other provisions for low income owners, while we focus only on the cut to federal income tax rates, we exclude incomes below 15,000 dollar. In other words, we assume that this group of citizens do not make any contribution.

In the main specification, we consider four election cycles, from 1983-1984 to 1989-90, with the first two constituting the pre-treatment and the last two the post-treatment period.[8] Alternatively, we collapse the two periods before and after and we take the difference of contributions as dependent variable. This latter specification absorbs Census tract fixed effects, considering two comparable four-year periods, each one including a congressional and a presidential election.

Figure 2.5.2: Parallel Trends Assumption



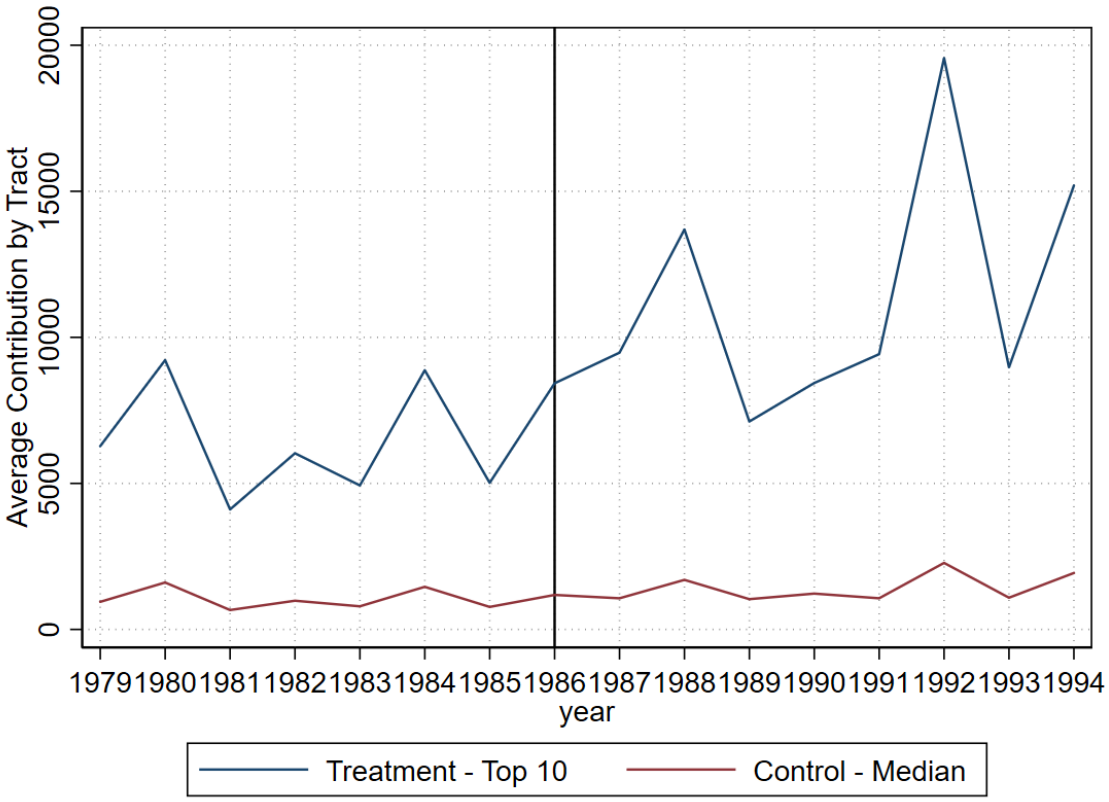
We build two versions of the intensity of treatment variable using information from the 1980 and 1990 decennial Censuses which asked questions about income in the year before. Ideally, we would need this variable for year 1986. In the absence of this information, we calculate the intensity of treatment using the 1980 Census and the 1990 Census and we interpolate for year 1986. We are able to do that only for around 80 percent of Census tracts which are included in the 1980 Census. As the procedure of 'tracting' the United States by the Census started from urban areas, the missing tracts are more rural than average. The excluded areas are more rural than average. We then construct an intensity of treatment variable using only the

[8]Contribution amounts are adjusted by inflation, with base year 1989.

1990 Census. This assumes that the Census tract level gross income in 1989 was the same as the gross income in 1987.[9]

Figure 2.5.2 shows that the parallel trend assumption holds. We divide the sample in two using the median value of the intensity of treatment variable. We then compute the annual average contributions for these two groups and display their evolution over time. While the two lines proceed broadly in parallel until 1986, with predictable spikes in election years (particularly pronounced for presidential elections), there is a clear divergence starting in 1987, a non-election year. This divergence appears to persist until 1994. While contributions tend to increase for all income groups, the rise has been more pronounced in tracts with above median values of the intensity of treatment. Figure 2.5.3 shows a comparable pattern comparing the top ten and the bottom fifty percentiles of tracts, based on the distribution of the intensity of treatment variable.

Figure 2.5.3: Parallel Trends Assumption - Top10



[9]While this assumption would theoretically induce post-treatment bias, Auerbach and Slemrod (1997) do not find a substantial change in labour supply as a consequence of the reform.

The main regression estimates the following panel specification:

$$Y_{it} = \alpha PostTRA_t + \beta Treatment_i + \gamma PostTRA_t * Treatment_i + \eta_t M_i + \delta_{jt} + \epsilon_{it},$$

where Y_{it} is the amount of individual contributions from Census tract i during legislature t excluding pivotal legislators and Congress leaders, $PostTRA_t$ is a dummy variable equal to one from 1987 onwards, $Treatment_i$ is one of the two versions of the intensity of treatment variable for Census tract i and M_i is a vector of controls for Census tract i at baseline year 1990 (or 1980) interacted with two-year electoral cycle fixed effect. Finally, δ_{jt} is a set of state per cycle fixed effects to absorb state variation in the contribution patterns potentially related to the varying relevance of different states in different election cycles. Standard errors are clustered at the county level.[10]

Control variables should ideally be predetermined with respect to the treatment variable. As explained above, using 1980 Census controls entails losing more than 20 percent of sample observations. Moreover, given that the Census Bureau created Census tracts starting from more urban areas, these lost observations would surely be non-random. For this reason we show the main result using the first intensity of treatment variable (calculated for year 1986), with control variables from 1980 and replicate them with the other version of the intensity of treatment (calculated for year 1989), in the full sample of US Census tracts, using 1990 controls. The difference between these set of estimates is always rather minor. Being the dependent variable measured at a quite small level of geographical aggregation, namely Census tract, it includes a high number of zeros (around 60 percent of the total). All results hold excluding those observations from the sample, with unaltered significance and slightly bigger point estimates. Table 2.A.1 in the Appendix displays summary statistics for this section.

The choice of the dependent variable merits a further note. According to detailed accounts, a small number of politicians played a decisive part to approve the TRA, after a troubled history in Congress. These legislators, especially if sitting in the critical Senate Finance Committee, chaired by Bob Packwood, experienced a sharp rise in donations in 1985, during the discussion of the tax bill. Senator C. Grassley (IA-R), when asked about the surge in giving between 1983 and 1985: "We didn't have a tax bill in 1983. Now people are anticipating a major tax bill." (Birnbaum

[10] Alternative specifications that add county fixed effects, or that alternatively control for county per cycle fixed effects, which are very computationally requiring, do not change at all the significance of the results. Also the point estimates remain virtually unchanged. The same is true for clustering at the Census tract instead of county level. The statistical significance is also unchanged when we exclude or winsorize one or five percent outliers in the dependent and treatment variables.

Jeffrey and Murray, 1987, p. 180). This spike in donations most certainly had the objective of influencing the drafting of the tax bill, especially for special interests that were trying to defend their tax breaks through PAC donations. As Birnbaum Jeffrey and Murray (1987, p. 183) write, this type of donations was not only coming from PACs, as groups like Alignpac "managed to circument the federally-imposed $5,000-per-election limit on PAC-giving by urging its members to make checks directly to Packwood rather than to the PAC". This lobbying effort by special interest groups involving rich individual contributions is probably introducing a downward bias in the empirical analysis. Nonetheless, we are interested in estimating the effect of the TRA on the flow of individual contributions, after its implementation, and not the lobbying before the approval of the tax bill. Then, we exclude contributions to those legislators as well as Congress leaders, potential beneficiaries of contributions with the same logic, in the main specification.[11] To be sure, the change in the dependent variable is minimal, and all results hold including these contributions in the dependent variable (Table 2.A.5).[12]

Table 2.5.1: Campaign contributions: the effect of TRA

	(Contr)	(Contr)	(Contr)	($\Delta Contr$)	($\Delta Contr$)	($\Delta Contr$)
PostTRA	16170.80***	9611.00	16324.85***			
	(3943.06)	(6181.76)	(3882.01)			
Treatment	1.50***	1.23***	1.06***	1.53***	1.20***	1.11***
	(0.18)	(0.12)	(0.09)	(0.30)	(0.29)	(0.23)
PostTRA × Treatment	0.77***	0.60***	0.55***			
	(0.15)	(0.15)	(0.12)			
Treatment 1986	✓			✓		
Treatment 1989		✓	✓		✓	✓
Controls Census 1980	✓		✓	✓		✓
Controls Census 1990		✓			✓	
State*year Fixed Effects	✓	✓	✓			
State Fixed Effects				✓	✓	✓
Observations	200696	289820	201464	50174	72455	50366
R^2	0.12	0.11	0.11	0.11	0.10	0.10
Dep Var: Mean	4734.43	4025.78	4730.92	2910.59	2505.47	2910.78
Dep Var: N Zeros	121,982	175,634	122,604	18,940	26,185	19,069

Standard errors clustered at the county level in parenthesis.

[11] These are, for the House, the Speaker, Majority and Minority Leaders and Whips, Chief Deputy Majority Whip, Democratic Campaign Committee Chairman, Republican Conference Chairman, Policy Committee Chairman and Campaign Committee Chairman; and for the Senate, Majority and Minority Leaders and Whips, Republican National Senatorial Committee Chair and Policy Committee Chairman, and Democratic Campaign Committee Chairman.

[12] Note that we could not run the regression with contributions to these two groups of politicians only as dependent variables, because the aggregation at the Census tract level would result in too many zeros.

Table 2.5.1 shows that the TRA caused an increase in donations coming from the Census tracts that benefited the most from the tax cut. The first column displays results of a regression with control variables for the 1980 Census and intensity of treatment calculated for 1986 with the interpolation described above; the second column shows results of a regression with control variables for the 1980 Census and intensity of treatment calculated for 1989; finally the third column exhibits results of a regression similar to the second one but with 1980 control variables. The same applies to the other three regressions with change in contributions as dependent variable. To ease the interpretation of the coefficients, here we consider the intensity of treatment variable as the amount of the cut in tax rates divided by 1000. We can then conclude that out of 1,000 dollars saved due to the TRA, a tract donates on average between 0.57 and 0.79 dollars more in each election cycle after 1986. Note also that the use of the two different sets of controls changes only marginally the magnitude of the coefficients. Table 2.A.2 in the Appendix displays similar results when the dependent variable and the intensity of treatment variables are measured as logarithm and Inverse Sine Transformation (IHS) of the amount. This table shows that, when the coefficients can be interpreted as elasticities, the difference between the three specification employed is incredibly small (less than one percentage point).

Table 2.5.2: The effect of TRA on Campaign contributions: Placebo Estimations

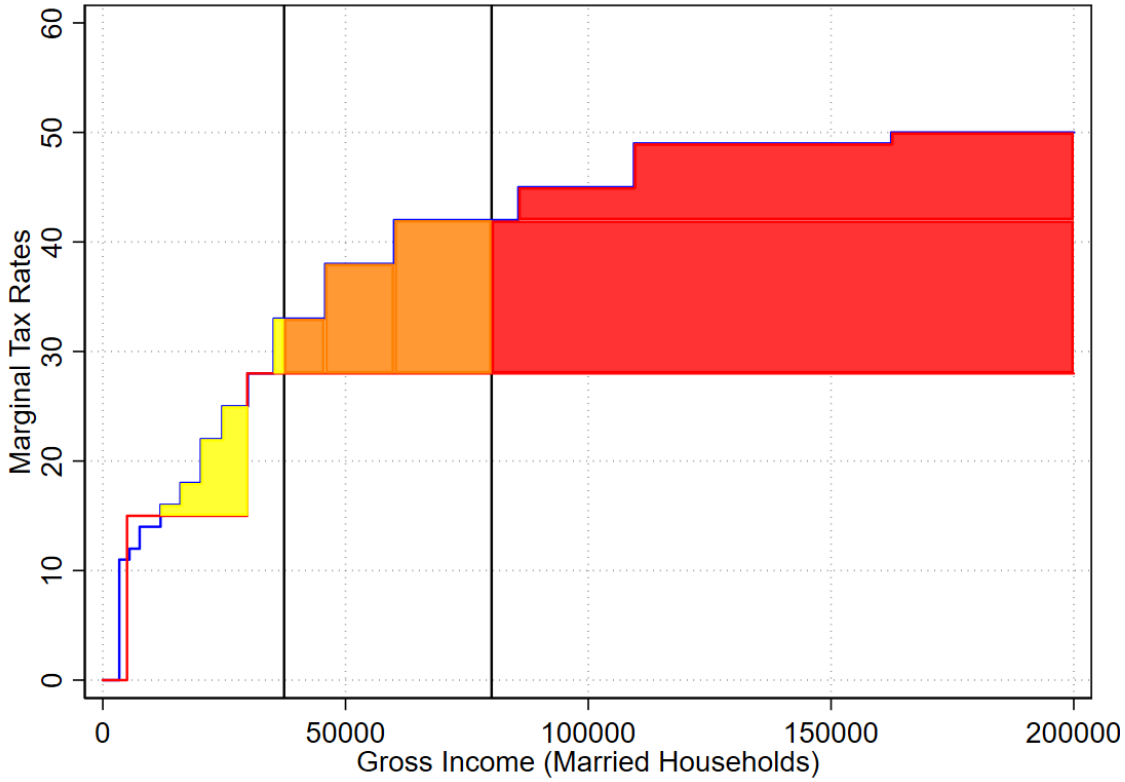
	(Contr)	(Contr)	(Contr)	(Contr)	(Contr)	(Contr)
Placebo Before	2869.93	7870.66**	2976.77			
	(3044.77)	(3943.87)	(2965.89)			
Placebo After				15705.41***	15130.95***	14353.02***
				(2365.58)	(2908.20)	(2352.55)
Treatment	1.48***	1.23***	1.05***	2.66***	2.14***	1.90***
	(0.16)	(0.14)	(0.09)	(0.26)	(0.25)	(0.16)
Placebo Before × Treatment	0.04	-0.00	0.03			
	(0.09)	(0.08)	(0.06)			
Placebo After × Treatment				-0.79***	-0.63***	-0.57***
				(0.13)	(0.07)	(0.08)
Treatment 1986	✓			✓		
Treatment 1989		✓	✓		✓	✓
Controls Census 1980	✓		✓	✓		✓
Controls Census 1990		✓			✓	
State*year Fixed Effects	✓	✓	✓	✓	✓	✓
Observations	100348	144910	100732	100348	144910	100732
R^2	0.10	0.09	0.09	0.14	0.13	0.13
Dep Var: Mean	4006.78	3399.42	4003.22	5462.07	4652.15	5458.61
Dep Var: N zeros	68,460	98,952	68,789	53,522	76,682	53,815

Standard errors clustered at the county level in parenthesis.

To further corroborate the evidence on parallel trends, we carry out placebo tests to rule out that the findings were due to some unobserved confounding shocks which

happened in the 'treated' period. The results are reported in Table 2.5.2. The first three columns show that, irrespective of the specification employed, the coefficients are not different from zero if we interact the treatment variable with placebo periods before the approval of the TRA, and that the coefficients are instead negative and significant for periods after the approval of the TRA, perhaps suggesting a declining effect over time.

Figure 2.5.4: The different treatment of the TRA for the top 10, middle 40 and bottom 50 groups of income owners



We now build intensity of treatment variables for three different income groups (top ten, middle forty, bottom fifty), where the thresholds are calculated at the federal level. Appendix Section 2.B describes further the methodology adopted to build these variables. Figure 2.5.4 displays graphically the income savings for the three groups. The overall tax savings for the bottom fifty percent of the income distribution is represented in the yellow area. For the middle forty the tax savings is instead given by the yellow and the orange areas, while the top ten saves the yellow, the orange and the red areas.

Table 2.5.3 quantifies the average tax savings for the three different income groups, respectively as a percentage of total income, as a total per Census tract and as an average per household. Households in the top ten save on average $12,739 (versus

Table 2.5.3: Tax savings per household due to the TRA

	Mean	Std Dev
Top 10 percent (share of income)	22.52	15.19
Middle 40 percent (share of income)	4.73	0.73
Bottom50 percent (share of income)	1.11	0.54
Top 10 total (average amount per CT)	1,487,970	3,443,782
Middle 40 total (average amount per CT)	761,490.3	547,584.8
Bottom50 total (average amount per CT)	92,170.03	53,458.98
Top 10 (per household)	12,755	9,320
Middle 40 (per household)	2,175	296
Bottom50 (per household)	211	73

$211 for households below the median), or more than 22 percent of their income (versus slightly more than 1 percent for the bottom fifty). [13]

Table 2.5.4 reports our results when we use average tax savings per income group as our treatments. In this case, we choose the specification with the treatment measured at year 1986, to minimize the measurement error of the treatment variables calculated separately for the bottom fifty, middle forty and top ten percent of the Census tract income distribution.[14] Overall, we observe a positive and significant effect of the top ten treatment variable and largely no effect for the other two groups of income owners, whose coefficients are almost always not significant and smaller. The other specifications employed with the full sample do not substantively change the results of the top ten treatment variable, while they display inconsistent coefficients of the treatment variables for the middle forty and bottom fifty groups of income owners (Table 2.A.3).

In the next section, we study the heterogeneity of the results with respect to the recipients of the donations, to better understand the political dynamics behind our results.

[13] As we mentioned before, the TRA included an increase in capital gains taxation and many other provisions. We are therefore unable, as previous analyses have similarly underlined, to give a comprehensive and precise account of the consequences of the TRA on the income distribution.

[14] As emphasized above, the treatment variable does not take into account many provisions of the TRA which favoured the bottom half of income owners, beyond the change in the marginal tax rates. The smaller precision might also explain the inconsistency of the coefficients in different specifications.

Table 2.5.4: The effect of TRA on Contributions: Top 10, Middle 40 and Bottom 50 Income Owners

	(Amount)	(Log)	(IHS)
Post TRA	13642.19***	4.03***	4.50***
	(4470.53)	(0.53)	(0.55)
Treatment Top10	1.34***	0.33***	0.37***
	(0.17)	(0.03)	(0.03)
PostTRA × Treatment Top10	0.66***	0.09***	0.10***
	(0.13)	(0.01)	(0.01)
Treatment Middle40	-6.19***	-0.18**	-0.27***
	(1.10)	(0.08)	(0.06)
PostTRA × Treatment Middle40	-2.50***	-0.04	-0.03
	(0.88)	(0.03)	(0.02)
Treatment Bottom 50	-3.34	-0.49***	-0.29***
	(5.46)	(0.05)	(0.03)
PostTRA × Treatment Bottom 50	4.34	0.04	0.01
	(3.13)	(0.03)	(0.02)
Treatment 1986	✓	✓	✓
Controls Census 1980	✓	✓	✓
State*year Fixed Effects	✓	✓	✓
Observations	197276	196984	197276
R^2	0.15	0.18	0.17
Dep Var: Mean	4685.07	3.14	3.41
Dep Var: N Zeros	119,566	119,451	119,566

Standard errors clustered at the county level in parenthesis.

2.6 Heterogeneity: Recipients of Donations

In the previous section, we have shown that the TRA has led to a notable increase in contributions from the richest income groups. Here, we investigate whether this effect has had any implication for the distribution of campaign contributions across the two main parties. Perhaps surprisingly, we find that contributions to both parties (or party members) have risen in almost identical ways as a consequence of TRA. Table 2.6.1 displays these estimates with the intensity of treatment as the normalized amount of income saved in each tract in the first two columns, and as the normalized amount of income saved for each of the three income groups in the last two columns. From this regression onwards, we use the specification with amount as dependent variable, 1980 Census controls and the intensity of treatment variable calculated for year 1986 interpolating data of the 1980 and 1990 Censuses.[15] The coefficients of

[15]As noted above, this specification has a smaller sample with around 80 percent of Census tracts

Table 2.6.1: Campaign contributions: the effect of TRA, by party

	(Rep)	(Dem)	(Rep)	(Dem)
PostTRA	9008.91***	2147.15	7521.21***	1718.17
	(2592.63)	(1339.81)	(2138.20)	(1255.35)
Treatment	0.69***	0.49***		
	(0.08)	(0.08)		
PostTRA × Treatment	0.23***	0.33***		
	(0.06)	(0.06)		
Treatment Top10			0.62***	0.44***
			(0.07)	(0.07)
PostTRA × Treatment Top10			0.20***	0.28***
			(0.05)	(0.05)
Treatment Middle40			-2.90***	-1.97***
			(0.42)	(0.45)
PostTRA × Treatment Middle40			-0.47*	-1.21***
			(0.25)	(0.32)
Treatment Bottom 50			-2.69	-1.02
			(2.64)	(1.88)
PostTRA × Treatment Bottom 50			2.67**	0.00
			(1.29)	(1.24)
Controls Census 1980	✓	✓	✓	✓
Treatment 1986	✓	✓	✓	✓
State*year Fixed Effects	✓	✓	✓	✓
Observations	200696	200696	197276	197276
R^2	0.11	0.11	0.13	0.14
Dep Var: Mean	2165.68	1593.58	2151.63	1577.15
Dep Var: N zeros	146,466	151,961	143,718	149,210

Standard errors clustered at the county level in parenthesis.

interest for both parties are significant in both specifications, and very similar in magnitude. Overall, the TRA caused a rise in donations to both the Democratic and the Republican party, and for both parties the increase is exclusively coming from the richest top ten percent of the income distribution. Out of one thousand dollars savings that the TRA delivered to a Census tract, slightly more than thirty cents were donated to one of the two main parties in the two election cycles after this tax reform.

On the one hand this finding might seem surprising, given that the TRA has been one of the flagship policies of the Reagan administration. On the other hand, many

in more urban areas, but has the double advantage of discarding the assumption of no change in income between 1987 and 1989 and excluding bad controls. To be sure, the two other specifications always deliver qualitatively indistinguishable results, as in previous tables.

legislative passages of the TRA, including the vote on the final bill, have been of a bipartisan nature. The approval of the TRA required the support of members of the Democratic party both in the Senate and in the House of Representative, which had a strong democratic majority at that time. In the House, the TRA passed with 292 votes in favour, of which 176 were Democrats and 116 Republicans, and 136 votes against, of which 74 were Democrats and 62 Republicans. One possibility, then, is that legislators might have been rewarded independently of partisanship but rather in function of their support for the bill. However, when we split the contributions to legislators according to their final votes in Congress, we do not find any clear pattern in our regressions (Table 2.6.2). We also analyse the potential effect of the TRA on the ideology of contributions, making use of the CFscore measures by Bonica (2014), as well as the classic DWNominate measure of ideology for members of Congress. For the subsample of donations for which we could recover an ideology measure, we rescale the ideology of all donations in each tract with amounts as weight, to obtain an ideological score of donations of the entire tract.[16] We do not find any significant coefficient for these regressions, as an additional confirmation of a simple income effect (results not reported). Additionally, we consider the possibility that the TRA increased the polarization of donations, by making it more extreme for both sides of the ideological spectrum. We do not find any support for this hypothesis (results not reported).

While we have shown that the effect of the TRA on contributions regards both parties and does not seem to be related to the legislative history of the tax bill itself, it could perhaps be concentrated in some electoral races. Since we have information about the recipient of each donation, we can distinguish between donations to Presidential, House and Senate candidates, as well as political committees. Notably, the TRA has an impact on all these possible groups of donations, with similar coefficients for Congressional, Committee and Presidential donations (Table 2.A.4). Overall, in this section we find that the tax cut implemented in 1986 causes an increase in donations that does not vary with the the type of recipients of donations, thus appearing to be compatible with an income shock that augmented the political influence of the richest top percent of income owners, who received the biggest fiscal advantage.

In the next section, we study the heterogeneity of the findings with respect to the individual donors, to investigate more deeply who are the contributors that drive the results.

[16] Bonica (2014) develops a fixed variable of ideology of active recipients of donations. As not all recipients gets a score, the measure at the tract level includes some measurement error. Bonica (2014) also builds a variable for very active recipients that vary by electoral cycles. Results are unaffected if we use this measure.

Table 2.6.2: Campaign Contributions: the effect of TRA, to recipients that voted yes and no in the final Congress vote

	(VoteYes)	(VoteNo)	(VoteYes)	(VoteNo)
PostTRA	-259.82	-395.39***	-216.16	-447.69***
	(318.11)	(112.46)	(359.94)	(125.10)
Treatment	0.16***	0.01***		
	(0.04)	(0.00)		
PostTRA × Treatment	0.02	-0.00		
	(0.02)	(0.00)		
Treatment Top10			0.14***	0.01***
			(0.03)	(0.00)
PostTRA × Treatment Top10			0.02	-0.00
			(0.02)	(0.00)
Treatment Middle40			-0.52***	-0.03**
			(0.13)	(0.02)
PostTRA × Treatment Middle40			-0.12	-0.00
			(0.08)	(0.02)
Treatment Bottom50			0.14	-0.16*
			(0.69)	(0.09)
PostTRA × Treatment Bottom50			-1.28**	0.19**
			(0.52)	(0.08)
Controls Census 1980	✓	✓	✓	✓
Treatment 1986	✓	✓	✓	✓
State*year Fixed Effects	✓	✓	✓	✓
Observations	200696	200696	197276	197276
R^2	0.05	0.02	0.05	0.02
Dep Var: Mean	459.69	69.61	461.52	69.76
Dep Var: N zeros	180,156	194,782	176,993	191,430

Standard errors clustered at the county level in parenthesis.

2.7 Heterogeneity: Donors

A natural question arises from the main findings: who are the donors that drive this increase in contributions as a consequence of the cut to the individual federal income rates? On one hand, one might expect that existing donors who experienced a tax reduction would contribute more after the implementation of the TRA, especially those in the top ten percent of income owners who benefited the most from it. On the other hand, individuals who have never donated before and enjoyed a notable tax cut might now have the desire to contribute to politics, perhaps after the realization

that tax policies can indeed have a substantial impact on their disposable income.

Table 2.7.1: The effect of TRA on Contributions: Intensive and Extensive Margin

	(Int Mar)	(Int Mar)	(Int Mar)	(Ext Mar)	(Ext Mar)	(Ext Mar)
PostTRA	17487.71***	19811.56***	16294.05***			
	(5914.82)	(5877.77)	(5632.29)			
Treatment	1.59***	1.30***	1.13***	0.91***	0.77***	0.65***
	(0.19)	(0.13)	(0.10)	(0.07)	(0.10)	(0.05)
PostTRA × Treatment	-0.06	-0.11	-0.04			
	(0.15)	(0.07)	(0.11)			
Treatment 1986	✓			✓		
Treatment 1989		✓	✓		✓	✓
Controls Census 1980	✓		✓	✓		✓
Controls Census 1990		✓			✓	
State*year Fixed Effects	✓	✓	✓			
State Fixed Effects				✓	✓	✓
Observations	200696	289820	201464	100348	144910	100732
R^2	0.11	0.10	0.10	0.12	0.11	0.11
Dep Var: Mean	3575.71	3001.70	3574.07	2743.33	2404.41	2739.20
Dep Var: N zeros	140,309	204,119	140,967	59,506	85,464	59,817

Standard errors clustered at the county level in parenthesis.

To distinguish between the former and the latter case, namely the intensive margin and the extensive margin, we adapt the main specification to dependent variables that represents, respectively, the amount of contributions by Census tract from donors that have donated at least once between 1979 and 1986, and the amount of contributions by Census tract from donors that have never donated between 1979 and 1986. Table 2.7.1 shows that the main result remains significant only for the extensive margin, in all three different specifications. The regressions for the intensive margin actually exhibit even negative coefficients, albeit insignificant. The same decomposition of the intensity of treatment variable to the share of income saved for the top ten, middle forty and bottom fifty, displayed in Table 5 for the main result, confirms that the effect remains positive and significant only for new donors that belong to the group with the highest income. The extensive margin regressions deliver significant coefficients for both parties, with a slightly bigger size for the Republican party (results not reported).

We have so far established that new donors have increased their donations in a substantial manner after the 1986 tax reform. Ideally, we would like to discover who these new donors are, at least in terms of their occupation. Unfortunately, the data on the occupation of donors is very imprecise, especially for the electoral cycle of 1990, with around 90 percent of individual donors not indicating their profession. We could theoretically compare the electoral year of 1986 and 1988, respectively before

and after treatment, but the scattered nature of the data does not allow us to employ the same design at the Census tract level. Then, we give a preliminary summary of existing and new donors before and after the TRA in different occupations, grouping them in 'politically salient' occupations[17] and medical professions.[18] In this fashion, we observe a spike in donations for medical professions, which is not matched by any notable increase in the 'politically salient' professions. In 1988, more than 3.6 thousands of new donors work in the medical sector (with 1.1 thousands existing donors in the same category), while in 1986 and 1984 the new donors in this industry were 1.8 and 0.8 thousands, respectively (with 0.7 and 0.3 thousands existing donors in the same categories). Even if these two electoral cycles include a midterm and a presidential election, we consider this large rise in the number of high-salary, non-politically involved category of donors in 1988, as suggestive evidence in favor of the interpretation of an income shock that rise donations for reasons that are orthogonal to policy influence.

Detailed accounts of the troubled legislative history of the second major tax reform of the Reagan presidency, reveal that the drastically regressive cut to the individual federal income tax rates went along with a series of provisions that would have the scope of closing loopholes that benefited exclusively very wealthy people (some of them created by the first tax reform under the same President). These parts of the reform were instrumental to strike a balance between the requests of some Democratic members of Congress, both in the Finance Committee and in the House, and the desire of President Reagan to reduce individual taxation as much as possible. As Birnbaum and Murray write regarding the so called passive-loss provision, this policy "would reduce the amount of tax cut that upper-income people received, despite the drastic reduction in the top tax rate": that strategy was the "key to the political success of the tax-reform plan" (Birnbaum Jeffrey and Murray, 1987, p. 219). Assuming that all high-income owners would have been hurt in the same way by this set of provisions, would create a downward bias that would go against finding an effect of the TRA. It is still possible, however, that Census tracts with many high donors whose income mostly come from investments and real estates bias the results. In order to rule out this possibility, we exploit Census data that provides the aggregate income in each Census tract from different sources: wage or salary, self-income, and financial income. Then, we create intensity of treatment variables

[17] Those include legal occupations such as lawyers, attorneys; financial occupations; managers; executives; individuals working in real estate and insurance companies. The rationale of this classification rests on the idea that the importance of regulation for these sectors make them politically salient.

[18] Those include psychiatrists, psychotherapists, psychologists, ophthalmologists, medical doctors, dentists, chiropractors and anesthesiologists.

with the same strategy as before that adjust for the fact that salary income owners received a favorable treatment from the TRA, namely the striking regressive cut to marginal tax rates, but self income and financial income owners were arguably hurt by these closing-loophole provisions.

Table 2.7.2: The effect of TRA: Intensity of Treatment by Source of Income

	(Contr)	(Contr)	(Contr)
PostTRA	16278.13***	16202.78***	15618.72***
	(4007.11)	(3977.72)	(4013.53)
Treatment No Fin	1.78***		
	(0.23)		
PostTRA x Treatment No Fin	0.98***		
	(0.18)		
Treatment Wage		1.92***	
		(0.24)	
PostTRA x Treatment Wage		1.04***	
		(0.20)	
Treatment Wage No Fin			1.91***
			(0.26)
PostTRA x Treatment Wage No Fin			1.09***
			(0.20)
Treatment 1986	✓	✓	✓
Controls Census 1980	✓	✓	✓
State*year Fixed Effects	✓	✓	✓
Observations	199996	199996	199996
R^2	0.10	0.10	0.09
Dep Var: Mean	3581.57	3581.57	3581.57
Dep Var: N zeros	139,766	139,766	139,766

Standard errors clustered at the county level in parenthesis.

Table 2.7.2 shows the results using these new treatment variables, the interpolation for year 1986 and 1980s controls (the other two specifications deliver qualitatively unchanged results). In the first column, the original intensity of treatment is multiplied by one minus the share of aggregate income from financial and self income in a tract; in the second column it is multiplied by the share of aggregate income from wage and salary; in the third column we combine the two previous conditions. These three increasingly stringent regressions deliver significant coefficients with increasingly big magnitude, as expected. We interpret these results as a confirmation that our identification strategy captures the extent to which each Census tract benefits from the TRA. In other words, the measurement error does not seem to bias the result in a systematic fashion.

2.8 Conclusion

The interplay between economic disparities and uneven political influence is a central topic in the study of political economy in the United States. As other works have shown, campaign contributions could transform economic power into political influence. Economic elites can use their political clout to steer public policy decisions in their favour, thus creating a spiral between rising economic inequality and greater political power of a small fraction of very rich citizens. In this paper, we study the least explored part of the spiral, showing that a regressive tax policy inducing a big rise in income inequality, augments the concentration of donations at the top of the income distribution. We find that the tax savings delivered by the Tax Reform Act, one of the biggest tax cuts in the history of the United States, have caused an increase in campaign contributions. We also show that this increase comes from the richest ten percent of the income distribution, which has seen its tax burden decrease by more than twenty percentage points on average. We show that this spike in contributions concerned both parties with similar magnitudes and that it did not constitute a reward to key players in the legislative process or to members of Congress that voted in favour of the tax bill. Finally, we find that this effect is entirely driven by new donors, and we show suggestive evidence that many of them work in non-politically salient occupations. The main findings are robust to a number of alternative specifications, including an adaptation of the treatment variable to other TRA provisions that might bias the main findings.

Overall, our results show that the reduction in progressive taxation has not only increased income inequality but has also been instrumental in augmenting the political clout of the wealthiest Americans, at least for what concerns their relative weight in the pool of campaign contributors. At the same time, the system of campaign contributions, in which economic elites can donate almost unlimited amounts to politics, provide clear opportunities to convert material wealth into political power. Altogether, the combination of a regressive policy decision and a lax system of politics finance contributes to create a spiral in which economic disparities and unequal political influence mutually reinforce each other.

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2.A Appendix A - Additional Figures and Tables

Table 2.A.1: Summary Statistics - Reagan Tax Cut

	Obs.	Mean	Std Dev	Min	Max
Contr by tract - '80s	200,696	4,986.49	29,877.41	0	2,746,543
Contr by tract - '90s	289,820	4,235.87	27,684.76	0	2,746,543
Diff contr by tract - '80s	50,174	2,957.72	22,974.66	-1,079,549	996,763.8
Diff contr by tract - '90s	72,455	2,557.49	21,309.23	-1,079,549	1,211,387
Treatment 1986 (amount)	200,696	3,124.34	5,015.38	-69.81	199,477.8
Treatment 1989 (amount)	289,820	3,645.98	5,879.42	-29.02	343,646.4
Population - '80s	200,696	2,908.79	1,640.57	1	36,157
Number Families - '80s	200,696	753.99	431.67	1	9,769
Share Black - '80s	200,696	0.11	0.23	0	1
Share Hispanic - '80s	200,696	0.07	0.15	0	1
Share Graduates - '80s	200,696	0.18	0.13	0	1
Share Manager - '80s	200,696	0.11	0.06	0	1
Unemployment - '80s	200,696	0.06	0.05	0	1
Share Adult - '80s	200,696	0.71	0.12	0.00	1
Gender Ratio - '80s	200,696	0.48	0.04	0	1
Population - '90s	289,820	3,429.87	1,818.45	1	98,443
Number Families - '90s	289,820	897.77	478.39	1	22,448
Share Black - '90s	289,820	0.12	0.13	0	0.86
Share Hispanic - '90s	289,820	0.09	0.13	0	0.98
Share Graduates - '90s	289,820	0.19	0.16	0	1
Share Manager - '90s	289,820	0.12	0.06	0	1
Unemployment - '90s	289,820	0.06	0.05	0	0.61
Share Adult - '90s	289,820	0.74	0.07	0.35	1
Gender Ratio - '90s	289,820	0.48	0.04	0.03	1

Table 2.A.2: The effect of TRA: Logarithmic and Inverse Sine Transformation Specifications

	(Log)	(Log)	(Log)	(IHS)	(IHS)	(IHS)
PostTRA	3.05***	2.39***	3.11***	3.77***	3.53***	4.08***
	(0.57)	(0.51)	(0.59)	(0.59)	(0.56)	(0.60)
Log Treatment	0.41***	0.70***	0.45***			
	(0.03)	(0.04)	(0.04)			
PostTRA × Log Treatment	0.16***	0.16***	0.16***			
	(0.02)	(0.02)	(0.02)			
IHS Treatment				0.31***	0.52***	0.31***
				(0.05)	(0.05)	(0.04)
PostTRA × IHS Treatment				0.14***	0.12***	0.11***
				(0.02)	(0.02)	(0.02)
Treatment 1986	✓			✓		
Treatment 1989		✓	✓		✓	✓
Controls Census 1980	✓		✓	✓		✓
Controls Census 1990		✓			✓	
State*year Fixed Effects	✓	✓	✓	✓	✓	✓
Observations	200632	289712	201356	200696	289820	201464
R^2	0.17	0.15	0.16	0.16	0.15	0.16
Dep Var: Mean	3.18	3.14	3.17	3.45	3.41	3.44
Dep Var: N Zeros	120,956	174,125	121,559	120,980	174,168	121,602

Standard errors clustered at the county level in parenthesis.

Table 2.A.3: The effect of TRA on Contributions: Top 10, Middle 40 and Bottom 50 Income Owners. Other specifications

	(Amount)	(Log)	(IHS)	(Amount)	(Log)	(IHS)
PostTRA	12378.06**	3.69***	4.01***	13424.59***	4.06***	4.35***
	(5414.21)	(0.45)	(0.48)	(3896.54)	(0.50)	(0.54)
Treatment Top10	0.93***	0.10***	0.11***	0.86***	0.10***	0.12***
	(0.09)	(0.01)	(0.01)	(0.08)	(0.01)	(0.01)
PostTRA × Treatment Top10	0.44***	0.02***	0.02***	0.43***	0.02***	0.02***
	(0.11)	(0.00)	(0.00)	(0.09)	(0.01)	(0.01)
Treatment Middle40	-2.44***	-0.12***	-0.10***	-3.05***	0.09***	-0.17***
	(0.46)	(0.04)	(0.03)	(0.47)	(0.02)	(0.03)
PostTRA × Treatment Middle40	-1.10***	0.08***	0.08***	-1.18***	0.09***	0.09***
	(0.39)	(0.02)	(0.02)	(0.35)	(0.02)	(0.02)
Treatment Bottom 50	12.56**	0.00	-0.05**	11.57**	-0.11***	-0.12***
	(5.03)	(0.03)	(0.02)	(5.25)	(0.04)	(0.03)
PostTRA × Treatment Bottom 50	5.05***	-0.02	-0.01	7.09***	-0.04**	-0.03**
	(1.43)	(0.01)	(0.01)	(2.60)	(0.02)	(0.01)
Treatment 1989	✓	✓	✓	✓	✓	✓
Controls Census 1980				✓	✓	✓
Controls Census 1990	✓	✓	✓			
State*year Fixed Effects	✓	✓	✓	✓	✓	✓
Observations	290116	289720	290116	201680	201344	201680
R^2	0.15	0.16	0.16	0.12	0.16	0.16
Dep Var: Mean	4025.23	3.09	3.37	2507.44	3.12	3.39
Dep Var: N Zeros	175,884	175,682	175,884	122,788	122,631	122,788

Standard errors clustered at the county level in parenthesis.

Table 2.A.4: Campaign contributions to different campaigns: the effect of TRA

	(Pres)	(House)	(Senate)	(Congress)	(Committee)
PostTRA	3746.21***	1251.50	1596.90	2848.10*	5566.06***
	(1313.30)	(895.01)	(1265.69)	(1673.91)	(1877.64)
Treatment	0.12***	0.24***	0.41***	0.65***	0.74***
	(0.02)	(0.02)	(0.05)	(0.07)	(0.10)
PostTRA × Treatment	0.19***	0.13***	0.12***	0.25***	0.26***
	(0.02)	(0.02)	(0.03)	(0.04)	(0.06)
Controls Census 1980	✓	✓	✓	✓	✓
Treatment 1986	✓	✓	✓	✓	✓
State*year Fixed Effects	✓	✓	✓	✓	✓
Observations	200696	200696	200696	200696	200696
R^2	0.12	0.12	0.10	0.12	0.10
Dep Var: Mean	452.85	920.77	1167.69	2087.42	2154.86
Dep Var: N Zeros	180,428	154,398	157,914	139,683	150,913

Standard errors clustered at the county level in parenthesis.

Table 2.A.5: Campaign contributions: the effect of TRA, including Congress leaders and pivotal legislators

	(Contr - All)	(Contr)	(Contr - All)	(Contr)
PostTRA	17280.22***	16170.80***	14648.14***	13642.19***
	(3908.99)	(3943.06)	(4516.59)	(4470.53)
Treatment	1.64***	1.50***		
	(0.19)	(0.18)		
PostTRA × Treatment	0.79***	0.77***		
	(0.16)	(0.15)		
Treatment Top10			1.47***	1.34***
			(0.18)	(0.17)
PostTRA × Treatment Top10			0.68***	0.66***
			(0.14)	(0.13)
Treatment Middle40			-6.70***	-6.19***
			(1.20)	(1.10)
PostTRA × Treatment Middle40			-2.53***	-2.50***
			(0.90)	(0.88)
Treatment Bottom 50			-2.97	-3.34
			(5.89)	(5.46)
PostTRA × Treatment Bottom 50			4.57	4.34
			(3.30)	(3.13)
Controls Census 1980	✓	✓	✓	✓
Treatment 1986	✓	✓	✓	✓
State*year Fixed Effects	✓	✓	✓	✓
Observations	200696	200696	197276	197276
R^2	0.09	0.09	0.07	0.07
Dep Var: Mean	4986.49	4734.43	4934.64	4685.07
Dep Var: N Zeros	120,980	121,982	118,580	119,566

Standard errors clustered at the county level in parenthesis.

Figure 2.A.1: Example of Data from Geolytics – 1990 Census

FAVINC9N	Aggregate family inc. ($)
FAVINC9D	Total families
FAVINC9	Average inc. per family ($)
MDFAMY9	Median family inc. last year ($)
FALTY59	Families with under $5,000 inc. last year
FALTY109	Families with $5,000-9,999 inc. last year
FALT139	Families with $10,000-12,499 inc. last year
FALT159	Families with $12,500-14,999 inc. last year
FALT189	Families with $15,000-17,499 inc. last year
FALT209	Families with $17,500-19,999 inc. last year
FALT239	Families with $20,000-22,499 inc. last year
FALT259	Families with $22,500-24,999 inc. last year
FALT289	Families with $25,000-27,499 inc. last year
FALT309	Families with $27,500-29,999 inc. last year
FALT359	Families with $30,000-34,999 inc. last year
FALT409	Families with $35,000-39,999 inc. last year
FALT499	Families with $40,000-49,999 inc. last year
FALT759	Families with $50,000-74,999 inc. last year
FALT609A	Families with $50,000-59,999 inc. last year
FALT759A	Families with $60,000-74,999 inc. last year
FALTMX9	Families with $75,000+ inc. last year
FALT1009	Families with $75,000-99,999 inc. last year
FALT1259	Families with $100,000-124,999 inc. last year
FALTMXA9	Families with $125,000+ inc. last year
FALT1509	Families with $125,000-149,999 inc. last year
FALTMXB9	Families with $150,000+ inc. last year

2.B Appendix B - Data Construction

This Section shortly explains the methodology employed to construct the intensity of treatment variables. From GeoLytics (2010), we obtain data at the Census tract level on the number of families in small income ranges for each decennial Census in 1980 and 1990. This database assures that variables at the tract level are consistent over time, even when tract boundaries vary (GeoLytics, 2010, Appendix J).
In 1980, families are divided in 17 income ranges, and families in the highest income range had income in excess of 75,000 dollars. In 1990, families are divided in 19 income ranges, and families in the highest income range had income in excess of 150,000 dollars. To estimate the income distribution of the tracts, we assume a uniform distribution within each range. This is equivalent to assume that all families owns an income equal to the midpoint of the range. To be sure, the last range does not have an upper limit, nor a midpoint. Then, we make use of the information on the aggregate income of the tract. Given that income ranges are quite small and, more importantly, that distributions of income are known to be skewed toward the right tail, this procedure delivers a conservative estimate of the actual income included at the top.
As these estimates come with a margin of error, the aggregate income of the tract is not exactly the sum of the income of all the ranges, calculated assuming a uniform distribution. We deal with this measurement error by uniformly distributing the difference to each range. In this way, we estimate the midpoint for the last range, thus reconstructing the entire distribution of income.
We can finally calculate the intensity of treatment variable, based on the difference in the tax burden before and after the TRA for each income range. We disregard the ranges before 15,000 dollars, as many other provisions other than the change in marginal tax rates influenced the disposable income of these families. More precisely, this variable measures the percent of income of the tract saved as a consequence of the reform, by adding up the percent of income saved in each range, weighted by the number of families in each range. As there are two sets of marginal tax rates for married and non married families, we calculate them separately and finally weight them by the relative proportion of married and not married families in the tract. We calculate this variable for both 1980 and 1990; for the specification with full sample, we linearly interpolate them for year 1986.
For the intensity of treatment variables for different income groups (top ten, middle forty and bottom fifty), we calculate the share of income in each tract that belongs to these three groups, defined by thresholds at the national level. Then, we proceed with the same strategy to distribute the error among the existing ranges, finally

calculating the total savings for each group at the tract level. Given that we disregard part of the bottom fifty groups for the above mentioned reasons, and that distribution of the error might alter the relative weight of the middle forty and the top ten percent of the distribution, these variables include a larger measurement error.

Chapter 3

The Ideological Polarization of Individual Donors

Abstract

The ideological polarization of political elites in American politics is a central feature of the last two decades. The extreme ideological preferences of individual donors have often been mentioned as a potential driver of the misalignment between the policy positions of voters and legislators, which deviate from the ideological center more than the citizens they represent. In this context, this work carries out the most accurate description to date of the political ideology of this class of donors, focusing on Pennsylvania, North Carolina and New Jersey, three states that provide information on party affiliation for the universe of registered voters since 2008. Merging voter files with campaign donation data, I track partisan affiliation of donors over time and build time-varying ideological scores for active donors. First, I show that after a change in partisan affiliation, donors adapt their ideological pattern of contributions accordingly. This strong association validates the intuition of using donations as a proxy for ideology of registered voters. Then, I describe the rising trend over time of polarization in terms of the median value of ideology of contributions, which is greater among Democratic voters. This increase is not driven by new more extreme donors nor by in-district or in-state contributions. More than following the more radical ideology of new liberal candidates, Democratic donors appear to anticipate the movement towards the left of their representatives, distributing their funds in a more polarizing fashion. Unaffiliated donors also increase their liberal leanings over time, while the rise in the conservative ideology of Republican donors appears substantially smaller. The relationship between total amount of contributions and ideology at the individual level reveals that large donors present a more centrist ideology than small donors, for both Democratic and Republican givers. By exploiting the rich set of voter demographic characteristics, I also show that, *ceteris paribus*, female and younger donors tend to donate in a more liberal fashion.

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3.1 Introduction

The relevance of ideological polarization in the scholarship of contemporary American politics cannot be overstated. Abundant evidence has been collected on the polarization of political elites in the United States, especially members of Congress. The increased extremism of federal legislators have indeed been obtained with different types of estimation (Tausanovitch and Warshaw, 2017), based on final roll-call votes in Congress (McCarty, 2016), candidate survey responses (Moskowitz *et al.*, 2022) and congressional speeches (Gentzkow *et al.*, 2019).

Although many studies illustrate a rise in partisan sorting and animus towards members of the opposite party (e.g. Iyengar and Westwood, 2015; Boxell, 2020), evidence on a comparable increased extremism of public opinion remains scarce (e.g. Abramowitz and Saunders, 2008; Gentzkow, 2016). As an exception, Autor *et al.* (2020) show that the ideological preferences of U.S. residents has deviated away from the center between 2004 and 2011, with a replacement of moderate views with both liberal and conservative ones (the latter larger than the former). They also display a polarizing patterns of campaign contributions at the aggregate level of terciles over electoral cycles. In effect, individual campaign donors have been identified as a potential source of polarization (e.g. Barber, 2016a), as their political preferences are consistently more extreme than the rest of the population, or than the electorate at large (Broockman and Malhotra, 2020). Higher responsiveness of elected politicians to the donor class could thus constitute one of the causes of the observed mismatch between the ideological polarization of voters and their representatives (e.g. Bafumi and Herron, 2010). Motivated by the relevance of individual contributors as a polarizing force of political elites, this paper provides the most precise description to date of the rise in polarization of donors in the last two decades, exploiting extraordinarily rich administrative data from the states of Pennsylvania, North Carolina and New Jersey.

Why legislators respond to the extreme policy preferences of donors? In a simple Downsian framework with a unidimensional policy space, voters derive utility from minimizing the distance between their ideal point and the one of the candidate they select. In this classical model of political competition, the candidate who is most likely to win is the one with the political platform which is closest to the median voter (Downs, 1957). Moving the model closer to the reality of contemporary American politics, let's introduce fundraising. In a system without public funding and centralized partisan fundraising, candidates need resources for a number of electoral activities aimed at spreading the message to voters (for example, paying campaign staff and buying ads on television and social media). In effect, a political

platform that exactly corresponds to the position of the median voter can still lose an electoral campaign, if the candidate running with that platform remains unknown to most voters. This explains the importance of the ideological preferences of donors, whose support candidates need to collect the necessary resources to inform voters about their platforms. In this setting, polarization might arise as a "result from the presence of uninformed voters and campaign contributions" (Baron, 1994, p. 33).[1] As donors are clearly richer on average than voters, this simple set-up also comports with the literature showing that elected officials in Congress are more responsive to the richest part of the population (e.g. Gilens, 2012).[2]

Indeed, there is consensus in the literature that an advantage in fundraising increases the likelihood of winning elections (e.g. Jacobson, 1990; Bonica, 2017). To be sure, the donor class is not a monolith and some classes of contributors, such as Political Action Committees, have been found to take moderate ideological positions (Fouirnaies and Hall, 2014). Nonetheless, the biggest and most influential group of donors in contemporary American politics is composed by individuals (Jacobson and Carson, 2019), and many studies have described their preferences as more ideologically extreme than voters (e.g. Broockman and Malhotra, 2020). Candidates that need to collect money for their campaigns ought to pander to the policy preferences of ideologically motivated donors. Thus, a trade-off emerges, between ideological positioning at the center of the political spectrum to attract votes, and deviating from median voter's ideal point to attract the favour of extreme campaign donors.

In an effort to compare the ideological leanings of members of Congress and voters, Bafumi and Herron (2010) make use of the Cooperative Congressional Election Study (CCES), a large, nationally representative survey of U.S. citizens. In this survey, respondents are asked about policy positions on a set of issues that resemble the roll call votes of members of Congress. In this way, the authors are able to measure the preferences of these two sets of actors on the same ideological scale. They find that the positions of members of Congress are more extreme than the citizens they represent, which often experience "leapfrogging", namely the substitution of a Democratic (Republican) incumbent in the House with preferences more extreme than its constituency, with another legislator of the opposing party in the following legislature that remains ideologically misaligned on the other side. They also observe that respondents reporting they have donated at least once in the previous electoral cycle have a distribution of ideal points which deviates further from the center than the entire electorate, both for liberal and conservative individuals. Similarly, Barber

[1] Persson and Tabellini (2002, Chapter 7) provides a similar model of the influence of campaign contributions on the policy platforms of candidates in equilibrium.

[2] For a simple model on the wealth bias in the political process, see Campante (2011).

(2016a) finds that the ideology of donors among respondents in the CCES is more extreme than the ideology of active partisans, for both Republicans and Democrats. With a similar method, Hill and Huber (2017) confirm this finding, adding that the divergence between donors and non donors is greater than between voters and non voters. In this context, the understanding of the evolution of political preferences of individual donors assumes relevance, as a potential source of the mismatch between the different levels of polarization of political elites and public opinion.

Indeed, an extensive set of empirical research focuses on the behaviour of individuals giving money to political campaigns, by surveying them or matching the identity of survey respondents with existing donors. In this way, legislators and donors are compared in their ideological preferences and other personal attributes. Barber *et al.* (2017) design an ad-hoc survey of more than twenty-two thousands individual donors to incumbent senators in 2012, asking them about specific issues in a format that resembles the roll call votes senators have voted upon in their previous term in office. In this way, the authors derive comparable ideal points for donors and legislators. They show that policy agreement is the most important motivation for giving, thus providing support for the ideological motive of individual donations. In another paper employing the same survey, Barber (2016c) finds that ideological agreement is by far the motivation for giving that donors mention most often. The possibility to affect election outcome and the ideology of the opponent follow, with a gap of fifteen to twenty percentage points, as other "extremely important" considerations. Moreover, Barber (2016c) shows that when legislators switch party, the average preferences of their donors change dramatically.

Legislators might also respond more naturally to the policy demands of elected donors because they represent a more homophilous group than voters. Indeed, they often come from the same milieu, attending the same schools and clustering on the same type of professions.[3] Effectively, Barber (2016b) makes use of the same survey of donors to senators and combines it with CCES respondents for voters. He describes a strong ideological alignment of senators and donors, which are the group for which the policy congruence is the largest, offsetting voters and partisan supporters. Employing the self-reported answers about owned financial resources in the CCES, he also emphasizes that senators resemble donors more than voters with respect to demographic characteristics such as income and wealth. Finally, Canes-Wrone and Miller (2022) employ the CCES to measure the responsiveness of House representatives to the policy preferences of donors and voters, by making use of the self-reported information about whether respondents have donated to any

[3]See Carnes (2013) for an analysis of the under-representation of the working class in elected offices.

political campaign in the previous cycle. They show that members of the House are responsive to the preferences of the national donor base, not just to donors from the same district or state. The relevance of the ideological positions of the entire national donorate for members of Congress strongly motivates me to study individual donors without distinguishing on their patterns of giving.[4]

In this work, I utilize campaign donations by voters that are registered with a party, to estimate polarization of donors at the individual level over time. Exploiting rich administrative data from the states of Pennsylvania, North Carolina and New Jersey, I merge data of registered voters that include information on party affiliation, with the database of campaign contributions for the years between 2006 (2008 for New Jersey) and 2018. To the best of my knowledge, this work is the first to perform this empirical exercise. The advantages of this estimation are the following. First of all, the measurement of political polarization of donors with observational data permits to study "revealed preferences" with respect to analyses based on surveys. Moreover, given that the study of polarization requires a longitudinal dimension, the *evolution over time* of the ideology of donors becomes an important subject of study. In this sense, the focus on the entire donorate of three states allows me to analyse a large group of individuals (around 750,000 unique donors), following their behaviour over time for more than a decade, improving on the static observation of surveys. Finally, combining the party identification of donors with the ideology attached to their contribution behaviour provides an intuitive method to measure the overall degree of ideological polarization in various electoral cycles.

Empirically, this exercise largely hinges on and extends Bonica (2014) seminal article, which provides measures of ideology for candidates and donors on a common space by exploiting the universe of recorded donations. Crucially, Bonica (2019a) validates this measure for donors, against another measure of ideology derived from answers to CCES questions on several policy issues. To attribute the party to each donor, I separately merge the database of contributions from these three states with the three databases of registered voters, which include the party affiliation at each election, including local elections. I show that Bonica's measures of ideology of donations exhibit a very high correlation with the party affiliation by cycle. Moreover, I make use of the most precise voter files from the state of North Carolina to estimate the correlation between the change in partisan affiliation and the ideological pattern of donations. I find that voters that modify the party they are registered with also change their contribution pattern accordingly. This result, relevant in and of itself for illustrating the feedback cycles between party identification and patterns of giving,

[4]For a typology of contributors from CCES respondents, see Rhodes *et al.* (2018).

strongly motivates the methodology in this chapter.

By attributing the party from voter files to givers, I build time-varying ideological scores for donors and I collapse them to the median values of Democratic and Republican donors in each cycle. In this fashion, I observe a stark increase of ideological polarization over time in all three states (smaller in New Jersey), which is substantially greater among Democrats. On the other hand, the median value of the ideology scores of Republican donors is comparatively more extreme at the beginning of the period, so that contributors of the two parties actually reach similar levels at the opposite sides of the ideological spectrum at the end of the period. This rise regards both new and existing donors, and holds with alternative methods of estimation. The drivers of this increase in the polarization of Democratic donors are both a rise in the liberal ideology of candidates, and the decision of donors to distribute their money in a polarizing fashion, namely favouring politicians with more extreme ideology. Unaffiliated donors also increase their liberal leanings over time, while the rise in the conservative ideology of Republican donors appears substantially smaller. The relationship between total amount of contributions and ideology at the individual level reveals that large donors present a more centrist ideology than small donors, for both Democratic and Republican givers. By exploiting a rich set of voter demographic characteristics, I also show that, *ceteris paribus*, female and younger donors tend to donate in a more liberal fashion.

The structure of the paper is as follows. Section 3.2 describes the data and the construction of the databases used in the empirical analysis. Section 3.3 presents the empirical analysis on the relationship between party affiliation and the ideology of donations. Section 3.4 describes the rise of ideological polarization of donors. Section 3.5 discusses the inequality among donors, in relation to their ideology and their party. Section 3.6 concludes.

3.2 Data Construction

This paper makes use of two sources of data: voter files from public records in three states and campaign contributions data from the Database on Ideology, Money in Politics, and Elections (DIME) v3.0 (Bonica, 2019b).

The registration and voting history data – the master databases in the merge – comes from the websites of North Carolina Board of Election, Pennsylvania Department of State, and New Jersey Department of State.[5] The choice of the states in this study

[5]For North Carolina and New Jersey, the data is publicly accessible online, albeit not straightforward to find on the NJ Department of state website. For Pennsylvania, the cost is $20.

has been motivated by the following characteristics of the data (see Fos *et al.*, 2022, for a further explanation of the same data). First, I select the thirty-one states in which voters have to indicate a party affiliation, or declare that they are unaffiliated, when they register to vote. In some of these states, notably Ohio (e.g. Hall and Yoder, 2022; Kaplan and Yuan, 2020), voters declare their affiliation to participate to partisan primaries only, with the result that a very small proportion of all registered voters is affiliated with one of the two main parties. For these reasons, I exclude those states. Among the remaining states, there is very high variation in terms of the accessibility of the data. Some states do not provide the data at all, or they sell the data at a very high price (e.g., Texas); the great majority of these states provide only the list of registered voters with party affiliation at the last election (e.g., Florida, New York). Subject to these constraints, I use these three states in this project. For all of them, the data includes information for address, date of birth, gender, voting history and crucially party at registration from 2008 to today. North Carolina and Pennsylvania have a longer time frame, from 2006 to today; North Carolina only includes racial and ethnic characteristics of registered voters.

Data for campaign donors – the using databases in the merge – are from DIME "Contribution Database".[6] It contains amount, date and recipient of each individual donation between 1979 and 2018. It also provides the name of the donor, the geolocalization of the address, including the zip code and the Census tract, and in many cases the occupation. I make use of all registered individual contributions from the three states separately, including the ones directed to PACs and not-PACs committees, from 2006 to 2018.[7]

From both these sources and for each state separately, I create two smaller files without duplicates of all individuals that have been registered to vote at least once, and have donated at least once, respectively, during the period of analysis. These files include the following variables: first name; middle name; last name; initials of first name, middle name, and last name; zip code and an id number. Then, I construct a database of common alternative nicknames (e.g., Robert, Bob, Rob, Bobby) for first names. For the location, I match on zip code instead of address or Census tract, as the former proved to be less reliable in the DIME database and a preliminary merge with the latter delivered less satisfying results.

[6] I do not use the more practical "Contributors Database" because that includes only the most recent geographical variables of the donors, while the other database includes all the relevant information on all donations by individuals that donate in the period of analysis. This expedient is crucial as many individuals donors move in a period of fifteen years.

[7] I do not consider contributions under $200 that have not been recorded by the FEC and thus are not included in DIME. While this might exclude some donors, nearly all donations of this sort are recorded through conduits such Actblue, which do not have any ideological score in this database.

Then, the matching algorithm starts with Stata reclink2 command, blocking on initial of last name and zip code and giving a similarity score depending on all the string variables with different weights. After that, I compute other two similarity scores only for first and last name, separately. Then, I define a match a pair that exceeds three different thresholds for these three scores. I take special care in not matching undetermined pairs based on middle names, such as donors "Linda L Carter" and "Linda G Carter" with respect to registered voter "Linda Carter". Trained manually for several subsets of observations, the matching algorithm has been designed to minimize type I and type II errors. This technique relies on, but it is arguably more conservative than, previous works of Bonica and Grumbach (2022), Fos *et al.* (2022), and Bouton *et al.* (2022a). As measurement error remains a concern, I create a further match variable with more stringent thresholds. A small but not trivial part of my donor database includes duplicate observations with different zip codes. Given the structure of the data, only North Carolina permits to track the address (and then, the zip code) of registered voters, given the multiple snapshots of the entire database being available every few months.[8] For all states though, registered voters databases might include a mail zip code, beyond the residence zip code. The observations for which both zip codes are available and distinct are very few in all states (around one percent of the total). In any case, I perform the same algorithm for these groups of individuals, both in the master and in the using databases, that moves within the same state at least once, to potentially match on all possible combinations of names and zip code. I indicate the matched individuals with a dummy variable for movers in the resulting database.

Overall, I match around 60 percent of donors from North Carolina and around 50 percent of donors from Pennsylvania and New Jersey with individuals in voter registration files. The greater accuracy in North Carolina data availability allegedly explains this difference. Figure 3.C.1, Figure 3.C.2 and Figure 3.C.3 in the Appendix show that matched and unmatched donors are very similar with regard to the measure of ideology employed in this work, for each of the three states. The resulting panel data set contains all the variables needed to perform the empirical analysis of the polarization of campaign donors. The unit of observation is a donor in a two-year election cycle. The final data set includes 1,235,697 observations (511,030 from Pennsylvania, 408,531 from North Carolina and 316,136 from New Jersey) and

[8]The dates are: 2006/10/20; 2008/11/04; 2009/01/01; 2009/11/03; 2010/01/01; 2010/05/04; 2010/06/22; 2010/11/02; 2011/01/01; 2012/01/01; 2012/05/08; 2012/07/17; 2012/11/06; 2013/01/01; 2013/03/26; 2013/11/05; 2014/01/01; 2014/05/06; 2014/07/15; 2014/11/04; 2015/01/01; 2015/10/06; 2016/01/01; 2016/03/15; 2016/06/07; 2017/01/01; 2017/09/12; 2017/10/10; 2017/11/07; 2018/01/01; 2018/05/08; 2018/11/06.

749,389 unique donors (306,397 from Pennsylvania, 248,768 from North Carolina and 194,388 from New Jersey).

The strategy to recover party affiliation by cycle from the original data varies by state, given the different structure of the available data. North Carolina provides two different series of databases for election history and registration, with multiple snapshots for each. As per the address, it is then possible to track party affiliation over time, with breaks of less than a year. This means that I can track party affiliation changes with a very small margin of error in time. From this information I build party variables by cycle that factor in all changes in the two-year period. For example, if a registered voter is registered as Unaffiliated and then changes her registration to Democratic in the same cycle, I classify her as Leaning Democratic. The states of Pennsylvania and New Jersey provide a fixed snapshot of registered voters and a list of election history files for each county, the former in wide format and the latter in long format.[9] For both, the information about party affiliation is provided for each election in which the registered voter actually turns out to vote. In the case the information is missing, I assume the party affiliation has not changed between two observations with the same party affiliation. For example, if a registered voter turns out to vote for the general election in 2008 as a registered Republican and then for the midterm election in 2014 as a registered Republican, I fill the variable party by cycle as Republican for the missing years of 2010 and 2012. I also do so for the first and last years in the sample, assuming the party has not varied. To be sure, I do not fill any missing observation in case there is an observed change in the affiliation. This procedure produces a good approximation of the party affiliation for each two-year electoral cycle, but the exact dates of party affiliation changes imply a larger measurement error. For this reason, I perform some analyses only on North Carolina. Indeed, many recent articles have utilized this exceptionally rich data source (e.g. Akee *et al.*, 2018; Hall and Yoder, 2022; Clinton *et al.*, 2021; McCartney, 2021).

To study the ideology of donors over time, I combine different CFscore measures from Bonica (2019b) DIME database. Bonica (2013) and Bonica (2014) created ideology campaign finance (CF) scores for contributors and recipients on the same ideological scale. These so called CFscores represent the solution to a spatial model of contributions, based on a maximum likelihood estimation that exploits that many individuals are both candidates and donors at the same time. These scores are then ideal points of donors and candidates on the same ideological space.[10]

[9] For a thorough discussion of the consequences of the structure of voter files for inference, see Kim and Fraga (2022).

[10] Bonica (2018) validates the scores of members of Congress against the commonly used DW-

More specifically, Bonica (2014) builds three measures, a time-invariant CFscore for donors and both a time-invariant and a time-varying CFscore for candidates. All these variables go from -2 to 2, from extremely liberal to extremely conservative. On the contributor side, labour, corporate and trade PACs are excluded, as well as donors who donate to only one recipient. Candidates that receive donations to one donor only are also not considered in the estimation. To have a measure varying over time, a more stringent criterion apply: a candidate needs to receive donations from at least 25 unique contributors each cycle. To illustrate the relevance of the time-varying measure let's take Barack Obama as an example. He has a score of -0.841 in 2006 as a candidate to the Senate, a higher liberal score of -1.172 as a presidential candidate in 2008, and an even higher score of -1.241 for his reelection campaign in 2012. Overall, his fixed, not time-varying CF score amounts to -1.121. By merging the DIME Contribution Database with the DIME Recipient Database to have the recipient CFscores over time (originally called *recipientscoredyn*), I calculate the average of the time-varying recipient CFscores for each donor, weighted by the amount donated to each recipient. This variable is very similar to the not time-varying *contributorcfscore* for the great majority of cases. Given the restrictive criteria mentioned above, I can recover this estimate only for 71 percent of the observations in my data set. As discussed in the next section, employing the fixed variable provides nearly always qualitatively indistinguishable results. In this sense, the procedure to subset the donors in the sample does not seem to suffer from systematic bias.[11]

On one hand, the main advantage of Bonica CFscores, and consequently of this measure I have constructed, with respect to existing ones (e.g. Hall and Snyder, 2015), is that it does not rely only on donations to parties or politicians directly. Overcoming this limitation is important as a big part of individual donations are directed to committees (for each state and election year, between 21 and 67 percent of unique donations are directed to committees). Matching with voter files indicating the party affiliation of donors and building a time-varying ideology score at the individual level, this work advances the preliminary analysis in Autor *et al.* (2020,

Nominate scores. See also the discussion in Autor *et al.* (2020, pp. 3148–3150) on CFscores.

[11] A lively debate in the literature revolves around the changing ideology of incumbent member of Congress. While the consensus seems to suggest that changes are minimal (Poole, 2007; Moskowitz *et al.*, 2022), some works suggest that ideological adaptation explains a non negligible fraction of overall polarization in Congress (Theriault, 2008; Bonica, 2014). Given the relevance of the longitudinal dimension in this work, I believe that the assumption that all recipients of contributions do not change ideology over time would be too strong to motivate the estimation with the time-invariant CF score measure, and a consequently larger sample. In any case, the fact that results are qualitatively indistinguishable employing this measure provides an important confirmation of the main findings.

Appendix Figure S2), which document a polarization of donors by aggregating on terciles of not time-varying donor CFscore between 2002 and 2016. Moreover, this methodology comports with recent evidence that shows that preferences of donors vary over time as a consequence of contextual events, such as the foreclosure crisis (Li, 2023).

3.3 Party Affiliation and Ideology of Donations

First of all, I cross validate the several measures of donor ideology, by studying the correlation between party registration and the liberal/conservative score of donors as calculated by Bonica (2014). Historically, individual-level party registration has been a very strong predictor of partisan voting and thus ideological preferences (e.g. Bartels, 2000). Mirroring the liberal-conservative ideological scale of the CFscore variables, I create a measure that indicates the party affiliation in each electoral cycle, which is equal to 2 if the donor has always been registered as Republican in the two-year period, 1 if she has always been registered as Republican or independent, -2 if she has always been registered as Democrat, -1 if she has always been registered as Democrat or independent, and 0 if she has always been unaffiliated. This measure displays a high correlation (r=0.72) with the ideological leaning of contributions, which increases when excluding unaffiliated (r=0.77). One might expect an even higher association between affiliation and ideology of donations. Digging into the data, I first observe that individuals with a old party registration quite often donate to the opposing party, perhaps indicating that they do not care about updating their registration. This intuition is confirmed by Igielnik *et al.* (2018), who document that many survey respondents that were found in voter files to be registered, expressed doubts about their registration, or stated that they were not definitely registered. If anything, this measurement error would mean that my polarization index underestimate the real underling ideological divide.[12] Then, some donors actually donate to candidates of both parties, thus indicating that their affiliation does not exactly correspond to the ideology of their donations. In the final database, this bipartisan pattern of donations characterized 2.7 percent of all donors, of which 38.9 percent are voters registered as Republican and 36.8 are registered as Democrats.
Beyond the simple correlation, Table 3.3.1 displays the results of regressions with

[12]This is the case because a donor registered as Democrat who donates to the Republican party (or viceversa) would decrease the polarization index, even if her contributions are ideologically extreme. This also motivates the choice of using the median and not the average value of scores for each group of party members in the main specification.

Table 3.3.1: Correlation between ideology of donors and party affiliation, by cycle

	(1)	(2)	(3)	(4)
Party	0.404***	0.403***	0.394***	0.064***
	(0.00)	(0.00)	(0.00)	(0.00)
Female		-0.127***	-0.122***	
		(0.00)	(0.00)	
Age		0.007***	0.009***	-0.043*
		(0.00)	(0.00)	(0.02)
State Fixed Effects	✓	✓	✓	✓
Time Fixed Effects			✓	✓
Donor Fixed Effects				✓
Observations	826306	797184	797184	797184
R^2	0.50	0.53	0.54	0.00
Mean Dep Variable	-0.37	-0.38	-0.38	-0.25

Standard errors clustered at the individual level in parenthesis.

the measures of donor ideology and party affiliation, both calculated by electoral cycle, as dependent and explanatory variable, respectively. Appendix Table 3.A.1 contains summary statistics for this regression and the rest of the empirical analysis. Since both variables are coded with positive values indicating a conservative ideology in donations and in party affiliation and a negative value for a liberal ideology in donations and in party affiliation, respectively, a coefficient bigger than zero denotes a positive correlation. The first column reproduces the simple correlation in a panel regression with state fixed effects. Each column after the first in the table corresponds to a more demanding specification, first including other covariates related to donor demographics, then time fixed effects that might confound the relationship between party affiliation and donations, and finally donor fixed effects. Still, the coefficient representing party affiliation remains strongly significant across the board, with the expected sign. Perhaps not surprisingly, comparing the coefficient to the other covariates, the magnitude of the coefficients illustrates a non negligible association of party affiliation with ideology of donations. The latter regression in column 4, by including donor fixed effects, exploits changes in party affiliation to estimate the coefficient, which represents a strong confirmation of the relationship between contributions and party affiliation at registration.

The analysis carried out in Table 3.3.1 uses the constructed database after the merge of voter registration and campaign contribution data, bundled for the three states. The exceptionally precise data for North Carolina permits one further assessment

of this association.[13] In North Carolina, changing party affiliation is, perhaps surprisingly, a common phenomenon. Appendix Figure 3.B.1 indeed shows a tweet from the North Carolina State Board of Election documenting the switch of 14,836 voters from a partisan to an unaffiliated status in the first four months of 2022. During the period of this study, 11.8 percent of the merged sample of voters and donors have changed their affiliation at least once.

By zooming in on these donors, I evaluate whether their evolution of contribution ideology, changes after the decision to modify their party affiliation. Operationally, I create additional data sets in long format with all the dates in which I have information about registered party, for the subset of individuals in the matched sample that change at least once their party affiliation. Then, I merge this information with the database of contributions of these individuals. In this way, I compare donations before and after the change in registration among donors that alter their registration status and donate at least one time before and one time after the change during the period under study. Table 3.3.2 shows the results of this empirical exercise. I create four variables that distinctly measure the change in partisan status of voters. The first is simply a dummy taking value of 1 after the change – in columns 1 and 5. Since the dependent variable is a measure of ideology with positive values corresponding to conservative donations and negative values to liberal ones, the second measure considers the party after switching with the Republican party being equal to 1 and the Democratic party equal to -1 – in columns 2 and 6. The last two variables are the most precise, as they give a score that does not only consider the party after the change, but the extent of the change in partisan affiliation before and after the modification, with a positive score for a movement toward more conservative leanings, and a negative score for a movement toward more liberal ones. More precisely, the third measure – in columns 3 and 7 – assumes a value of +2 for a switch between Democratic and Republican affiliation (and -2 for viceversa); +1 for a change between unaffiliated and Republican and for a switch between Democratic and unaffiliated; -1 for a change between unaffiliated and Democratic and for a switch between Republican and unaffiliated. The last measure – in columns 4 and 8 – is the same as the previous one, except it gives less weight to changes toward unaffiliated status, 0.5 if switching from Democratic affiliation and -0.5 from Republican. Both these measures treat unaffiliated voters as a middle ground between the two main

[13] For unclear reasons, no registered voter in the New Jersey election history files displays any change in party affiliation in the period of the study. The constructed database of matched registered voters and donors for the state of Pennsylvania instead allows a similar analysis, but the exact date of the change in registration contains a larger measurement error than for North Carolina. Nonetheless, the findings are similar, even if the most demanding specification with fixed effect lacks statistical significance, possibly due to less precise estimates (results not reported).

parties. Bitzer *et al.* (2021) studies the rise in unaffiliated voters in North Carolina with registration files and an ad-hoc survey, confirming this intuition both in terms of demographic characteristics and political beliefs. Appendix Figure 3.B.2 shows that around two thirds of unaffiliated voters in this 2018-2021 Meredith survey declared to have an ideology somewhere in the middle between conservative and liberal.

Table 3.3.2: Ideology of donations after change in party affiliations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Change Affiliation	0.073***	0.209***	0.067***	0.091***	0.059***	0.107***	0.038***	0.048***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Black	-0.649***	-0.621***	-0.588***	-0.584***				
	(0.06)	(0.06)	(0.07)	(0.07)				
Asian	-0.062	0.015	-0.054	-0.206				
	(0.17)	(0.19)	(0.23)	(0.18)				
American Indian	0.573***	0.421**	0.599***	0.592***				
	(0.19)	(0.18)	(0.20)	(0.20)				
Hispanic	-0.531***	-0.447***	-0.573***	-0.564***				
	(0.12)	(0.11)	(0.14)	(0.14)				
Female	-0.344***	-0.350***	-0.388***	-0.383***				
	(0.03)	(0.03)	(0.04)	(0.04)				
Age	0.020***	0.018***	0.019***	0.019***				
	(0.00)	(0.00)	(0.00)	(0.00)				
Time Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Donor Fixed Effects					✓	✓	✓	✓
Observations	56306	40755	43332	43314	56490	39848	40809	40793
R^2	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Mean Dep Variable	-0.33	-0.34	-0.28	-0.28	-0.33	-0.35	-0.27	-0.27

Standard errors clustered at the individual level in parenthesis.

Across the board, Table 3.3.2 shows a robust correlation between the partisan change in registration status and the ideology of the recipient of contributions. The effect has a notable size: considering the preferred specifications with donor fixed effects and the most precise measures of party affiliation changes, one standard deviation change in the constructed measure of the modification in the partisan registration status explains between 11 and 13 percent of the change in donation ideology. To the best of my knowledge, this finding shows for the first time the positive association between the ideology of individual campaign contributions and partisan affiliation in the United States, by merging registered voters and donors databases, and showing that after a modification of the partisan status, politically active citizens also adjust their donations patterns accordingly. To be sure, this finding does not imply a causal mechanism, as both a change in partisan affiliation and a change in the ideology of donations could be traced back to a more general shift in political orientation. Rather, the correlation between these two modes of expressing political preferences provides a confirmation for the rationale of this analysis, which presupposes that

combining the information about campaign donations with the changing partisan affiliation of donors would advance our understanding of their political behaviour. This result strongly motivates the remainder of the chapter, which employs donations to estimate the change in the polarization of donors between 2006 and 2018.

3.4 The Rise of Ideological Polarization of Donors

Having extensively demonstrated that the party affiliation of registered voters, and their decisions to change it, displays a quite strong correlation with the ideology of their donations, I have then set the stage to look at the trend in the measures of donor ideology over time. To do so, I first look at the median value of donor ideology in each cycle, for Democratic and leaning Democratic donors on one hand and Republican and leaning Republican donors on the other hand. Figure 3.4.1 shows the evolution of these variables with kdensity graphs displayed for each two-year electoral cycle, on the entire sample of matched donors from the three states. Comparing the first years with the last ones, this simple graph exhibits a marked rise in polarization of contributions. It is also easy to notice that the Democratic contributions are the ones that experienced the biggest divergence from the center.

Figure 3.4.1: Democratic and Republican donor ideology, 2006-2018

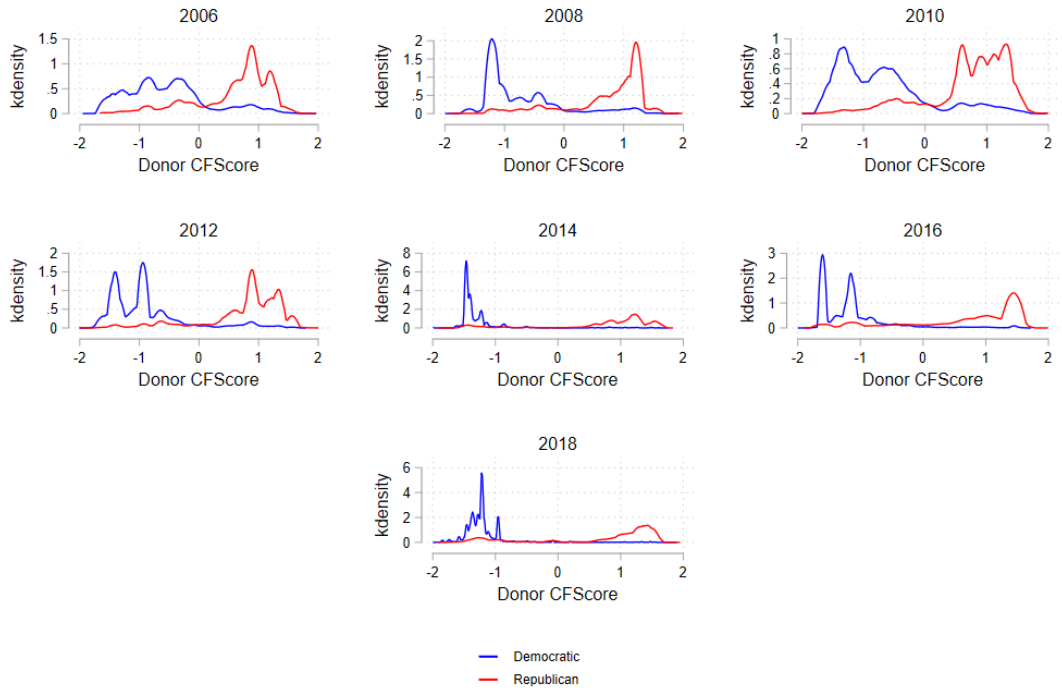
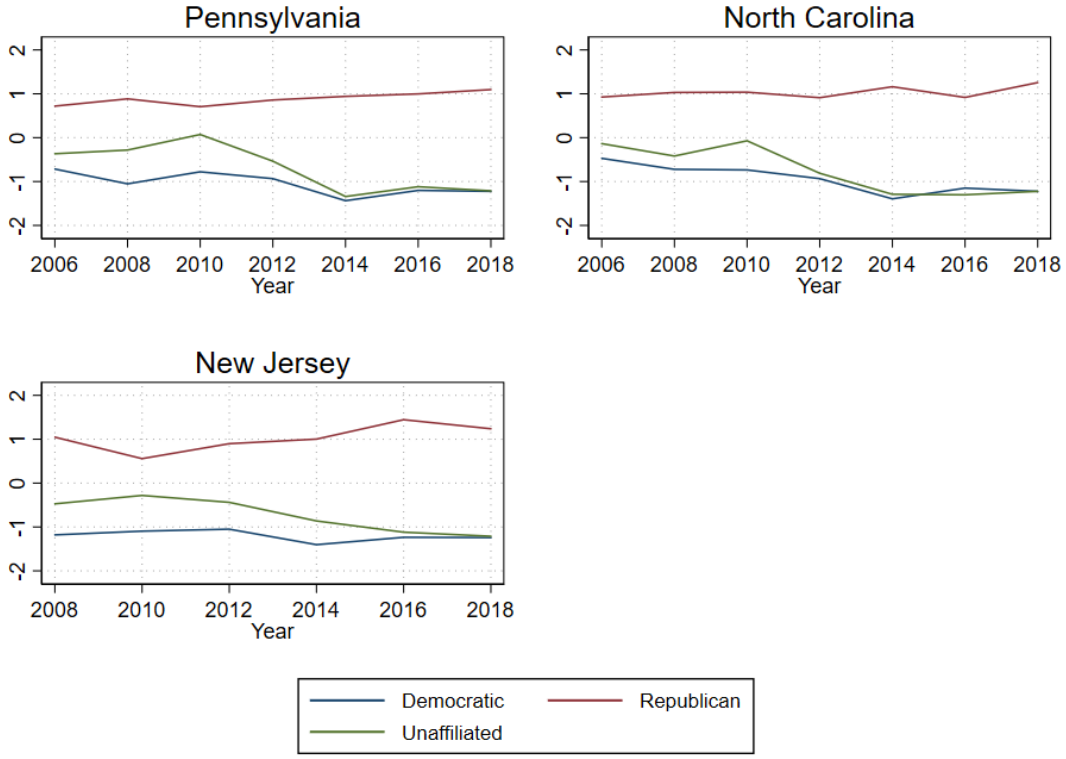


Figure 3.4.2 shows the median value of ideology of donors affiliated with the two main parties and unaffiliated, between 2006 and 2018. By inspection, Democratic and unaffiliated donors experience a stark increase in the extremism of their contributions, while the trend for Republicans is almost constant. New Jersey is the state in which the increase appears the smallest. The overall level of extremism at the end of the period is nearly the same for the two parties, with unaffiliated aligning with Democratic donors. The quite extreme ideology of unaffiliated donors at the end of the period might be explained by the rise of negative partisanship (Abramowitz and Webster, 2016). Regarding the smaller increase for Republican donors, one possibility is that they had already polarized before the start of the period in this study.[14] Moskowitz *et al.* (2022) describe a stark rise in polarization of Republican members of Congress between 1996 and 2008, supporting the conjecture of a similar pattern among Republican donors.

Figure 3.4.2: Democratic, Republican and Unaffiliated Donor Ideology, 2006-2018

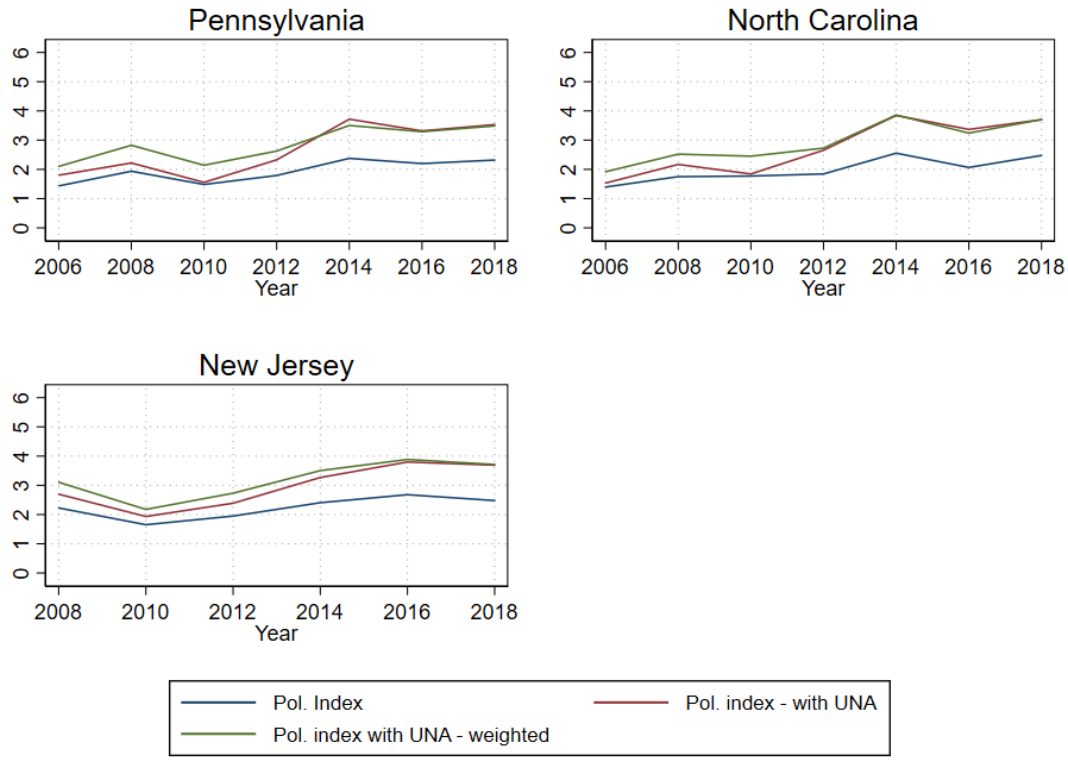


To build an index of polarization, I take the simple difference in the median value of this ideology score between registered Republican voters and registered Democratic

[14] Unfortunately, the limited availability of the data does not permit to test this hypothesis. Further iterations of this paper will address this question with data on the cities of New York, Boston and Cambridge, which allows for a much longer time period.

voters in each two-year electoral cycle. This measure ranges from 0, when there is no difference in the ideological value of the median contribution of a Democrat and a Republican, to 4, when both the median Democrat and the median Republican have their highest possible ideological scores. An alternative measure of polarization takes into account independent donors by summing the absolute value of the median ideological scores for Democrats, Republicans and unaffiliated voters, with a maximum value of 6. Finally, weighting the three groups of donors by their shares of total amount delivers an accurate picture of the overall amount of polarization.[15] Figure 3.4.3 exhibits the polarization index in these three versions, always showing an increasing trend, which is larger when independents donors are taken into account, and which is generally smaller in New Jersey.

Figure 3.4.3: Polarization Index: three versions



Producing simple descriptive statistics as in the previous figures from millions of unique contributions requires some choices that are worth discussing, as they involve some degree of arbitrariness. Here I want to show that with different choices the main finding of an increase of polarization, largely driven by Democratic donors, remains unchanged. First, I replicate Figure 3.4.1 employing the average instead of

[15]The total amount is calculated in sample, namely for the matched individuals in both the donors and registered voters databases.

the median values of the constructed CF scores (Appendix Figure 3.A.1). Second, I make use of the fixed CF score for recipients to create an alternative time-varying measure by donors with the same method (Appendix Figure 3.A.2). This enlarges the sample of donors for which information about their ideology of donations is available, at the expense of the precision of the inter-temporal comparison. The patterns in these graphs are very similar, and often almost indistinguishable from the preferred specification in Figure 3.4.2. Finally, Figure 3.4.1 seems to suggest a higher polarization in presidential election years. While it is clearly possible that the higher salience of the presidential election influences donors' behaviour for other races as well, excluding presidential donations do not change the main results, except for some small differences largely concentrated in Pennsylvania and New Jersey Republican donors (Appendix Figure 3.A.3).

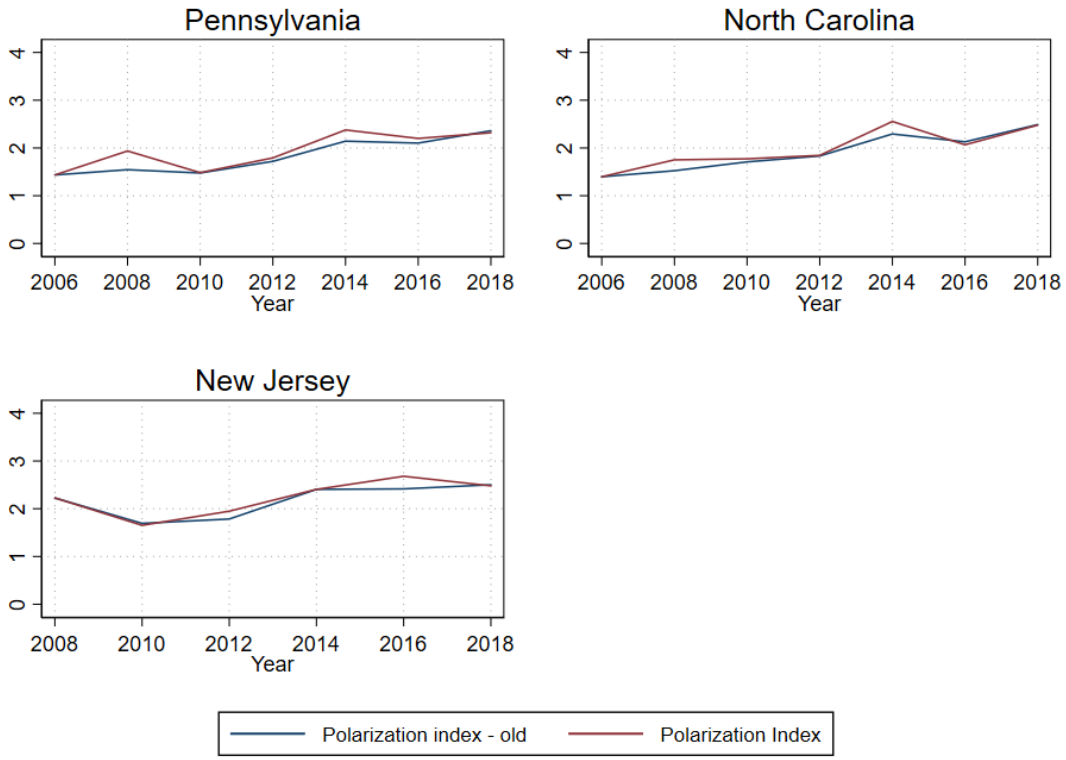
To sum up for now, I have documented a rise in liberal donor ideology in the period between 2006 and 2018. Democratic donors have become more extremists in their ideological position over time, even if they started from a relative more moderate position with respect to Republican donors. Making full use of the information from both the voter files and the records of campaign contributions, I will now make an effort to shed light on the heterogeneity of this result.

First, is this increase due to new extreme donors or to existing donors that become more polarized over time? To answer this question, Figure 3.4.4 displays the polarization index separately in the three states, for the entire sample of donors with a time-varying measure of ideology (red line) and for donors that are not new, namely have donated before at least once in the period under study (blue line). With very few years that qualify as exceptions, the two lines proceed closely with an increasing trend over time for all the three states, again with New Jersey displaying a less stark increase overall. This result is important because it means that the polarization of this particularly active subset of the donorate does not result from an influx of new givers.

Next, I would like to ascertain whether this evolution of donor ideology reflects the entry of more extreme candidates (or the polarization of existing candidates) or it captures the choice to distribute campaign contributions in a more polarizing fashion. By construction, the measure of donor ideology alone does not permit to completely disentangle donor and candidate polarization, as it hinges on the time-varying scores of recipients of contributions. It is worth stressing though that a large fraction of recipients of contributions are not candidates, but committees, including the famous Political Action Committees (PACs).[16] The share of amount contributed

[16]There are single-candidate committees (which I consider as donation to candidates), nonconnected

Figure 3.4.4: Polarization index of donors: Intensive Margin

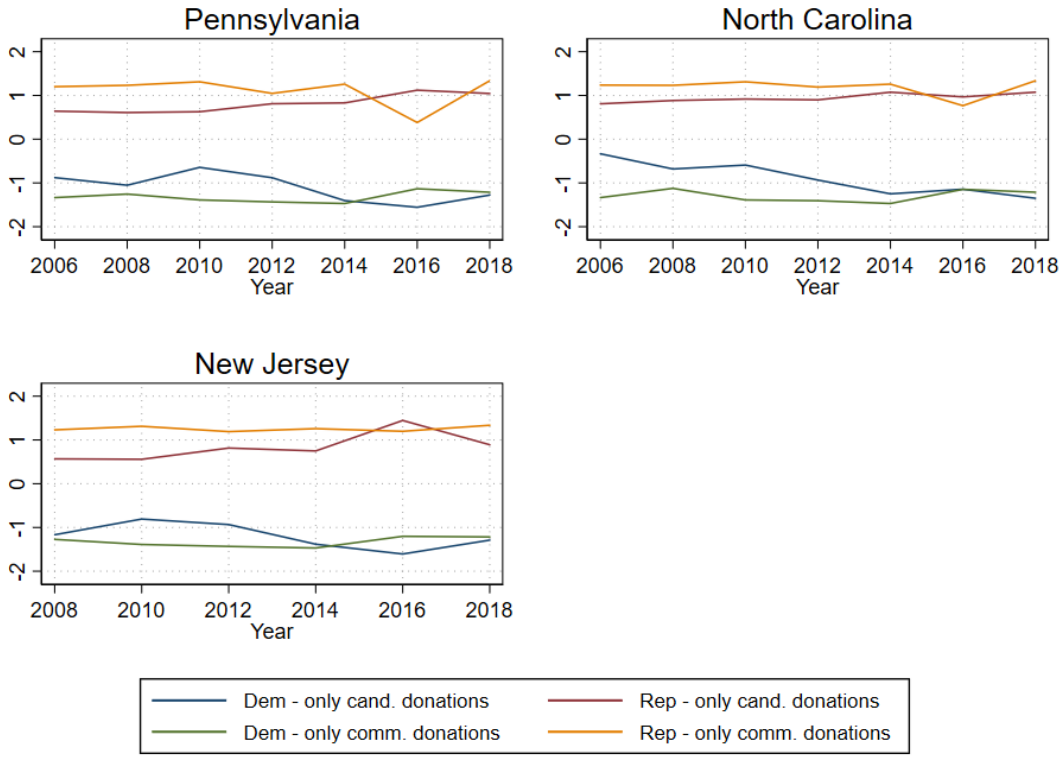


to committees for each state and election year goes between 21.6 percent and 57.4 percent, with an average value slightly exceeding 30 percent, and an increasing trend over time (Appendix Figure 3.A.4). Some of these committees have an explicit partisan affiliation, but the great majority of them are instead organizations that collect money to favour candidates on specific issues (for example, American for Prosperity, National Rifle Association political victory fund on the conservative side; Laborers Union and AFL-CIO on the liberal side).

Then, I create the same measures of ideology of donors taking into account only donations to candidates and committees, separately. To be sure, the sample of donors is then smaller than for the analysis in Figure 3.4.2, as some donors donate only to candidates or to committees. This allows to define whether the political preferences of givers, revealed through their patterns of donations, exhibit a more polarizing trend for contributions to these two types of recipients. To be sure, the procedure to create this graph is the following: I consider only donations to candidates, separately for each of the three states; I calculate the ideology of donors with this subset of donations; then I collapse the information at the level of the

committees, that might or might not qualify as multicandidate committees, party committees and PACs.

Figure 3.4.5: Donor ideology score, only candidate and committee donations



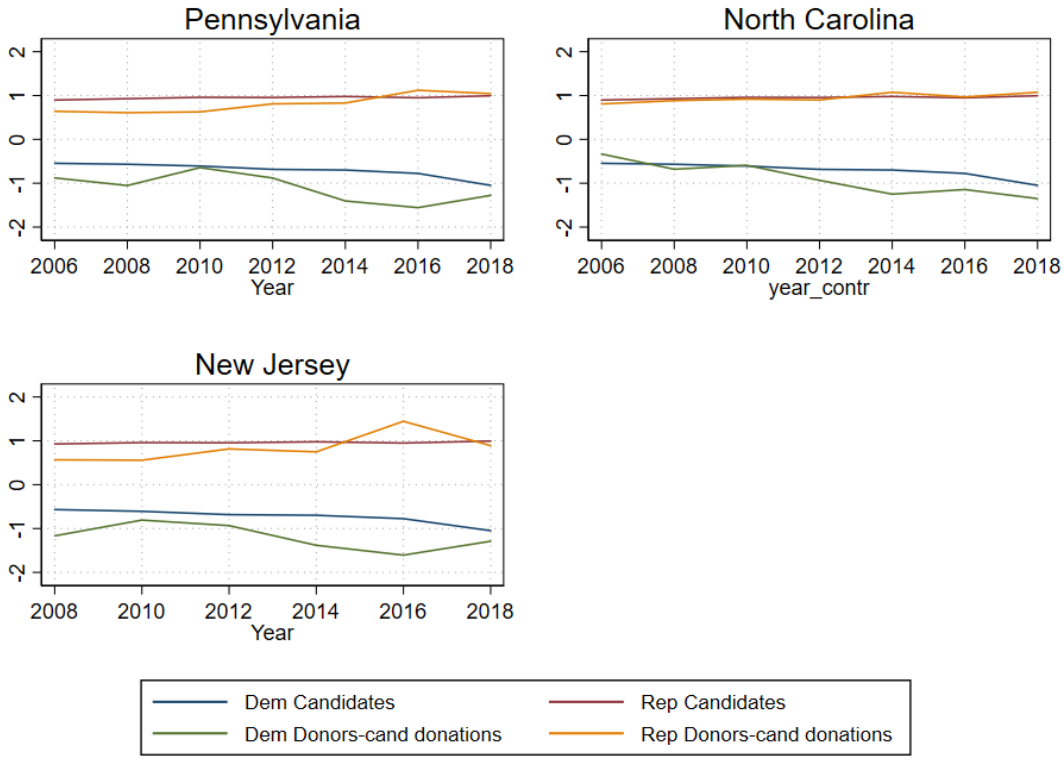
electoral cycle with the median value of this newly constructed measure of ideology of donors for Democrats and Republicans, respectively; I repeat all the above steps only for donations to committees instead of candidates. Figure 3.4.5 shows that the measure of donor ideology computed only through donations to committees indicates a higher deviation from the ideological center with respect to the one computed only through donations to candidates.[17] At the same time, the latter catches up on both sides of the ideological spectrum at the end of the period (perhaps for the influence of the 2016 presidential race, with Bernie Sanders and then Donald Trump obtaining quite extreme scores and receiving a lot of donations). Could I then conclude that the rise in the polarization of donors is driven by a higher propensity to donate to extreme committees over time? Observing the share of money directed to committees, I can actually reject this possibility, as this fraction rises exactly in 2016 and 2018, when the measure of ideology of donors computed only through committee

[17]This finding is perhaps surprising, given the large literature finding that PACs are more moderate than individual donors (e.g. Fouirnaies and Hall, 2018). Though, the measure incorporates CF scores of PACs and other committees through individual donations, so it can still be true that the overall tendency of committees is more moderate, but individuals overwhelmingly donate to committees more extreme than average. For critical discussions of ideology of corporate and PAC donors, see Grumbach and Pierson (2019) and Thieme (2020).

contributions appear to become more centrist, if anything, than the corresponding candidate measure (Figure 3.A.4).[18]

Having excluded committees, the most likely culprit for the documented rise in polarization by active donors, would then be the pool of political candidates moving further away from the ideological center. In an effort to disentangle the effect of polarizing candidates and the distribution of contribution money in a polarizing way from the donorate, I compare the median value of the CF score of donors computed for candidates (the same as in the previous Figure 3.4.5) with the median value of the same score computed considering the entire pool of candidates from DIME Recipient Database (Figure 3.4.6).[19]

Figure 3.4.6: Ideology score of candidates and donors, computed only with candidate donations



As all candidates have a partisan affiliation, I am able to compute the same type of score for Republican and Democratic candidates on one hand, and Republican and

[18]This argument is not equivalent from stating that committees become less ideologically extreme over time. Even if I do not know their partisan affiliation, a simple depiction of the ideological scores of the universe of recipient committees over time actually displays a slight increase (Appendix Figure 3.A.5).

[19]This database includes all candidates to political offices in the United States that receive at least one donation. Appendix Figure 3.A.6 displays the kdensity graph for the entire pool of candidates with a time-varying CF score for each year in the sample.

Democratic donors on the other hand, considering only their donations to candidates (the same strategy cannot be applied to committees, as only 18 percent of committees provide a partisan identification). Figure 3.4.6 displays the result of this exercise, which underlines a clear divergence between Democratic donors and Democratic candidates. This discrepancy, which regards all state election years, except for the beginning of the period in North Carolina, reveals that at least part of the polarization of donors arises from their decision to give money in a polarizing fashion. This result suggests that liberal donors have increasingly rewarded candidates that deviate from the ideological center and that this polarizing distribution of donations represents one of the drivers of the observed rise in donor polarization.

Figure 3.4.7: Polarization index of Democratic donors and candidates

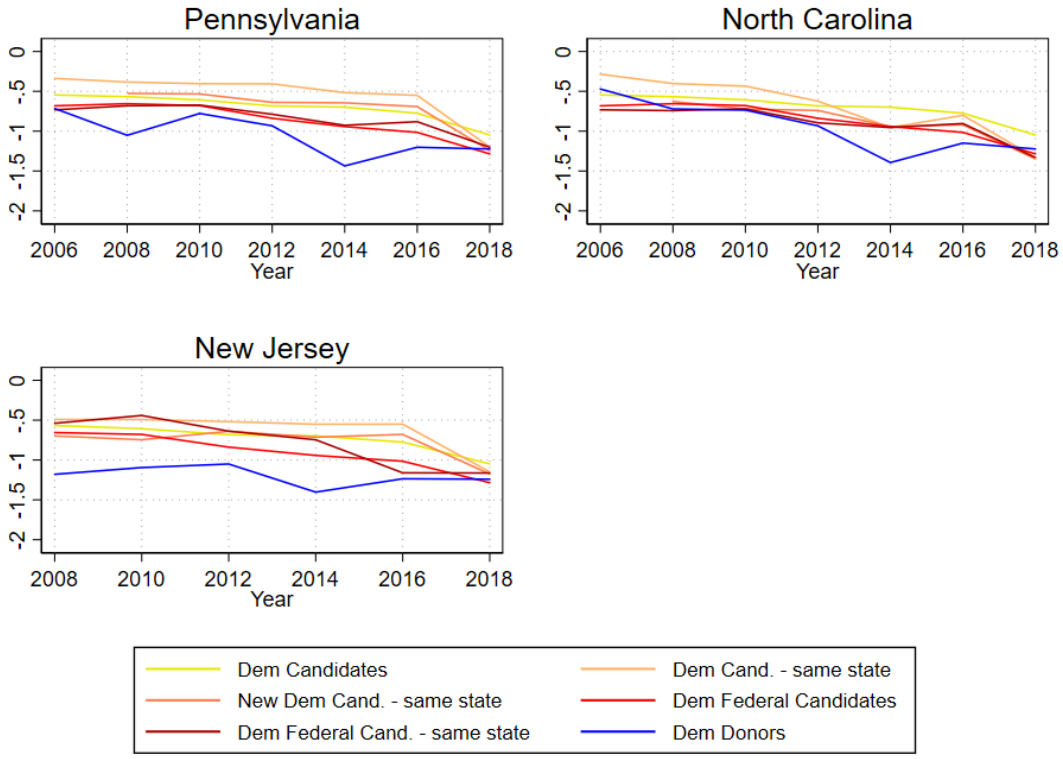


Figure 3.4.7 zooms in on Democratic donors and candidates only, comparing the scores of donors computed with all donations and different types of candidates. Indeed, the entire pool of candidates includes politicians running for state offices, which has experienced a large rise in polarization in recent decades (Handan-Nader *et al.*, 2022; Hall *et al.*, 2023). With a few exceptions for North Carolina at the beginning of the period, donors that are registered as Democrats have a more extreme score of all groups of politicians that represent them. Indeed, the blue line representing donors is

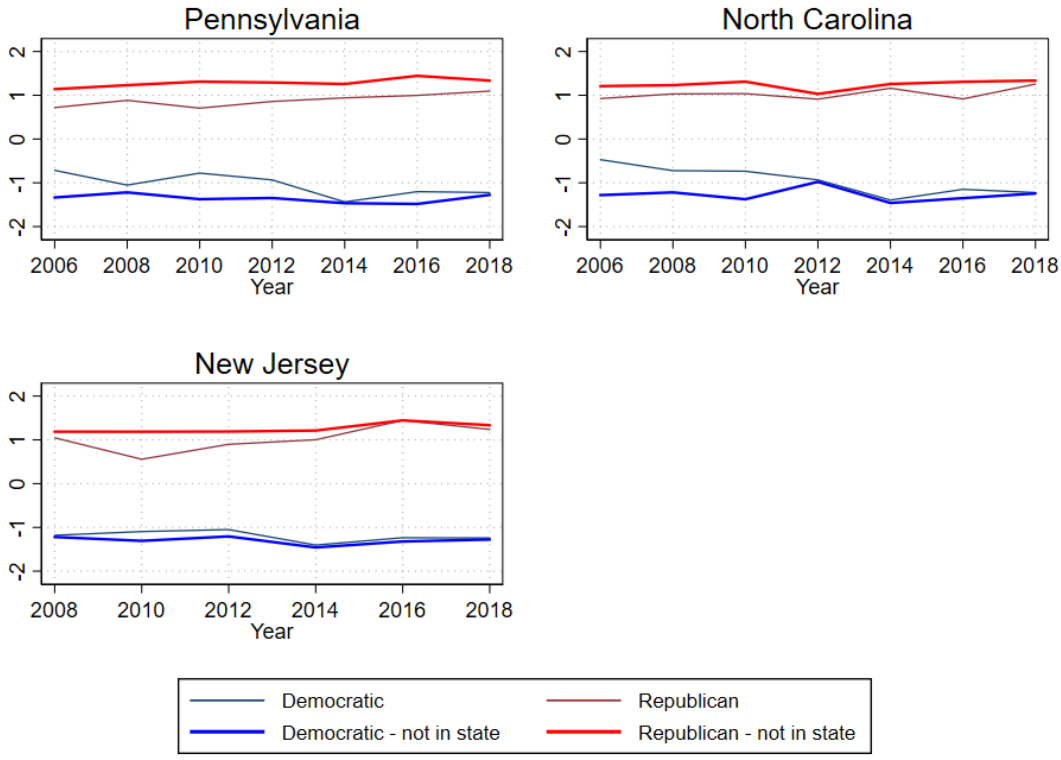
almost always at a lower position with respect to all the yellow, orange and red lines that represent all Democratic candidates, or only candidates to Congress, or only candidates from the same state, or only new federal candidates in each cycle. On the other hand, candidates appear to catch up on the more polarized ideology of donors towards the end of the period and especially in 2018, when in all the states the lines converge to a lower, and thus more liberal, score. While more research is surely needed to confirm these descriptive findings, these trends suggest that candidates have followed the ideological movement of donors, and not viceversa.

The rich information at the level of the single contribution that is collapsed in this analysis has the capacity to enrich our understanding of the spatial source of this polarization in donation. In order to do so, I create similar graphs that exclude in-district and in-state contributions, namely individuals that give money or races in the same location they live and turn out to vote. Especially for the former, the aim is to separate the true ideological preferences of donors from strategic considerations related to the local politics in the place they live (for example, a liberal donor donating to a centrist Democratic candidate to avoid the Republican opponent winning the election in the district). Perhaps surprisingly, in-district contributions are a very small fraction of the total (never more than 3.5 percent for each cycle in the sample) and thus excluding them produces almost indistinguishable graphs (results not reported). The picture is quite different for the latter: when I exclude in-state contributions (thicker lines) the resulting level of polarization is substantially higher, especially for givers registered with the Republican party (Figure 3.4.8).[20] This result aligns with previous findings in the literature of big donors with more extreme than average preferences, distributing their money mostly to candidates out of state (Bramlett *et al.*, 2011; Rhodes *et al.*, 2018). It also noteworthy that the difference with the same measures taking into account all donations (the thinner lines) appears to vanish over time, as if in-state contributions catch up on a higher level of extremism towards the end of the period of the study.

In brief, a big part of the rise of polarization of donors arise from an increase in the liberal ideology of Democratic candidates, who matches the relative extremism of Republican ones at the end of the period of study. Still, part of the rise in the measure of polarization comes from the distribution of money to more extreme candidates, potentially suggesting that the emergence of more extreme candidates was driven by demand from Democratic donors, a politically active group among Democratic

[20]Not-in-state contributions include contributions to candidates and committees based in other states and to presidential candidates; they are not synonyms of "pure" out-of-state contributions, which are usually intended as donations to support Congress or local races outside of the donor's state of residence.

Figure 3.4.8: Ideology of Democratic and Republican donors, excluding in-state contributions



leaning registered voters. Moreover, unaffiliated donors align more closely to liberal scores over time, moving further from the ideological center.

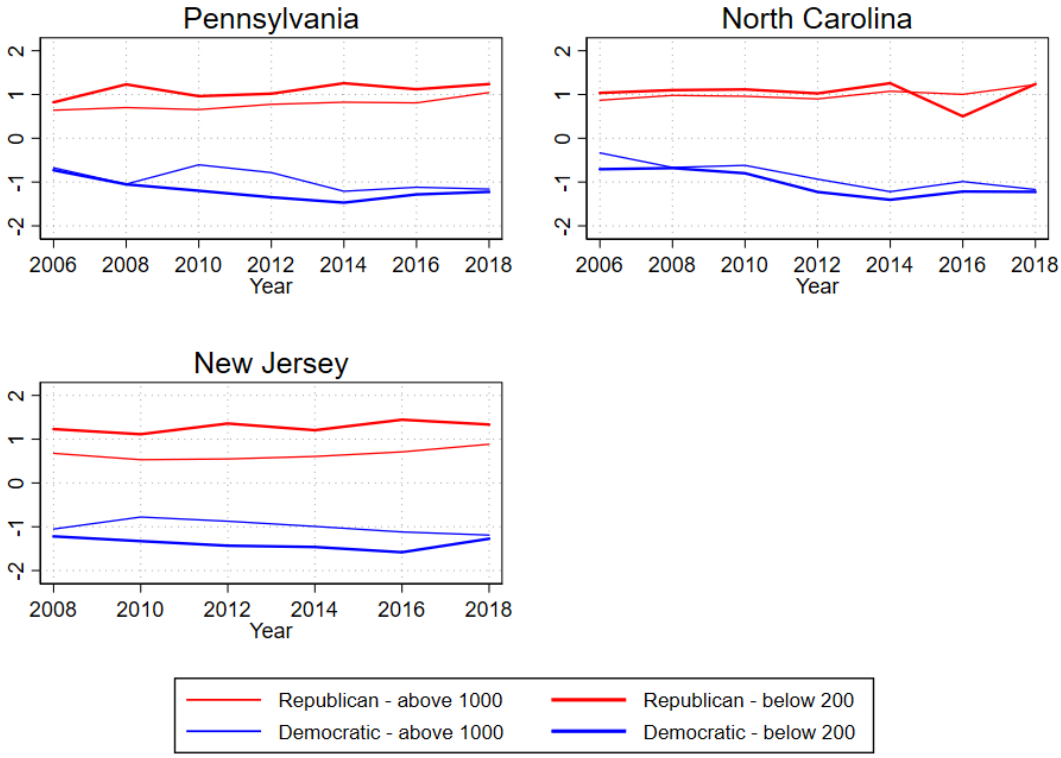
3.5 Inequality of Contributions and Donors' Ideology

The inequality within contribution flows has generally captured the attention of scholars worried of the outsized influence of big donors in the policy process (e.g. Bonica *et al.*, 2013). Conversely, recent literature has emphasized the rise of small donations as an increasingly relevant source of funding for electoral campaigns (e.g. Bouton *et al.*, 2022b; Bouton *et al.*, 2022a). The rich administrative data employed in this paper permits to explore whether small donors bring about an increase in polarization, as the successful campaigns of Bernie Sanders and Donald Trump might suggest.[21] As a first step, I replicate the analysis by subsetting the sample based on the size of donations and then observe the evolution of the median ideology score

[21]This data does not include all small donations not recorded by the FEC, but some of them instead are present in DIME database. Bouton *et al.* (2022a) provides an analysis of all the unitemized donations, by exploiting recording of legislative conduits, especially Actblue.

over time for the three states (Figure 3.5.1). I find that small donors that donate less than $200 are substantially more extreme in their ideology with respect to large donors giving more than $1000 for both parties.

Figure 3.5.1: Ideology of Democratic and Republican donors, by size



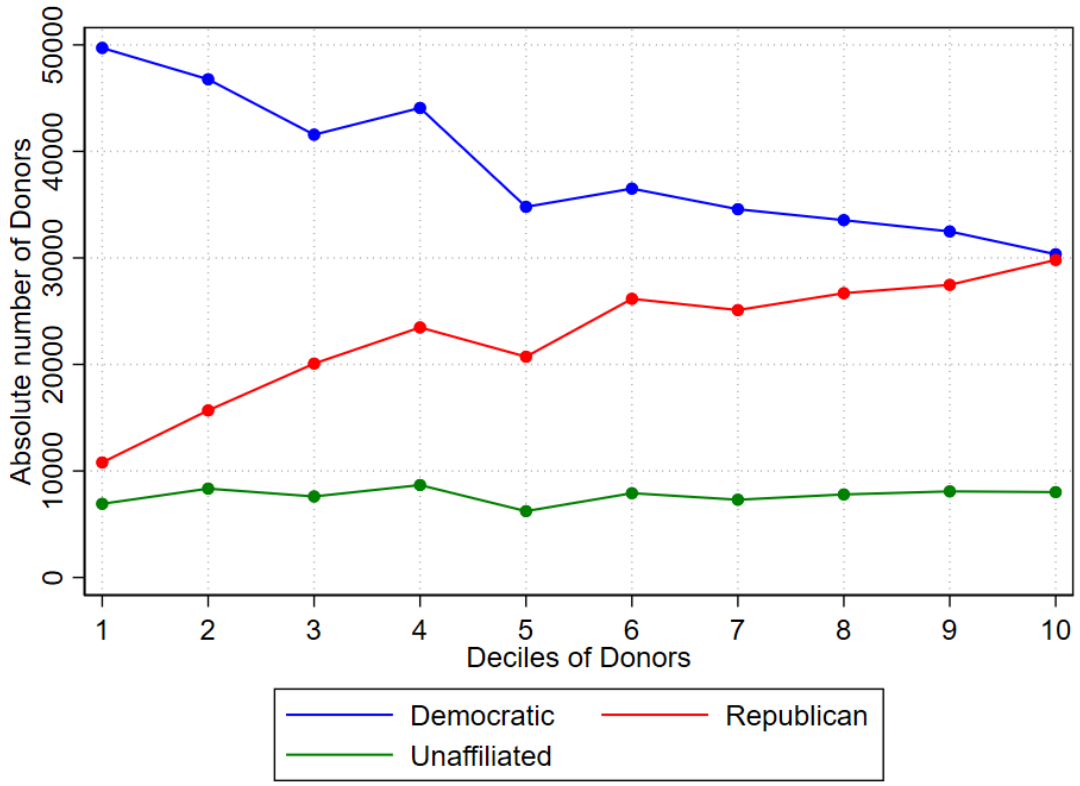
Then, I zoom in on the relationship between the size of donors, defined as the total contributions over the years in the sample, their party affiliation, and their ideological preferences. First of all, the constructed database confirms the large inequality at the donor level (e.g. Gimpel *et al.*, 2006) and the underrepresentation of women and minorities, especially among large donors (e.g. Grumbach *et al.*, 2020). To give examples of these empirical observations, the average donor size (the total of all contributions in sample) in the ninth and tenth decile is respectively 1,524 and 16,465 dollars, with a median value of 157 dollars.[22] The percent of female donors in the highest decile is 25.9, while overall 43 percent of donors are female.

The advantage of this data with respect to extant studies is that I can look at the distribution of donors affiliated with the two parties, by exploiting the merge with

[22]Donors are divided into deciles depending on the amount donated in sample, namely when I can safely attribute their party affiliation. As donors might have donated large amounts before or after, this measure contains some measurement error.

the voter files.[23]

Figure 3.5.2: Number of donors by decile, for Democrats, Republicans and unaffiliated



First of all, conditional on being in my database, large donors are overwhelmingly more likely to be Republicans. Overall, the entire database contains roughly 56 percent of Democratic donors, 33 percent of Republican donors and 11 percent of unaffiliated donors. This democratic advantage in the absolute number of donors decreases in an almost perfectly monotonic fashion with the size of donors (Figure 3.5.2). This striking pattern entails that the absolute number of donors is almost exactly the same for individuals affiliated with the two parties in the last decile. Finally, the number of unaffiliated donors remains remarkably stable across deciles.

What is the relationship between donor size and ideology? The existing literature suggests that large contributors tend to be more conservative than the rest of the population, especially on economic issues. The vast majority of these studies are based on surveys (e.g. Broockman and Malhotra, 2020) or on a very small number of extremely affluent individuals (e.g. Hertel-Fernandez *et al.*, 2018; Page *et al.*, 2018). Albeit limited to three states, this database permits to investigate this relationship

[23] As the information on party affiliation is unique to the matched database, I cannot test the balance between matched and unmatched donors. In terms of size, there is no systematic difference between matched and unmatched donors, and overall the discrepancy is rather minor.

on a very large sample. The association between donor size and a conservative ideology as measured by the fixed contributor CF Score variable appears monotonic when looking at deciles of donors (Figure 3.5.3). While all groups manifest an overall liberal tendency, the richest groups are clearly more moderate than the rest. This analysis then provides a motivation for examining the same patterns by the party to which each donor is affiliated.

Figure 3.5.3: Contributor CFScore by decile, on size of total donations

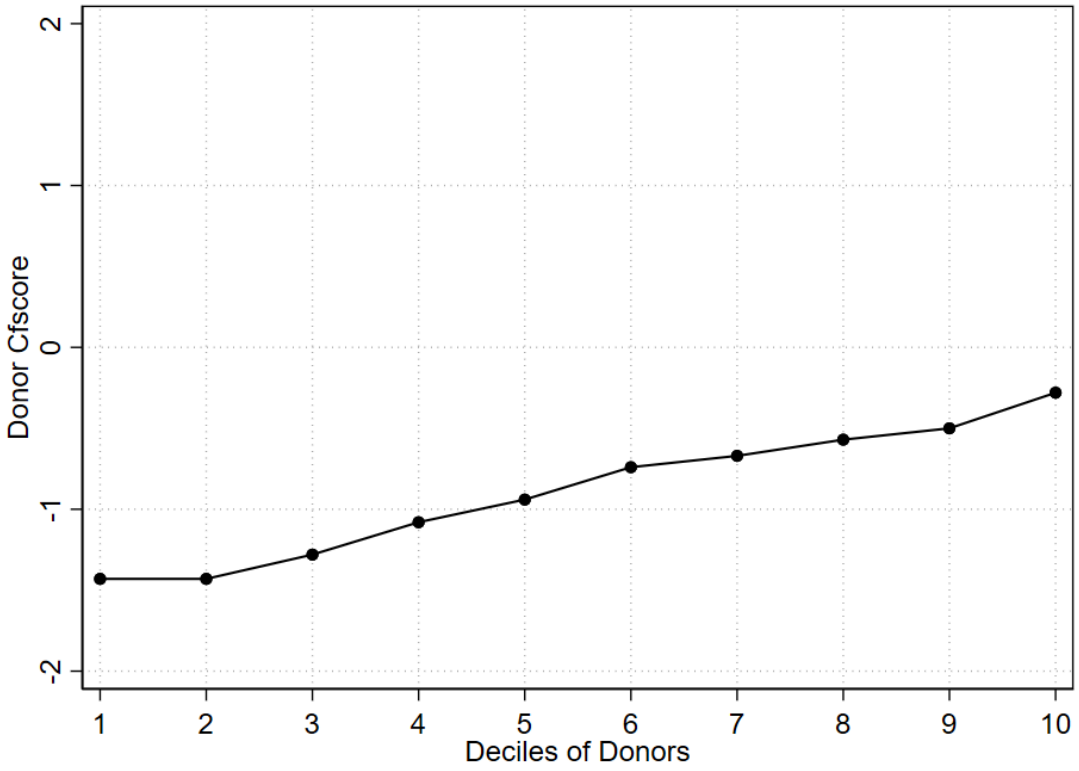
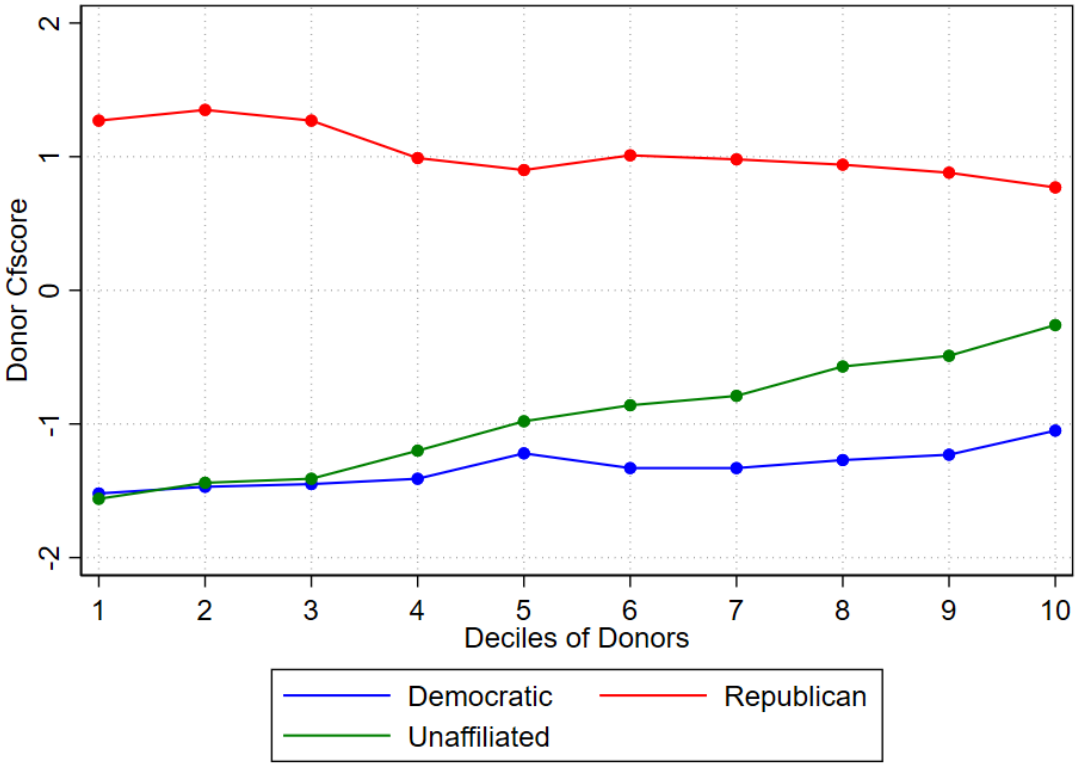


Figure 3.5.4 shows that this positive association between total amount of contributions and conservative ideology of donations is actually driven by Democratic and unaffiliated donors, who exhibit a more centrist ideology when they belong to upper deciles in the distribution of donors of each party. As in previous evidence, unaffiliated donors tend to be quite liberal overall, but the largest donors among them appear to donate in a centrist manner. Moreover, large Republican donors as well present a more moderate pattern than their counterparts in the first deciles of the distribution. Overall, large donors appear then to be more centrist than the rest. Given that the absolute number of Democratic donors is bigger than Republican donors, and that the increase in the ideological score is greatest for the unaffiliated, the overall pattern in Figure 3.5.3 looks like a monotonic positive association.
This finding merits a further consideration. On one hand, the progressive ideology of

Figure 3.5.4: Contributor CFScore by decile and party, on size of total donations



wealthy, top-decile donors registered with the Democratic party (and unaffiliated) might be attenuated by conservative attitudes on economic issues, thus explaining this trend. On the other hand, the more centrist behaviour of Republican large donors appears conflicting with popular accounts and existing research on Republican mega-donors (e.g. Skocpol and Hertel-Fernandez, 2016). This discrepancy might simply arise from a handful of exceptionally rich and extremely conservative individuals, such as the Koch brothers or the Adelson family. Perhaps the inability of researchers to obtain complete data on grey and dark money, especially related to corporations often aligned with the Republican Party (e.g. Grumbach and Pierson, 2019), might furnish another explanation. Surely, more research is needed to deepen our understanding of the ideological differences among large and small donors of the two main parties (and unaffiliated).

To better isolate the correlation between donor size and other socioeconomic characteristics on one hand, and the ideology of contributions on the other hand, I run regressions including demographic characteristics of donors in the sample, namely age and gender, together with the decile they belong to.[24] In this way, I estimate the association between individual characteristics and ideological attributes of contributions in a multivariate regression. These regressions are slightly different from

[24]Unfortunately, variables on ethnic groups are available only from the North Carolina voter files.

the descriptive graphs above, as they have as dependent variable the time-varying measure of donations by cycle, instead of the fixed contributor CFscore by Bonica, but the findings are not affected if I employ the alternative measure (results not shown).

Table 3.5.1: The ideological polarization of contributions: individual socioeconomic characteristics

	(All)	(All)	(Rep)	(Rep)	(Dem)	(Dem)	(Una)	(Una)
Decile	0.035***	-0.018***	-0.005***	-0.028***	0.033***	0.009***	0.054***	-.018***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Decile × time		0.013***		0.006***		0.005***		0.016***
		(0.00)		(0.00)		(0.00)		(0.00)
Age	0.012***	0.005***	0.010***	0.004***	0.004***	0.001***	0.014***	0.006***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age × time		0.001***		0.001***		0.001***		0.001***
		(0.00)		(0.00)		(0.00)		(0.00)
Female	-0.324***	-0.200***	-0.063***	0.014*	-0.100***	-0.148***	-0.226***	-0.105***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)
Female × time		-0.024***		-0.018***		0.011***		-0.024***
		(0.00)		(0.00)		(0.00)		(0.00)
State*year Fixed Effects	✓	✓	✓	✓	✓	✓	✓	✓
Observations	836364	836364	268689	268689	450526	450526	77344	77344
R^2	0.09	0.10	0.04	0.05	0.13	0.13	0.15	0.17
Mean Dep Var	-0.38	-0.38	0.71	0.71	-1.02	-1.02	-0.45	-0.45

Standard errors clustered at the individual level in parenthesis.

First, I run a panel regression with dependent variable the time-varying ideology score on the full sample of donors for which I could build this measure. Unsurprisingly, Table 3.5.1 shows that age correlates with a more conservative ideology of donations, while being female is associated with a more liberal pattern of giving. As seen in Figure 3.5.3, the relationship between the total amount of donations (in this case, of the two-year cycle) and the CFscore is positive, indicating that a position in a higher decile in the distribution correlates with a more conservative score.[25] The panel structure of the data permits to study this patterns over time. The same regression with a simple time interaction for each electoral cycle in the sample –in column 2– reveals that these associations become stronger over time. Then, I investigate whether these correlations hold even within the sample of Democratic, Republican and unaffiliated donors, separately. The results in the remaining columns of Table 3 show that this is clearly the case, for age and gender. More precisely, the positive association between a conservative score and age is stronger for Republican

[25]Deciles in this case are calculated for each cycle. The difference of the distribution of amounts between states is very small, so that an alternative calculation for each cycle and state, delivers virtually identical decile variables (r=0.98). Moreover, results in Table 3 remain almost unchanged, employing the logarithm of the amounts instead of the decile variable.

and unaffiliated donors and appears to increase over time, while the correlation between being female and having a more liberal ideology is larger for Democratic and unaffiliated givers, but it grows over time only for the latter. Figure 3.A.7 in the Appendix confirms this finding illustrating the difference between male and female donors with the usual graph for the three states. With regard to the donor size, the regression analysis confirms that the correlation between the total amount of contributions and a more centrist score is larger for unaffiliated and Democratic donors than Republican ones. Moreover, the time interaction reveals that this tendency increases over time for the former, while it decreases for the latter.

3.6 Conclusion

The political position of the median individual donor is more extreme than the one of the median voter. More precisely, Republican donors are more conservative on economic issues than their counterparts in the general population, and Democratic ones are more liberal on social issues (Broockman and Malhotra, 2020). At the same time, the polarization of federal legislators in the last two decades seemingly exceeds the corresponding shift in ideology of public opinion (e.g. Bafumi and Herron, 2010). The dependence of elected representatives on individual donors, the biggest source of money to finance their campaigns, provides a rationale for this mismatch. In this context, this work pursues a novel strategy to estimate the ideological leanings of contributors over time.

Based on the seminal work by Bonica (2014), I construct time-varying ideological scores for donors that are also registered voters, by merging the DIME database of campaign contributions with voter files from the state of Pennsylvania, North Carolina and New Jersey. By following their party affiliation over time, I first show that donors that change their partisan status, also adjust their contributions ideology accordingly. A switch from unaffiliated to the Republican party, for example, correlates with a conservative shift in donation patterns. To the best of my knowledge, this study is the first to empirically show this pattern, with data at the individual level for a period of thirteen years. In this sense, a promising avenue of future research regards the study of the relationship between campaign contributions and partisan affiliation in comparative perspective, in a political period in which the attachment to mainstream parties appears to vanish quite rapidly for substantial parts of the electorate.

Then, the paper proceeds by describing the evolution of the ideological scores of around 750,000 donors over time, by collapsing them to the median values of

Democratic, Republican and unaffiliated donors in each cycle. In this fashion, I observe a notable increase of ideological polarization over time, which is substantially greater among Democrats. This rise regards both the intensive margin, namely existing donors, and the extensive margin, namely new donors, and it does not vary with alternative estimation techniques. More than following the more extreme ideology of new liberal candidates, Democratic donors appear to anticipate the movement towards the left of their representatives, distributing their funds in a more extreme direction. Towards the end of the period, liberal candidates move closer to donors, seemingly aligning to the ideological preferences. In other words, the polarization of Democratic donors is at least partially driven by their decision to increasingly reward more extreme candidates with more money, and not only by the pool of Democratic candidates becoming more extreme over time. Though, the ideological scores constructed in this work do not permit to clearly distinguish between a movement in the ideology of donors and a shift in the ideological preferences of candidates. The precise identification of the interplay between donors and candidates is thus left for future research.

Overall, more than half of individual contributors in the sample is registered as Democrats, and only one third of donor is registered with the Republican party, the rest being unaffiliated. Given this imbalance, large donors belonging to the upper deciles in the sample are more likely to be Republican and to present a more centrist pattern of donation than the rest of donors. The difference among donors along the amount of their total contributions is largest for unaffiliated, which display very liberal leanings in the first deciles and centrist ideology in the upper deciles. Multivariate regressions confirm the associations between the size of donations and a centrist ideology score, presenting a larger coefficient for unaffiliated and Democratic than Republican donors. They also attest that female donors tend to donate in a more liberal fashion, while age correlates with a more conservative ideology of donations.

Finally, the methodology employed in this paper to measure ideology of donors over time opens up an entire array of new research avenues. Recently, voter files have been increasingly used by researchers in political science and economics for studying various matters, above all voter turnout (see Kim and Fraga, 2022, for a list of political science journal articles with this type of data). The validation of these measures performed in this work creates promising research opportunities, especially given the existence of national voter files, which can substantially increase the sample size. To be sure, all these studies would be focused on a sample of donors, namely very politically active citizens who do not represent the entirety of the American

public. Nonetheless, the large and arguably growing prominence of money in politics compels to advance our understanding of the political behaviour of individual donors.

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3.A Appendix A - Additional Tables and Figures

Table 3.A.1: Summary Statistics

	Obs.	Mean	Std Dev	Min	Max
Donor CF Score	880,404	-0.38	1.10	-39.62	104.17
Party	1,145,324	-0.42	1.82	-2	2
Female	1,229,103	0.36	0.48	0	1
Age	1,168,245	56.87	14.43	2	120
Decile	1,235,232	5.40	2.92	1	10
Contr by Donor	1,235,232	1,185.12	51,259.5	0	5.31e+07
Candidate CF Score	57,871	-0.33	1.24	-6.89	4.83
Black	82,296	0.04	0.20	0	1
Asian	82,296	0.01	0.10	0	1
American Indian	82,296	0.005	0.07	0	1
Hispanic	82,296	0.01	0.09	0	1
Female	82,296	0.25	0.43	0	1
Age	78,736	60.79	13.87	17	120

Note. The statistics in the upper panel refers to the entire sample (Table 1 and 3). The statistics in the bottom panel refers to the database of individuals changing party affiliation in North Carolina only (Table 2).

Figure 3.A.1: Democratic, Republican and unaffiliated donor ideology: average values

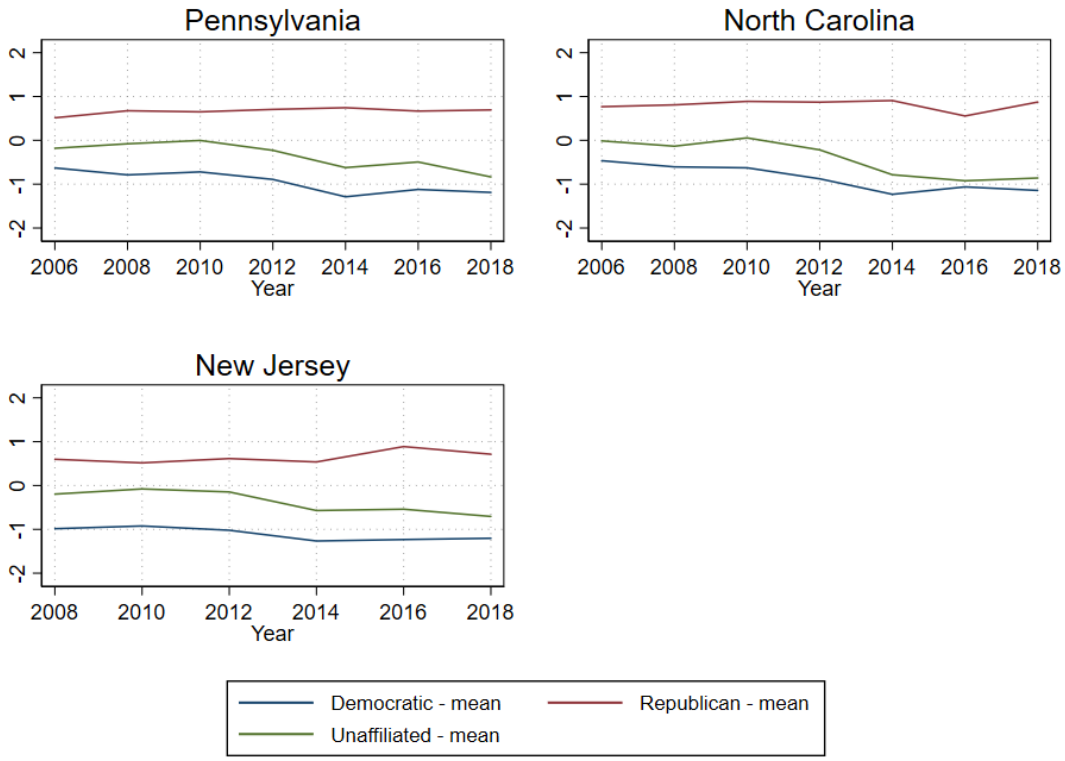


Figure 3.A.2: Democratic, Republican and unaffiliated donor ideology: fixed recipient CFscore

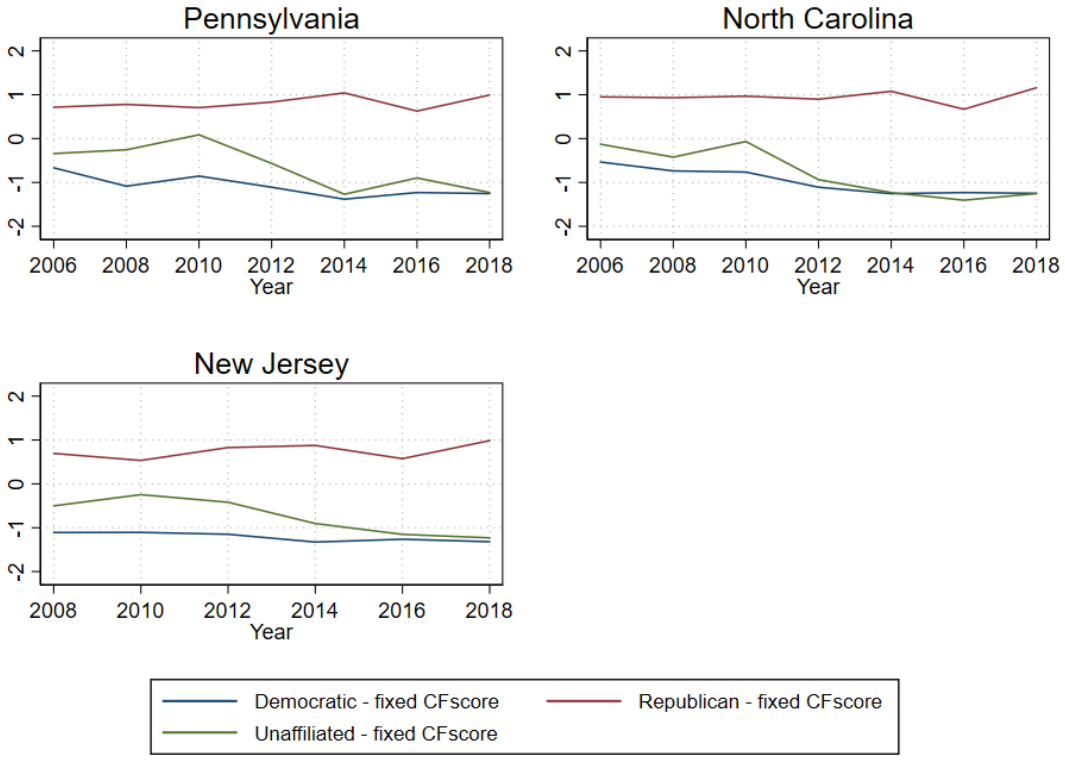


Figure 3.A.3: Democratic, Republican and unaffiliated donor ideology: no Presidential elections

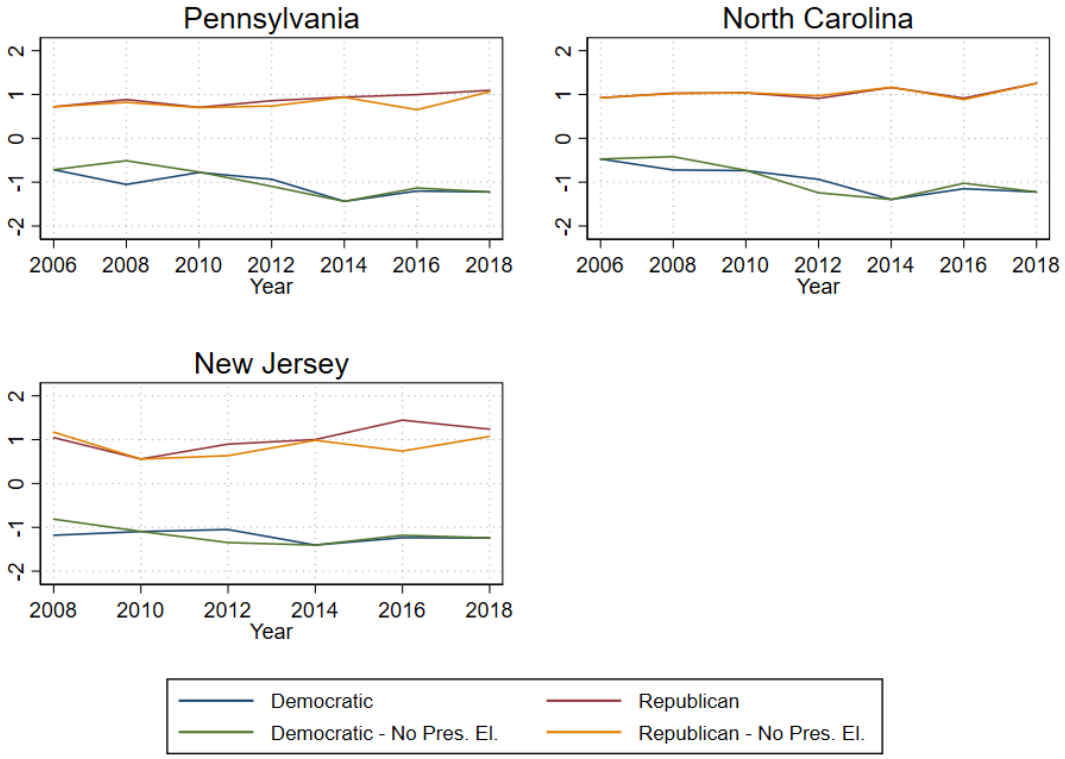


Figure 3.A.4: Share of overall donations directed to committees

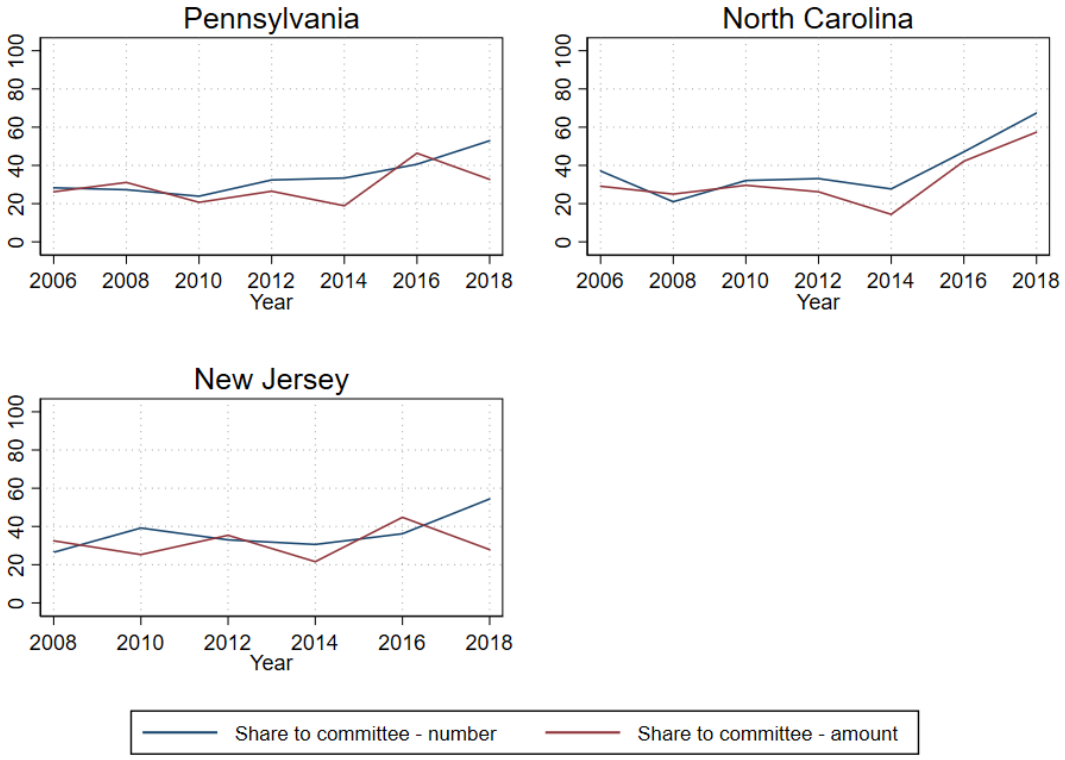
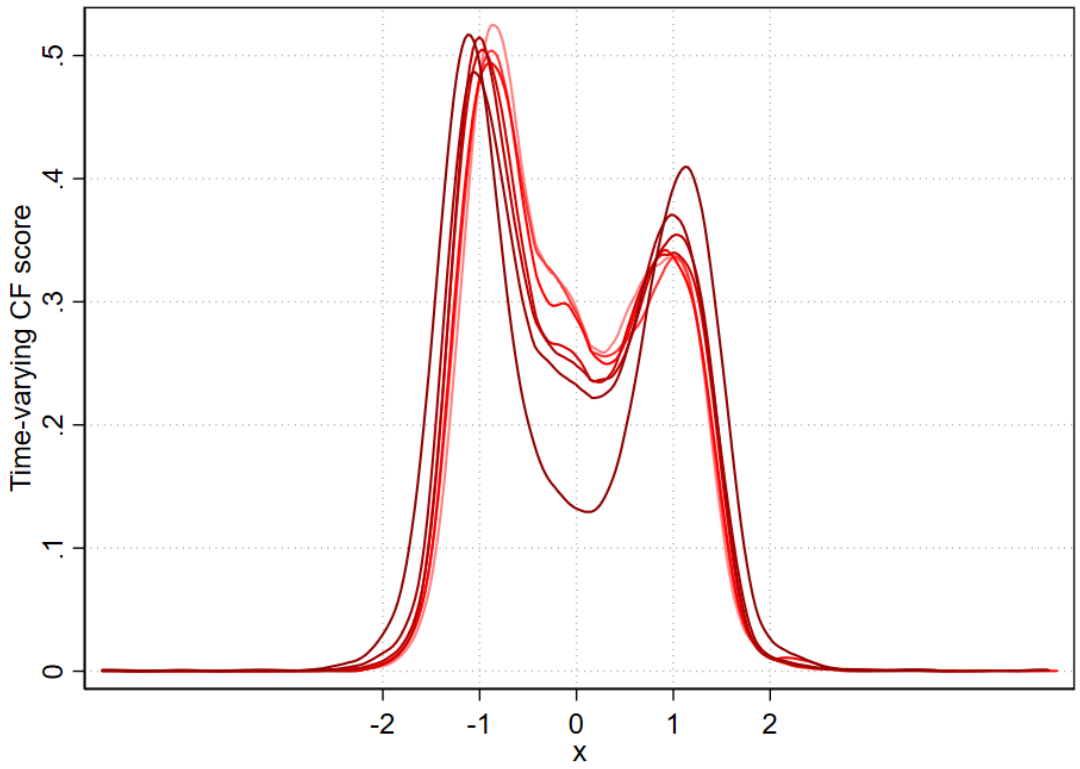
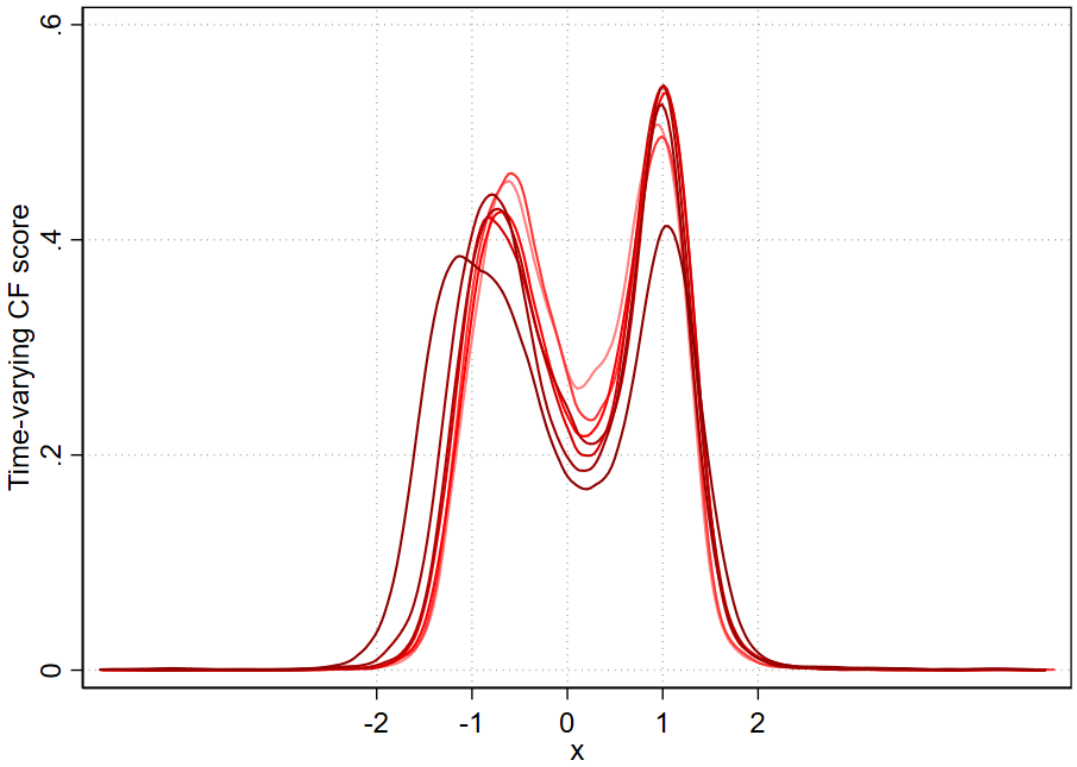


Figure 3.A.5: Kdensity graph of committee recipients of donations, over time



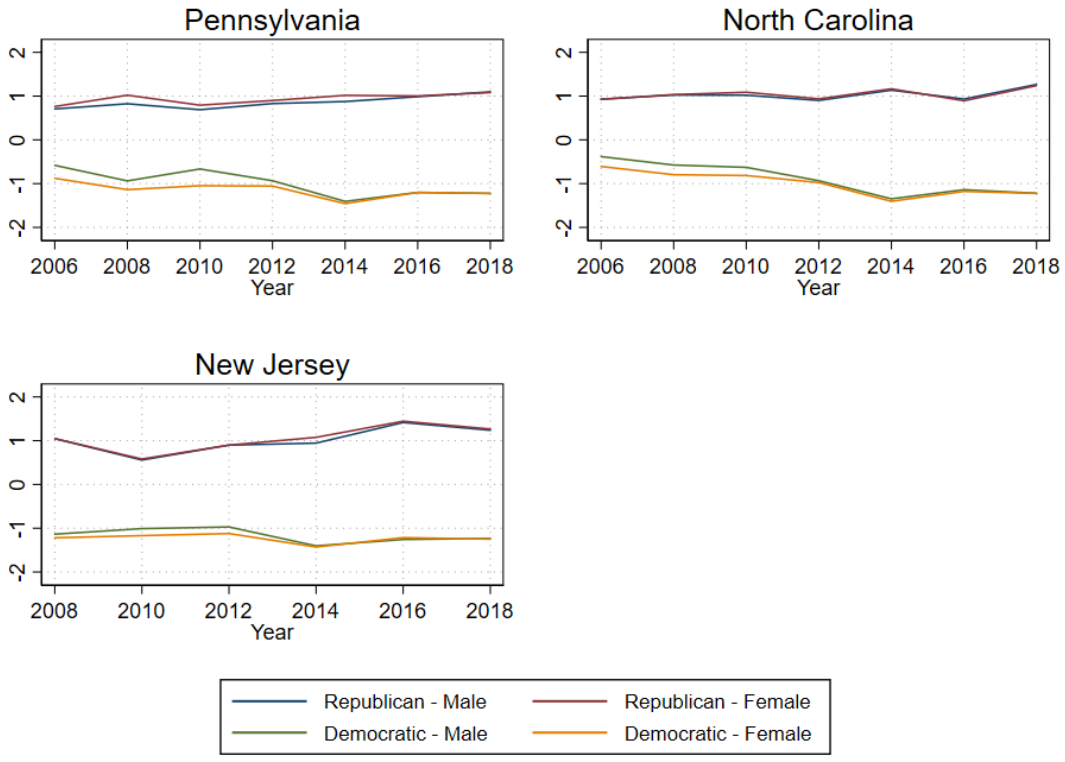
Note. This figure shows the kdensity graph of all committees that obtain a time-varying CF score, by electoral cycle. Each line represents a different electoral cycle, with darker lines approaching 2018, the last year of the sample. By inspection, the deviation from the ideological center is small but monotonically increasing.

Figure 3.A.6: Kdensity graph of candidate recipients of donations, over time



Note. This figure shows the kdensity graph of all candidates that obtain a time-varying CF score, by electoral cycle. Each line represents a different electoral cycle, with darker lines approaching 2018, the last year of the sample. By inspection, the deviation from the ideological center is small but monotonically increasing, and stronger for liberal candidates, at the left of the ideological spectrum.

Figure 3.A.7: Democratic and Republican donor ideology between 2006 and 2018, by Gender



3.B Appendix B - Supplementary Information, North Carolina

Figure 3.B.1: Tweet of New Unaffiliated Voters in 2022 by North Carolina State Board of Elections

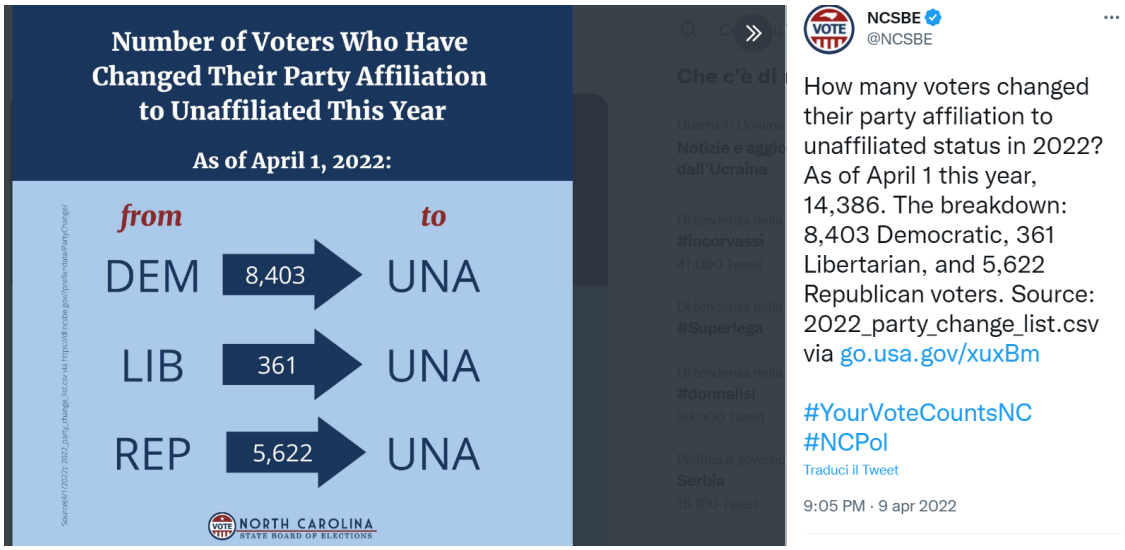
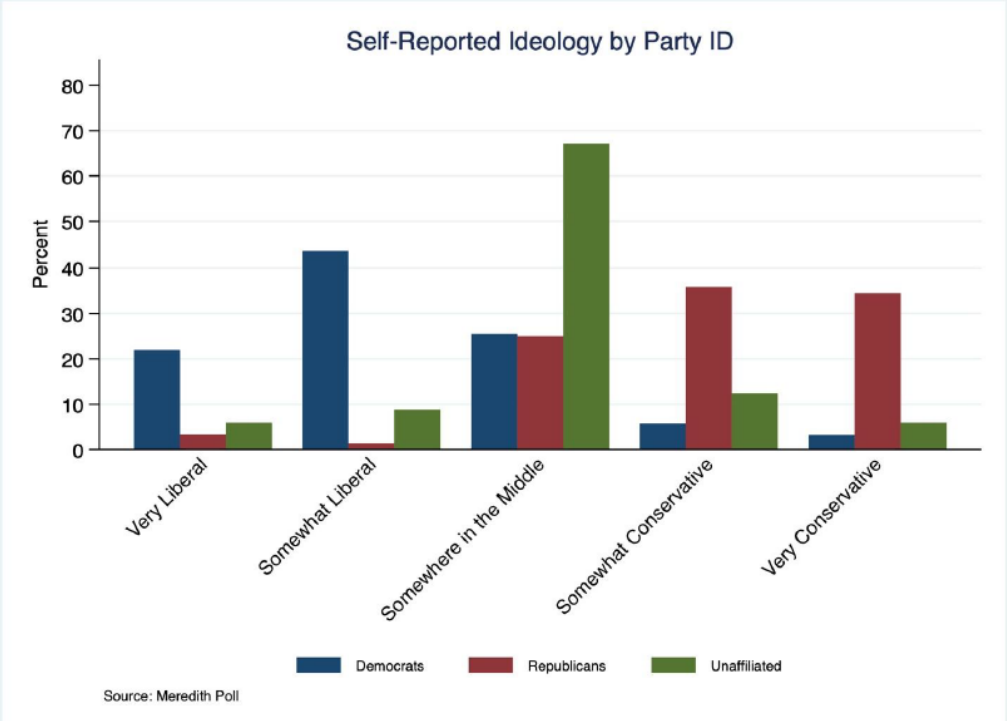


Figure 3.B.2: Self-reported Ideology of Unaffiliated Voters, North Carolina - Meredith Poll 2018-2021



3.C Appendix C - Balance of Matched Databases

Figure 3.C.1: Comparison of donor ideology measures for matched and not matched donors, North Carolina

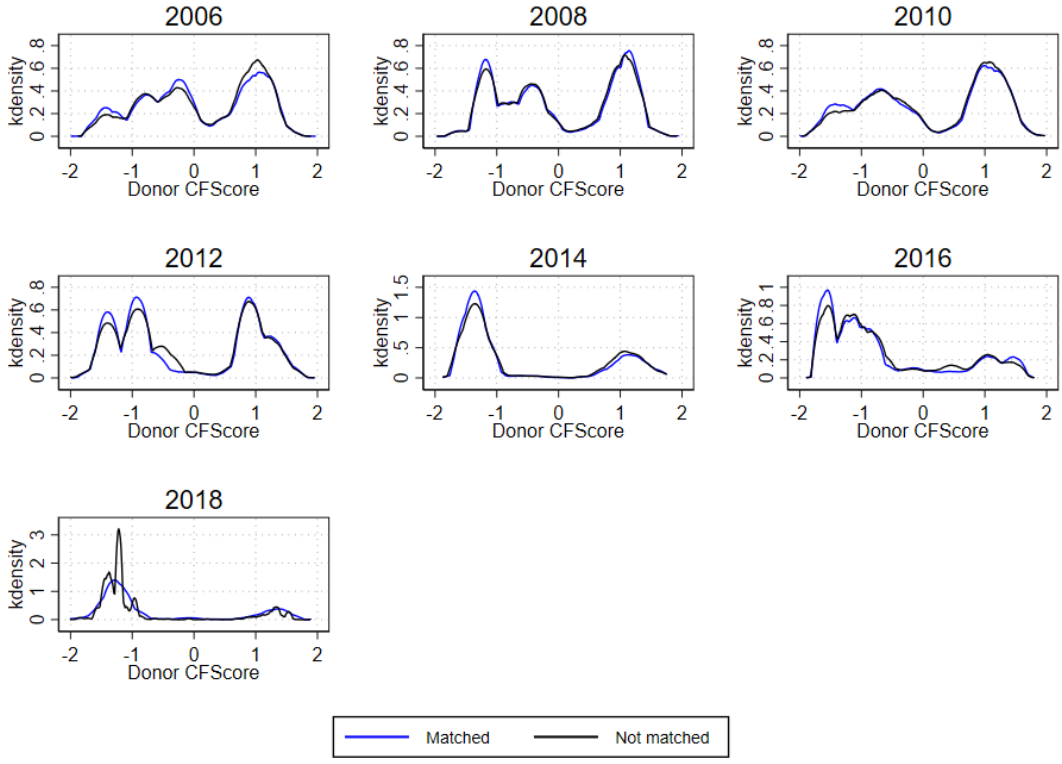


Figure 3.C.2: Comparison of donor ideology measures for matched and not matched donors, Pennsylvania

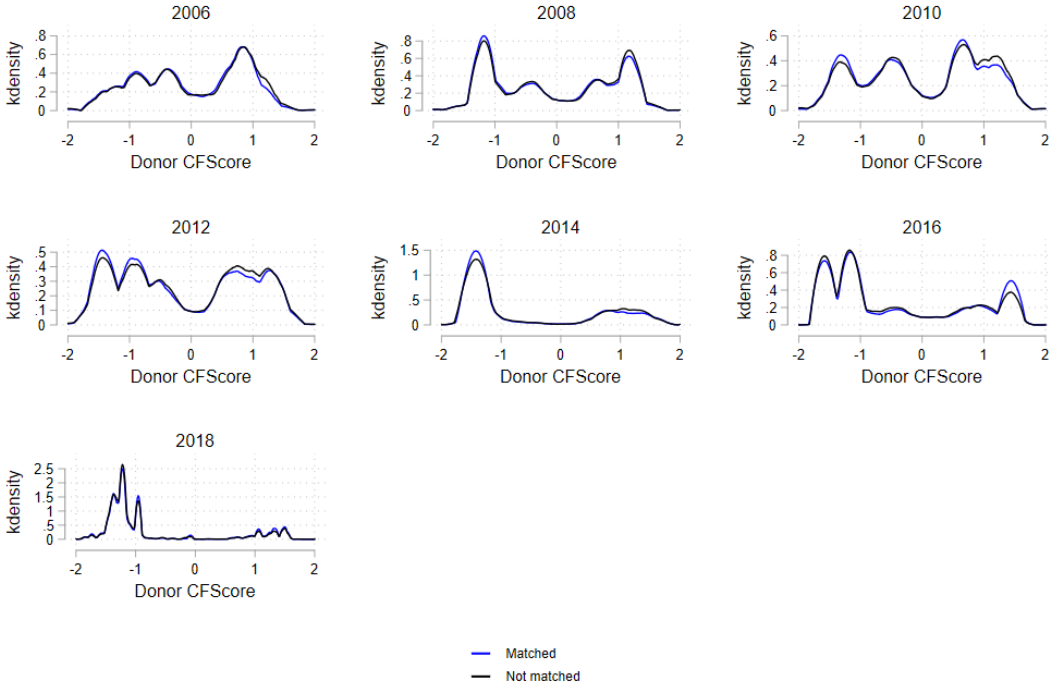
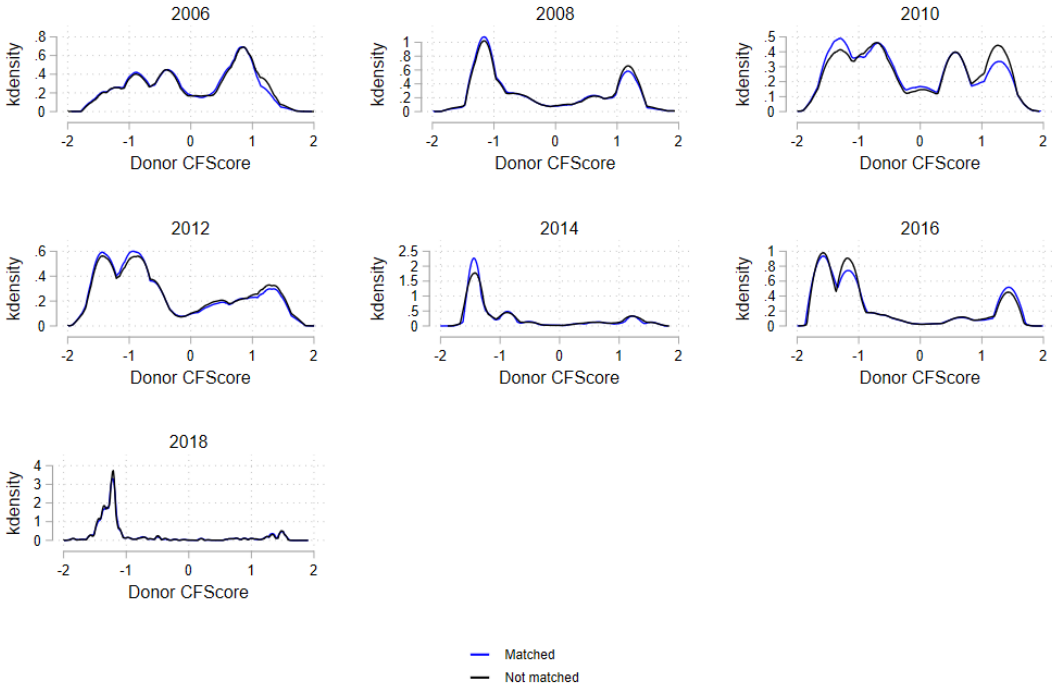


Figure 3.C.3: Comparison of donor ideology measures for matched and not matched donors, New Jersey



Conclusion

In conclusion of this doctoral thesis, I summarize the results of the three separate articles that form the dissertation and I shortly connect them to the reflections in the introduction on economic and political inequality.

The renaissance of economic inequality research in social science, after the publication of Piketty (2014) monumental book *Capital in the Twenty-First Century*, has stimulated a wide array of empirical analyses on the causes and consequences of the rise in income and wealth disparities in contemporary advanced democracies. To be sure, the United States stands out as a prominent example of the strong general increase of economic inequality, in a context where political gaps in participation and representation remain large. This doctoral dissertation starts from the premise that public policy decisions shape the distribution of resources in a society, both before and after the redistribution performed by the tax system (e.g. Bartels, 2008; Hacker and Pierson, 2010). As policymakers take political decisions potentially affecting economic inequality, the examination of the influence of economic elites on elected representatives becomes key for the understanding of the evolution of income differences. The stark differences in political representation and participation between the rich and the poor complete the picture of a strong interplay between economic disparities and political influence. Hence, the 'game of politics' increasingly risks being played only by a handful of rich citizens, who either run for representative offices or steer public decisions towards their policy goals.
In this situation of strong and reinforcing inequality trends, rigorous empirical studies on these issues that consider both the economic and the political sides of this phenomenon gain special relevance.[26] Especially given the stark interconnections between political decisions and the rising inequality trends, teasing out the effect of the outsized political influence of economic elites, proxied by their patterns of donations, does not represent an easy task. In this dissertation, I have done my

[26]See Naidu (2018) for a review of Piketty's Capital that critically reflects upon the endogeneity of political decisions related to inequality trends.

utmost to fulfil this undertaking, investigating the relationship between campaign contributions and public policy, broadly defined.

The first paper investigates the relationship between the concentration of campaign contributions of members of Congress and their legislative behaviour, especially on activities related to the agenda. The main result of this work is that a more skewed structure of political funds makes legislators more dependent on a relatively smaller number of donors, and thus less responsive to the interests of voters. In this sense, I find that interest groups and individuals giving large donations exhibit negative agenda power over the amount of bills, speeches and committee appearances by members of Congress. By devoting time and effort to big donors, politicians in office produce less legislative change than it would be beneficial for their constituencies. This finding centers on a mechanistic argument on the distribution of sources of funding of each candidate to Congress, which remains agnostic on the specific category of donors exercising influence on political behaviour. It is not who exactly donates to a legislator, but how much her biggest donations matter in the overall distribution of her campaign donations. This simple explanation aligns with a number of theoretical insights about legislative behaviour and more importantly, it fits the data of legislative activities of members of Congress for a period of thirty-six years.
Moreover, the main result for bill sponsorship is greater for topics related to redistribution, thus suggesting a relationship between the concentration of contributions and political decisions on issues regarding economic inequality, such as health and housing policy. Although more research is needed to establish a robust link between donations and Congressional discussion on topics related to social welfare decisions, the patterns described in this chapter suggest that economic elites could play a gatekeeping role on policy discussion of these issues, via their campaign contributions.

The second chapter, coauthored with my supervisor Professor Valentino Larcinese, examines the other part of the spiral between economic inequality and political influence, namely the effect of the Tax Reform Act on individual campaign contributions. This tax reform was adopted in 1986, as a landmark policy of the second Reagan administration, cutting taxes disproportionately for citizens at the top of the income distribution. We find that the tax savings delivered by the tax reform caused an increase in individual donations, and that this increase originated from the richest ten percent of the income distribution. Absent any predictable heterogenous effect, we interpret the result as an income shock, not related to the ideological leanings of the policy decision. This chapter shows that a political decision, which has indubitably

enlarged income disparities, has also reshaped the donor pool towards the high end of the income distribution. Then, we argue that the dismantling of the progressive system of taxation, by disproportionately augmenting the disposable income of the wealthy, contributes to reinforce political inequality as well. In this sense, campaign contributions represent the channel between these two types of inequality, thus acting as a multiplier of socioeconomic disparities, as theorized in the introduction.
Furthermore, in the chapter we emphasize that regressive tax cuts have never been popular policies favoured by the majority of voters (e.g. Saez and Zucman, 2019). While not proving it, the results in Chapter 2 suggest that the political clout of wealthy individuals financing the campaign of members of Congress could have played a role in the passage of these policies. This intuition resonates with the burgeoning stream of literature describing higher responsiveness of elected representatives to the donorate, with respect to the voter base (e.g. Canes-Wrone and Gibson, 2019).

The third chapter analyses the patterns of campaign contributions and party affiliations of donors at the individual level. As pandering to the political preferences of donors has been proposed as a possible cause of the observed mismatch between the ideological polarization of voters and their representatives (e.g. Bafumi and Herron, 2010), a thorough description of their political behaviour is warranted. Exploiting extremely rich administrative data from the states of Pennsylvania, North Carolina and New Jersey, I document the rise in the ideological polarization of individual donors between 2006 and 2018. First, I validate the empirical strategy demonstrating that there is a strong correlation between party affiliation and ideology of donations, through an analysis of contributions of voters changing party affiliation. Then, merging data on campaign donations with state voter files and employing a measurement strategy based on Bonica (2014), I find that the rise of polarization regards almost exclusively Democratic and unaffiliated donors. On the other hand, the level of extremism of contributions at the end of the period is roughly the same for donors affiliated with the Democratic and the Republican party. This increase in the polarization of Democratic donors is driven both by a rise in the liberal ideology of candidates, and by a more polarizing distribution of funds by contributors that increasingly support politicians with more extreme ideology.
Tracking the partisan identification of donors through the affiliation at registration, I am able to investigate the inequality between small and large donors by party. Perhaps unsurprisingly, I find that the biggest donors, conditional on appearing in the sample, are disproportionately more likely to be Republican. Through simple descriptive patterns and multivariate regressions, I show that there is a strong as-

sociation between higher amount of donations and a more centrist ideology, for all three groups of donors: Democratic, Republican and unaffiliated.

I would like to conclude with a final word of caution on the limitations of the body of work contained in this dissertation. Campaign contributions are one out of many forms of influence through which interest groups and wealthy individuals leverage their financial resources in the political realm (e.g. Weschle, 2022). This limitation appears even more relevant given that other forms of influence such as lobbying, are often employed alongside political donations, thus opening up opportunities for multifaceted strategies (e.g. Tripathi *et al.*, 2002; Kim *et al.*, 2022). Moreover, wealthy individuals have a long tradition of investing their money in think-tanks, foundations or other organizations with the purpose of influencing public opinion (e.g. Skocpol and Hertel-Fernandez, 2016; Cagé, 2020, Chapter 4). Future empirical research should address the daunting research task of unpacking and measuring the impact of these different strategies in a rigorous and effective fashion.

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