ABSTRACT

Title of dissertation: Essays on Political Institutions
and Economic Rents

Haishan Yuan
Doctor of Philosophy, 2014

Dissertation directed by: Professor Ethan Kaplan
Department of Economics

This dissertation consists of two essays studying the relationships between political institutions and economic rents and policies. In Chapter 1, I use an event study approach to investigate the empirical relationships between court-ordered campaign finance (de-)regulation and the stock value of campaign contributors in the United States. The Bipartisan Campaign Reform Act of 2002 addressed two issues, soft money and independent expenditures on issue ads for electoral advocacy. The Supreme Court initially upheld most provisions in 2003 but subsequently weakened and struck down provisions on independent expenditures. I examine the stock value of firms with a long history of campaign contributions around the key developments of three Supreme Court cases. Stock prices of contributing firms react positively to Court events associated with campaign finance deregulation. It implies that the average rates of return to these rights of political spending are between 1% and 2% of stock values.

In Chapter 2, I study the causal effects of political representation in the national government on local public expenditure, using a natural experiment arises in

Japan's electoral system. In Japan's mixed-member electoral system, a candidate who fails to obtain a pluarity of votes in a district may still be elected through a party list, effectively giving her district two representatives instead of one. By extending the conventional regression discontinuity design, I construct a sample of districts in which the assignment of an additional representative is as if random. I find that having an additional representative on average increases municipal expenditure by 1.8%. Within marginally winning districts, core municipalities of the second representative gain, but so do core municipalities of the first representative. This suggests that even in parliamentary systems with strong parties, political competition incentivizes politicians to bring public spending to core supporters in their districts.

Essays on Political Institutions and Economic Rents

by

Haishan Yuan

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2014

Advisory Committee:
Professor Ethan Kaplan, Chair
Professor Allan Drazen
Professor John Shea
Professor Razvan Vlaicu
Professor Michael Hanmer

Acknowledgments

Table of Contents

List of Tables

List of Figures

List of Abbreviations

AR	Abnormal return
BCRA	Bipartisan Campaign Reform Act of 2002
Coeff.	Coefficient
CAR	Cumulative abnormal return
CDF	cumulative distribution function
CRSR	Center for Research in Security Prices
DID	Difference-in-difference
DPJ	Democratic Party of Japan
EBITDA	Earnings before interest, taxes, depreciation, and amortization
Eq.	Equation
FEC	Federal Election Commission
F.E.	Fixed effect
FF-3	Fama-French three-factor actor model
FY	Fiscal Year
HML	High (book-to-market ratio) Minus Low
LAD	Least Absolute Deviation
LAT	Local Allocation Tax
LDP	Liberal Democratic Party
MMD	Multi-member district
Obs.	Observations
OLS	Ordinary Least Squares
PAC	Political action committee
PR	Proportional representation
RD	Regression discontinuity
S.E.	Standard error
SIC	Standard Industrial Classification
SMD	Single-member district
SMB	Small (market capitalization) Minus Big
SNTV	Single non-transferable vote
S & P	Standard & Poor's
WRLT	Wisconsin Right to Life, Inc.
WRLT I	*Wisconsin Right to Life, Inc. v. Federal Election Commission* (2006)
WRLT II	*Federal Election Commission v. Wisconsin Right to Life, Inc.* (2007)

Chapter 1:   Court-Ordered Campaign Finance Deregulation and Stock Value of Contributors

1.1   Introduction

How influential is money in U.S. politics? Ansolabehere, de Figueiredo, and Snyder (2003) summarize a large body of literature studying the effects of campaign contributions by political action committees (PACs) of corporations on roll call voting in Congress. Despite the public perception of massive influence, evidence for the causal effects from money to legislation is weak at best in the literature. As they argue, studies of this kind typically suffer from the problem of reverse causality. Interest group money tends to flow to candidates and members of Congress who are already aligned with the interests of those contributors. This creates a positive bias to OLS estimates of the effects of campaign contributions on legislative voting.

Studying the relationship between campaign contributions and roll call voting may not be a good way to identify the effect of money on politics for other reasons beside reverse causality. First, roll call voting may be a poor outcome measure. Roll call voting occurs in the last stage of legislation. Given that most bills do not reach the House or Senate floor for a vote, the best way to bury an unfavorable

bill arguably is to make sure that it does not get out to the floor in the first place. Anecdotally, many parliamentary maneuvers can be deployed to doom a bill or to substantially change the content of a bill before a floor vote. Moreover, when a floor vote occurs, the bill is often passed or defeated by a large margin. As no vote is pivotal in these cases, the votes need not reflect the interests of special interest groups.

Second, the amounts of campaign contributions are potentially noisy measures of the influence of money on politics. There are alternative means of political spending, such as independent expenditures and lobbying. Even for campaign contributions, the electoral value of a certain level of spending depends on a set of factors such as timing, how competitive the race is, and the price of campaign ads in the local media market. Campaign contributions may have an unobserved shadow value from the implicit threats of funding a candidate's opponents (Chamon and Kaplan, 2013) and may be a strategic substitute for the electoral power an interest group has from its local membership (Bombardini and Trebbi, 2011). These factors vary substantially from candidate to candidate and are difficult to control for. Given that the impacts of campaign contributions on roll call voting may be small, one would worry about attenuation biases in the estimates. In sum, the relationship between campaign contributions and roll call voting may not be very informative for understanding the influence of money in U.S. politics.

Campaign finance regulation is the most frequent solution proposed to limit the potential distortions that money in politics brings to policy making. By limiting transfers of resources from interest groups to politicians, campaign finance regula-

tions may achieve a policy-making process that is biased less toward special interest groups. In this paper, I use an event study approach to overcome the difficulties of identifying a causal impact of political spending by corporations on a favorable legislative environment. I examine the changes in the stock values of firms that had contributed to congressional elections around the dates of key developments in three Supreme Court cases concerning the constitutionality of the Bipartisan Campaign Reform Act of 2002 (BCRA).

The BCRA addressed two issues in campaign finance, namely soft money and independent expenditures on issue ads for electoral advocacy ("electioneering communications"). Soft money refers to contributions to national parties for the purposes of general party-building, which are not subject to contribution limits. Independent expenditures on "electioneering communications" are expenditures by corporations on broadcast communications, which clearly identify a candidate but are made without coordinating with the candidate. The constitutionality of key provisions of the BCRA were challenged in three cases presented to the Supreme Court. In *McConnell v. Federal Election Commission* (2003), hereafter McConnell, most of the provisions of BCRA were upheld. In *Federal Election Commission v. Wisconsin Right to Life, Inc.* (2007), hereafter WRTL II, the BCRA's provisions on "electioneering communications" were weakened. In *Citizens United v. Federal Election Commission* (2010), hereafter Citizens United, the BCRA's provisions on "electioneering communications" were struck down. This decision also set a precedent for allowing corporations to spend an unlimited amount of money from their general treasuries to support or oppose a candidate.

If relaxing constraints imposed by the BCRA on political spending by corporations allows firms to obtain policies that are more favorable toward them, the potential benefits that are otherwise difficult to measure would be capitalized into stock prices upon the arrivals of such news. By studying the stock returns of firms that contributed to congressional candidates in all election cycles between 2003 and 2008 on dates surrounding developments of the three cases, including granting reviews, oral arguments, and decision announcements, I find that loosening campaign finance regulation is positively associated with the stock value of politically active firms. Based on a Fama-French three-factor model, stocks of politically active firms on average have a cumulative abnormal return (CAR) of -0.27% over three days coinciding with major developments of McConnell, which upheld campaign finance restrictions. Stocks of politically active firms on average have a CAR of 0.41% over days coinciding with major developments of WRTL II and a closely related case Wisconsin Right to Life, Inc. v. Federal Election Commission (2006), hereafter WRTL I. In Citizens United, the mean CAR is 1.01%. Together, these findings suggest that campaign finance regulation has a substantial impact on the stock value of contributing firms. Alternative measures of cumulative abnormal return, such as excess returns relative to matched non-contributing firms in the same industry, yield similar estimates. Moreover, contributing firms whose prices suggests low growth prospects have higher abnormal returns around the Supreme Court events related to the deregulation of political spending.

This paper adds to the literature examining the empirical relationship between political spending and policies affecting spenders. The primary focus in this liter-

ature to date has been on lobbying expenditures, which amount to about 10 times what is spent on campaign contributions. Igan et al. (2011) find that lobbying expenditure is positively associated with risk-taking behavior of banks in the period leading up to the sub-prime mortgage crisis. De Figueiredo and Silverman (2006) find that lobbying expenditures by universities have large returns in the form of academic earmarks, provided that the university is represented by a congressional member serving on the appropriation committee of either chamber. Immigration policy, measured in the number of visas granted to an industry, also responds to lobbying expenditures (Facchini et al., 2011). Therefore, it appears that "money, like water, will always find an outlet."[1] The question remains, however, of why lobbying expenditures rather than campaign contributions are the primary outlet for political spending. A line of work, e.g., Austen-Smith (1995), Hall and Deardorff (2006), and Bombardini and Trebbi (2011), suggest that campaign contributions are auxiliary to other types of political spending or influence. The findings in this paper suggest that campaign finance regulation is at least partially responsible for why campaign contributions do not appear to be the primary outlet for money in politics. In the case law studied here, the type of political spending refers to independent expenditures, which may render contribution limits ineffective, and to a lesser extent, to soft money contributions to national parties. Strict limits on campaign contributions may force firms that want to spend on politics to spend elsewhere, such as on lobbying. This paper contributes to the literature by using an

---

[1]Quoted from the opinion of the Court with respect to Title I and II of the BCRA in *McConnell v. FEC*, written by Justices Stevens and O'Connor.

event study approach to better identify the causal impacts of political spending. It utilizes a better measurement of benefits to firms from political spending, though at a cost of not discerning the channels through which the political spending increases profits.

In a closely related paper, Ansolabehere et al. (2004) find that soft money donors from Fortune 500 companies did not experience noticeable movement in their stock value compared to non-donors around legislative events at the time of the BCRA as well as the dates of the oral argument and the decision announcement of McConnell. Several reasons may explain why my results differ from this previous work. First, smaller firms may benefit more from political spending than larger firms, as they do not have direct political influence resulting from a high level of employment (Bombardini and Trebbi, 2011). My sample includes a broader set of firms that are smaller on average than the mean Fortune 500 firm.

Second, while BCRA and McConnell dealt with both soft money contributions and independent expenditures, WRTL I, WRTL II, and Citizens United focused only on independent expenditures. Soft money contributions may return few rents to firms. This is because, as compared to individual candidates, party leaders on the receiving end may have much better bargaining positions with firms. On the other hand, independent expenditures could affect individual races and target candidates via either electoral supports or threats (Chamon and Kaplan, 2013), generating a higher return on political investments. Thus, the bipartisan support for BCRA, despite a strong objection from the Republican leadership, could be viewed as evidence that BCRA provided a solution for legislators to their collective action

problem against interest groups. This is consistent with my results that events of the subsequent cases have larger impacts on the stock value of contributing firms than events related to McConnell.

Third, the legislative events studied by Ansolabehere et al. (2004), which include the House passage, the Senate passage, and President Bush's signal of signing the bill into law, may have been expected by the stock markets. Passages in both chambers was well assured before the scheduled floor votes. After the bill was blocked by the Committee on House Administration, a motion was filed to relinquish the agenda-setting power of the House Committee and schedule the bill for a floor vote. For such a motion to succeed, which has historically been rare, signatures from an absolute majority of House members were required. These signatures were gathered over a period of half a year. The bill was also expected to pass in the Senate. This is because the same term of Senate had passed an earlier version of McCain–Feingold bill in 2001, when Republicans still had the majority control in the Senate, before Senator Jim Jeffords switched sides and handed Democrats the majority. Moreover, while I find weak evidence for information leaks and/or build-up of expectations prior to key developments of the Supreme Courts cases, leaks are much more likely to be the case for legislation as the legislative process involves a much larger number of diverse staff, in Congress as well as in the executive branch. Therefore, it is not surprising that Ansolabehere et al. find no significant stock price reaction to the legislative history of BCRA.

1.2 Background

1.2.1 Bipartisan Campaign Reform Act of 2002

The Federal Election Campaign Act of 1971 and its subsequent amendments imposed legal limits and disclosure obligations on campaign contributions and political expenditures on federal elections. Contributions subject to legal limits are referred to as *hard* money. However, the increasing use of so-called *soft* money and issue ads for electoral advocacy over time have made these limits less relevant.

Soft money refers to funds contributed to national parties that are supposed to be used in state and local elections and for general purpose party-building. As a result of several rulings by the Federal Election Commission (hereafter FEC), and by the Supreme Court in *Colorado Republican Federal Campaign Committee v. Federal Election Commission* (1996), soft money can be legally used in a wide range of activities. There activities are often mixed with campaigning. Figure 1.1 shows that soft money made up a growing share of total funds raised by national parties prior to the passage of the BCRA in 2002.

The proliferation of issue ads also weakened the effectiveness of contribution limits. In *Buckley v. Valeo* (1976), the Supreme Court upheld legal limits on campaign contributions but struck down limits on independent expenditure, which refers to political spending that is not coordinated with a candidate. The Court ruled that issues ads are constitutionally protected political speech and could be financed by interest groups with an electoral purpose in mind as long as they did

Figure 1.1: Total Funds Raised by Party Committees by Election Cycle
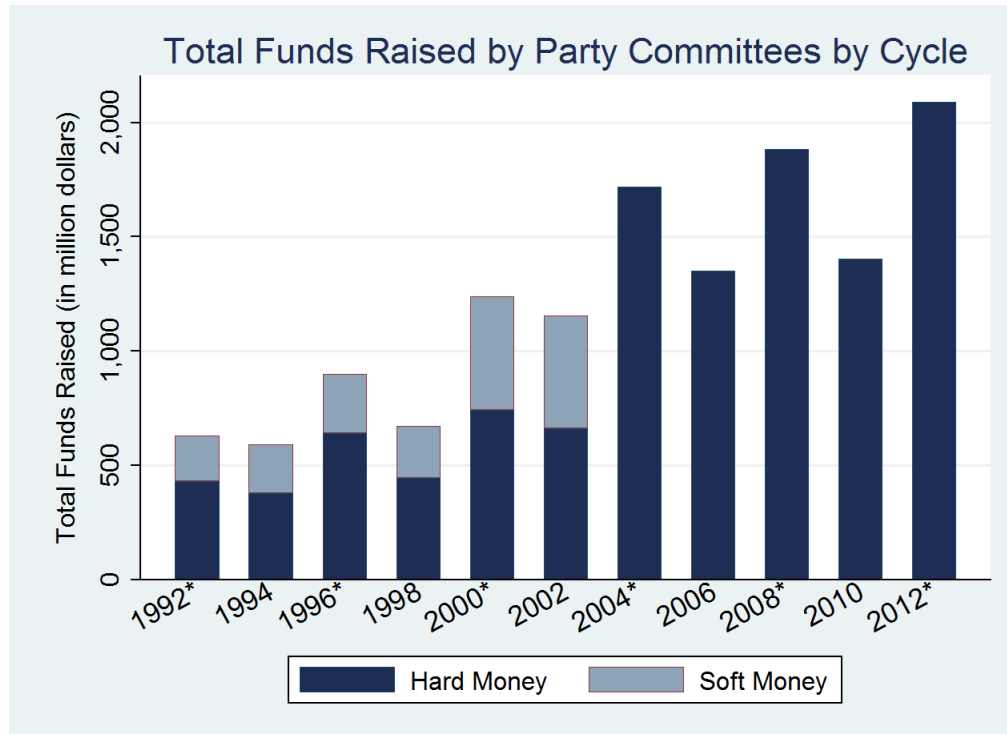
Funds raised by all committees affiliated with the Democratic Party and the Republican Party;
* indicates presidential an election cycle;
Source: Center for Responsive Politics.

not explicitly coordinate with a candidate. For example, a conservative interest group could buy ads condemning legal abortions and link their negative message to a pro-choice candidate in order to defeat him or her. Such ads are often called shame ads.

Mainly motivated by concerns about these two loopholes in campaign finance, then Senators Russ Feingold and John McCain led a longtime effort to pass the Bipartisan Campaign Reform Act of 2002, a.k.a. the McCain–Feingold Act.[2] Title I of the BCRA bans national party committees from raising or spending money not sub-

---

[2]The Senate version did not became law. The version that became law was introduced by Rep. Chris Shays. But the two did not differ much in substance.

ject to contribution limits, even for state and local elections. Title II of the BCRA defines banned corporations, unions, or unincorporated entities from using money from their general treasuries to pay for "electioneering communications", defined as broadcast, cable, or satellite communications identifying a federal candidate made within 30 days before a primary or sixty days before a general election.

1.2.2 McConnell v. Federal Election Commission

Upon the passage of the BCRA, then-Majority Whip Senator Mitch McConnell, a longtime opponent of the BCRA, immediately challenged its constitutionality in the United States District Court for the District of Columbia. A special three-judge panel of the District Court issued a mixed ruling. They struck down provisions related to the soft money ban but upheld others. The ruling never went into effect as it was immediately appealed to the Supreme Court. A section in the BCRA mandates that any constitutional challenge to the act must be filed with the U.S. District Court for the District of Columbia, and reviewed only by a direct appeal to the Supreme Court. This provision was originally intended to reduce uncertainty over the application of the law during election periods. But for our purpose of studying stock price reactions to case developments in the Supreme Court, this feature of the BCRA is helpful in that it skips the usual appeal process at the U.S. Court of Appeals and maintains uncertainty about the final ruling on the law. The Supreme Court agreed to review the case on June 5, 2003 and held a three-hour session for oral arguments on September 8, 2003. These sessions are usually one

hour long. On December 10, 2003, the Court announced a 5-4 decision concluding that "with two minor exceptions, the entire statute is constitutional".[3] The decision to grant review, the oral arguments and the decision announcement are the three events that I study for this case.

1.2.3 Federal Election Commission v. Wisconsin Right to Life, Inc.

This section considers two closely related cases, *Wisconsin Right to Life, Inc. v. Federal Election Commission* (2006), hereafter WRTL I, and *Federal Election Commission* v. Wisconsin Right to Life, Inc. (2007), namely WRTL II. Technically, there are two separate cases, but since they involved the same parties and the litigation was not finally settled until the Supreme Court later ruled in WRTL II, I consider the two cases as one.

Shortly before the Wisconsin primary in 2004, Wisconsin Right to Life, Inc. (WRTL) began to broadcast advertisements alleging that a group of senators were filibustering to delay and block federal judiciary nominees and urged voters to contact Wisconsin Senators Feingold and Kohl to ask them not to support the filibuster. WRTL planned to continue broadcasting in the 30-day pre-primary window and to pay for the ads with money from their general treasury. Anticipating violation of the BCRA provisions on "electioneering communications", WRTL sought declaratory and injunctive relief by suing against the FEC. They argued that the BCRA prohibitions were unconstitutional as applied to the three ads in question and simi-

---

[3]The opinion was written by Chief Justice Rehnquist. The two exceptions prohibited individuals 17 years old or younger from contributing to federal candidates or parties, and required political parties to choose between coordinated or independent expenditures for their nominees.

lar ads they intended to run in the future. The U.S. District Court for the District of Columbia denied a preliminary injunction and subsequently dismissed WRTL's case, citing reasoning in *McConnell v. FEC*. WRTL appealed to the Supreme Court and was granted review on September 27, 2005. The Supreme Court heard the case on January 17, 2006. On January 23, 2006, the Court swiftly issued a *per curiam* decision (WRTL I) vacating the District Court's decision, and remanded the case back to the District Court. The opinion stated that, although the decision in McConnell held that BCRA provisions on "electioneering communications" were constitutional *on its face*, the District Court erred in concluding that the precedent of McConnell forecloses future *as-applied* challenges to BCRA.[4] The brief opinion, based on very technical and narrow grounds, nevertheless opened a door for future as-applied challenges to the BCRA.

The District Court heard the case again and ruled in favor of WRTL. The FEC subsequently appealed to the Supreme Court and formally presented the question of whether as-applied challenges to the prohibition of corporate financing of "electioneering communications" are permitted and, if so, whether the prohibition could be constitutionally applied to the ads pertaining to this case. The Supreme Court granted review to the appellant FEC on January 19, 2007 and heard oral arguments on April 25, 2007. On June 25, 2007, the Supreme Court announced its 5-4 decision (WRTL II) to uphold the lower court's decision in favor of WRTL. In the majority opinion of WRTL II, Chief Justice Roberts maintained that an ad is

---

[4]In *United States v. Salerno* (1987), the Court stated "A facial challenge to a legislative Act is, of course, the most difficult challenge to mount successfully, since the challenger must establish that no set of circumstances exists under which the Act would be valid".

eligible for exemption from prohibitions of "electioneering communications" unless it is "susceptible of no reasonable interpretation other than as an appeal to vote for or against a specific candidate". Consequently, this decision weakened BCRA regulations on "electioneering communications". However, constitutional scholars remain split over the extent of the decision's impact (Briffault, 2008; Levitt, 2010; Persily, 2010). The decision to grant review, oral arguments and decision announcements in both WRTL I and WRTL II are the six events that I study from this case.

1.2.4   Citizens United v. Federal Election Commission

Citizens United, a conservative ideology group, released a negative documentary of Senator Hillary Clinton during her campaign for the presidency in 2008. It was to be distributed through on-demand cable TV and as a DVD with companion book. Citizens United intended to air the film, as well as a commercial advertising the film, within 30 days before Democratic primaries and 60 days before the general election if Senator Clinton had won the Democratic nomination. Anticipating violations of the BCRA provisions on "electioneering communications," Citizens United sought declaratory and injunctive relief at the U.S. District Court for the District of Columbia, arguing that the BCRA prohibition as well as disclaimers and disclosure requirements could not be constitutionally applied to the film and commercial (as-applied challenge). The District Court denied their motion and Citizens United appealed to the Supreme Court, maintaining their as-applied challenge.

13

The Supreme Court granted review on November 14, 2008 and heard the case on March 24, 2009. On June 29, 2009, the Court ordered the counsels to re-argue the case on September 9, 2009 to address the question of whether the Court should overrule either or both of the "electioneering communications" portions of the McConnell decision and an earlier precedent, *Austin v. Michigan Chamber of Commerce* in 1990 (hereafter Austin), in which the Court ruled that it was constitutional to restrict independent expenditures by corporations. Justice Stevens later pointed out in his dissenting opinion that Citizens United did not adapt a position to challenge the *facial* validity of the BCRA provisions on "electioneering communications" before the Supreme Court. By inviting the parties to debate the *facial* constitutional validity of the BCRA provisions on "electioneering communications," the Court jeopardized the principle of judicial restraint. In light of this dissent, the Court's decision to ask for re-argument may signal an intention to overrule Mc-Connell. For this case, the decision to grant review, initial oral arguments, the call for re-argument, the re-argument itself, and the final decision are the five events that I study for this case.

In the final decision of *Citizens United v. Federal Election Commission* on January 21st, 2010, the Supreme Court with a 5-4 majority overturned portions of McConnell concerning "electioneering communications" and an earlier precedent, *Austin v. Michigan Chamber of Commerce* (1990). The Court ruled that corporations, for-profit or not, have a First Amendment right to speech and that the prohibition of "electioneering communications" by the BCRA overburdens corporations' exercise of this right. Therefore, the Court ruled that corporations could

14

spend an unlimited amount of money from their general treasuries to finance express advocacy ads to support or oppose a candidate, as long as such spending was not coordinated with a candidate. Before the BCRA, corporations were allowed to make independent political expenditures as long as they did not expressly advocate for the election or defeat of a clearly identified candidate. The test for express advocacy was whether the ad both clearly identifies a candidate and uses some magic words such as "vote for" or "vote against." However, corporations prior to 2002 had been able to circumvent this restriction by using shame ads, which the BCRA attempted to prohibit.[5] Therefore, the Citizens United decision stuck down not only the BCRA provisions on "electioneering communications," but also portion of the Federal Election Campaign Act that restricted independent expenditures by corporations. The decision also reversed a large body of case law. By stipulating that corporations, for profit or not, have a First Amendment right to free speech, Citizens United represented a dramatic doctrinal shift on campaign finance regulation.

Citizens United did not change limits on direct campaign contributions, soft money bans, or disclaimers and disclosure requirements on independent expenditure. However, following the reasoning of the decision, the U.S. Court of Appeals for the District of Columbia Circuit ruled in *SpeechNow.org v. Federal Election Commission* (2010) that individuals and corporations can donate an unlimited amount of money to political action committees that solely exist to make independent expenditures. This decision gave rise to independent-expenditure-only PACs, commonly known

---

[5]As delineated in *FEC v. Massachusetts Citizens for Life* (1986), a small, restricted class of not-for-profit, political organizations were exempted from the prohibition of making express advocacy. Other entities, including not-for-profit organizations established by a business corporation, remained banned from making express advocacy ads under the Federal Election Campaign Act.

as Super PACs, which emerged in the 2010 midterm elections and were even more prominent in the 2012 presidential election. Super PACs, which are often aligned with specific candidates and managed by former campaign staff of the candidates, are likely to render contribution limits ineffective and disclosure requirements inadequate. The Citizens United group itself is registered as a tax-exempt nonprofit 501(c)4 organization under the U.S. Internal Revenue Code, a type of organization whose primary purpose is promotion of social welfare but that is allowed to engage in political activities. 501(c)4 organizations differ from 527 organizations, which are political organizations such as PACs, candidate committees, and party committees, in that 501(c)4 organizations only have disclosure obligations for independent expenditures but not for detailed sources of donations received. Therefore, the stand-by disclaimers by a campaign ad's sponsor may not adequately reveal information about an ad's financiers. Following Citizens United, there has been a spike in independent expenditures, as shown in Figure 1.2. In 2012, the first presidential election cycle following Citizens United, independent expenditures by outside groups had a more than six-fold increase from the previous presidential election, which had two competitive primaries rather than one in 2012.

1.2.5 Were Judicial Events Likely to Reveal News?

Events surrounding Supreme Court cases on campaign finance regulation will only have substantial impact on firm valuations if the events reveal news to the market. In other words, these events must not have been forecastable. Campaign

Figure 1.2: Total Independent Expenditures by Election Cycle
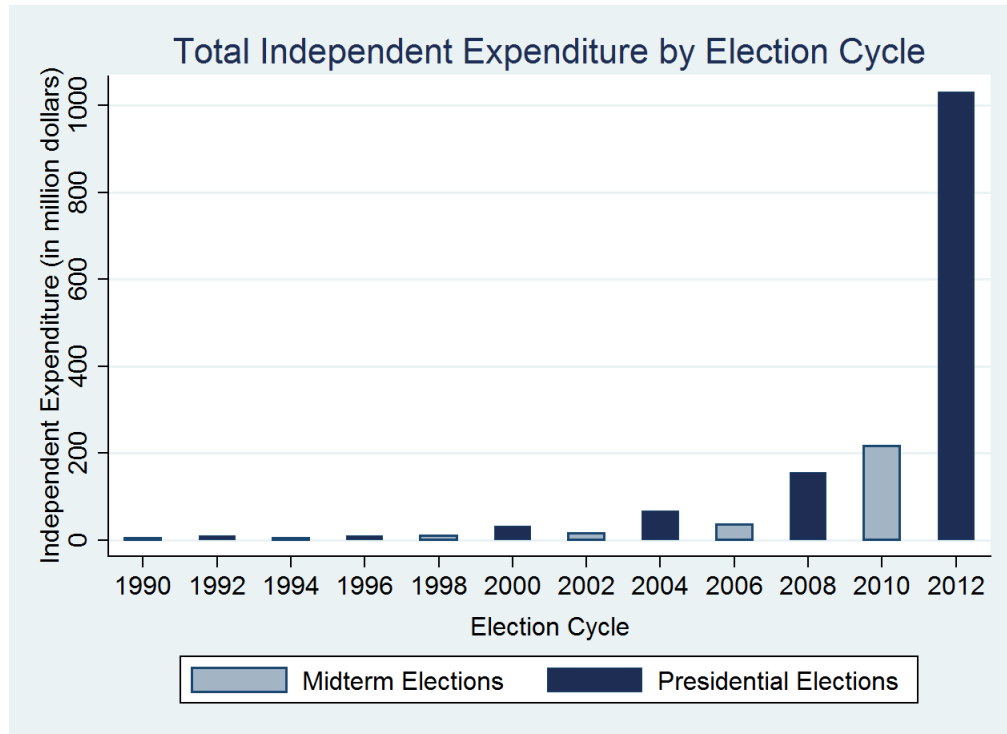
Independent expenditures by outside groups, excluding party committees;
Source: Center for Responsive Politics.

finance has been a controversial area of constitutional law. Cases are often decided by close votes and sometimes no set of views commands an agreement within the voting majority (Briffault, 2008). McConnell, WRTL II, and Citizens United were all 5-4 decisions. There was considerable uncertainty about the outcomes of the cases, which make them suitable for an event study.

Table 1.1 shows which justices were in the majority and minority in the three cases. In McConnell, Justice Sandra Day O'Connor was considered the swing vote. Her retirement in 2006 shifted the balance of the Court on WRTL II and Citizens United. However, Justice O'Connor was in the minority in Austin, in which the majority ruled that forbidding corporations from using their treasury money for

17

independent expenditures to support or oppose a candidate did not violate the First and Fourteenth Amendments, which was one of the critical precedents that the counsels of the FEC relied on to defend the BCRA in McConnell, WRTL II, and Citizens United. Austin was overruled in Citizens United.

In WRTL II, there were two new Court members since McConnell: Chief Justice John Roberts, who clerked for and succeeded Chief Justice Rehnquist, and Justice Samuel Alito, who succeeded Justice O'Connor. Though both were nominated by President George W. Bush and were generally considered conservative, it was unclear how they would vote in WRTL II. Justice Alito did not ask many questions during the oral argument of WRTL II to reveal his opinion.

In Citizens United, there was another new member of the court, as Justice Sonia Sotomayor had succeeded Justice David Souter, who was in the majority of McConnell but in the minority in WRTL II. In fact, the re-argument of Citizens United was the first case heard by Justice Sotomayor on the Court's bench. Another dimension of uncertainty was the extent to which Chief Justice Roberts, as well as Justice Alito, were willing to narrow or reverse McConnell. This uncertainty pertained to both WRTL II and Citizens United. In WRTL, Justices Thomas, Scalia, and Kennedy did not sign on Parts III and IV of the opinion authored by the Chief Justice, as they preferred to overturn McConnell on "electioneering communications" outright. In Citizens United, the Chief Justice devoted a substantial part of the opinion to address the issue of *stare decisis*, the legal principle of respecting precedents.

The decision of WRTL I was *per curiam*. That is, it was designated as a

collective and anonymous decision of the Court. *Per curiam* decisions are typically brief and based on narrow grounds, as was the case for WRTL I, which vacated the decision made by the lower court and remanded it for reconsideration.

Oral arguments can reveal information that might be capitalized into stock prices. How the oral argument proceeds is indicative to how the Justices will later vote. Justices tend to vote against the party toward whom more of their questions are directed (Epstein et al., 2009; Johnson et al., 2009). Their tone and the way they ask questions also matter (Shullman, 2004). Questions asked by the Justices also convey their concerns, which not only hint at which party the Justices intend to vote with, but also suggest whether they intend to decide the case on a broad or narrow ground. Moreover, for new members of the Court, their questions may also be informative of their legal approaches in the particular subject matter of the case, and more generally about their jurisprudence. For example, Epstein et al. (2009) find that Justices differ in their tendency to reverse rulings by lower courts. Iaryczower and Shum (2012) find not only that Justices differ in their ideological predisposition, but that their responsiveness to case-specific information varies as well. Lastly, how well a counsel is able to clarify his or her position and address the concerns of the Justices may sometimes change how a Justice votes (Johnson et al., 2009). In light of information revealed during oral arguments, financial markets could adjust their expectations about the outcomes of the cases, and more importantly about the application of campaign finance laws.

Having a case accepted by the Supreme Court is a crucial first step towards a successful appeal at the high court. Only about 1% of cases filed with the Supreme

Court are granted review, so the mere fact that a case is granted review is itself newsworthy. Expectations on the outcomes and implications of a case may be formed at this point. Moreover, as granting review only requires four votes from the Justices, a Justice with a strong opinion or agenda in an area may strategically select cases to be heard, depending on his or her estimate of the likelihood of securing a fifth vote to decide a case in line with his or her judgment (Toobin, 2007; Stern and Wermiel, 2010). In controversial and divisive areas such as campaign finance law, strategic considerations may be particularly relevant in granting review. For the above reasons, both the decision to grant review and oral arguments are studied as events potentially affecting share prices. However, results are qualitatively unchanged if only Court decisions are included as events.

Table 1.1: Court Memberships and Event Dates

	McConnell v. FEC	WRTL v. FEC	FEC v. WRTL	Citizens United v. FEC
Majority	O'Connor Ginsburg Stevens Breyer Souter	*per curiam*†	Kennedy Thomas Scalia Roberts Alito	Kennedy Thomas Scalia Roberts Alito
Minority	Kennedy Thomas Scalia Rehnquist	- - - -	Ginsburg Stevens Breyer Souter	Ginsburg Stevens Breyer Sotomayor
Granted	June 5, 2003	Sep. 27, 2005	Jan. 19, 2007	Nov. 14, 2008
Oral Argument	Sep. 8, 2003	Jan. 17, 2006	April 25, 2007	March 24, 2009
Re-argument Ordered	-	-	-	June 29, 2009
Re-argument	-	-	-	Sep. 9, 2009
Decision Announced	Dec. 10, 2003	Jan. 23, 2006	June 25, 2007	Jan. 21, 2010

†Court memberships in WRTL v. FEC are the same as in FEC v. WRTL

1.3 Data and Methodology

Data on campaign contributions made by PACs affiliated with business corporations are obtained from the Center for Responsive Politics, which complies data from various sources including the FEC and the Senate Office of Public Records. Corporations whose affiliated PACs contributed in all three election cycles to congressional candidates between 2003 and 2008 are included in the sample of politically active firms. These firms are matched with daily stock price and return data from the Center for Research in Security Prices (CRSP) by their names. The BCRA became effective on November 6, 2002, one day after the 2002 election. The main data consists of the stock returns of 553 matched firms from November 6, 2002 to December 31, 2011. Earlier stock return data are also used in calculating abnormal returns. In the benchmark specification, I use a Fama-French (1992, 1993) three-factor model to calculate abnormal returns. These factors are downloaded from Kenneth French's website. When analyzing heterogeneous reactions in stock prices, I also use financial data of firms taken from COMPUSTAT, and employment data by state and industry from the U.S. Census Bureau, Local Employment Dynamics.

The contributing firms are relatively large. The median contributing firm had a market capitalization of \$5.1 billion on Dec 30, 2011, as compared to \$11.2 billion for a median S&P 500 firm. On average, sample firms account for 12% of listed U.S. firms in the CRSP dataset and for 61% of market capitalization. Figure 1.3 plots the kernel densities of log market capitalization as of Dec. 30, 2011 for both contributing firms and non-contributing CRSP firms. The median amount

of campaign contributions is \$188,000 over the three election cycles. Sample firms span over 312 4-digit SIC industries and 192 3-digit industries. The majority of these firms also reported lobbying expenditures in 2008 and 2009 according to data taken from the Center for Responsive Politics, which compiles data on lobbying expenditures from the Senate Office of Public Records. Table 1.2 reports summary statistics of the data sample of contributing firms as well as the broader universe of CRSP observations.

Figure 1.3: Kernel Density of Log Market Capitalization of Contributing and Non-contributing Firms
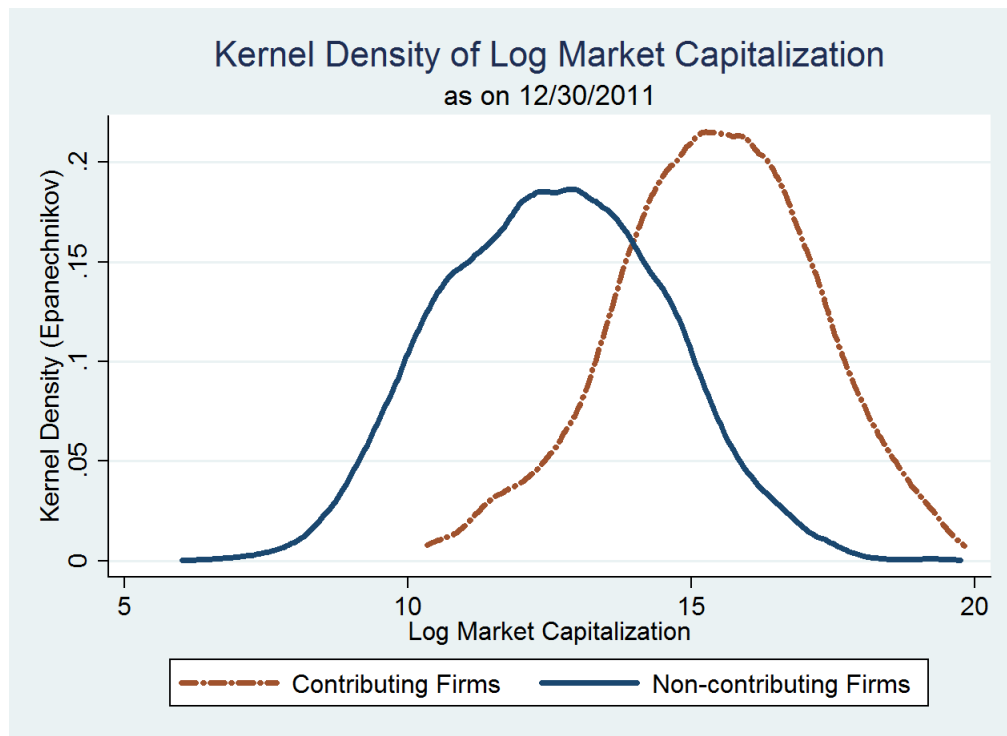
In the baseline specification, I estimate the following model:

$$R_{it} = \alpha + \sum_{e \in E} \sum_{\tau=-5}^{5} \beta_{e,\tau} D_{e,\tau,t} + \epsilon_{it}$$

Table 1.2: Summary Statistics

Sample period	Nov. 6, 2002 - Dec. 31, 2011
All CRSP firms:	
Number of trading days	2305
Market capitalization of median S&P 500 firm*	$11.2 billion
Market capitalization of all firms	$ 13.4 trillion
Average number of trading firms	4471
Total number of firms	9303
Contributed to all three election cycles from 2003 to 2008:	
Number of firms	553
Number of observations	1132742
Median market capitalization*	$ 5.12 billion
Total market capitalization†	$ 8.16 trillion
Lobbied in 2008 and 2009	70%
Median campaign contributions from 2003 to 2008	$ 187,500
Contributed to all six election cycles from 1997 to 2008:	
Number of firms	389
Number of observations	818052
Median market capitalization*	$ 6.69 billion
Total market capitalization†	$ 7.09 trillion
Lobbied in 2008 and 2009	73%
Median campaign contributions from 2003 to 2008	$ 280,500

* As of Dec. 30, 2011

† Average across sample period

where R_{it} is the abnormal return for the stock of firm i on day t, and $D_{e,\tau,t}$ is a dummy variable which takes on a value of one if day t is the τ th day following event e and zero otherwise (negative τ means $|\tau|$ days before event e). There are 14 events associated with the four Supreme Court cases. To allow for possible information leaks and time for the market to digest the news, I look at 5 days before and 5 days after the event days. Thus, each event is associated with 11

dummy variables. However, as shown in the following section, the market seems to be quick to incorporate relevant news into stock prices, and there is only weak evidence that information is leaked before event days. For conservative estimates of stock price reactions to campaign finance deregulation, I focus on event windows no more than 3 days in length in subsequent analysis.

In order to the calculate abnormal return R_{it}, I first estimate the following rolling Fama-French three-factor model for each day and each firm:

$$r_{it} - r_t^f = \alpha_i + \gamma_i(r_t^m - r_t^f) + \delta_i SMB_t + \lambda_i HML_t + \epsilon_{it}$$

where r_{it} is the buy-and-hold stock return for firm i on day t; r_t^f is the risk-free return, equal to the one-day return on a 90-day treasury bill; r_t^m is the return of a market portfolio; SMB_t, small-minus-big, is the return on a portfolio of a small capitalization firms minus that on a portfolio of large capitalization firms; and HML_t, high-minus-low, is the portfolio return of high book-to-market equity firms minus that of low book-to-market ones. Firm i's normal return on day t, denoted by $\hat{r}_{it}$, is the out-of-sample predicted return based on the estimated model for firm i using its stock returns from the one year immediately prior to that day, excluding any day in the event windows:

$$\hat{r}_{it} = r_t^f + \left[\hat{\alpha}_i + \hat{\gamma}_i(r_t^m - r_t^f) + \hat{\delta}_i SMB_t + \hat{\lambda}_i HML_t\right]$$

where $\hat{\alpha}_i$, $\hat{\gamma}_i$, $\hat{\delta}_i$ and $\hat{\lambda}_i$ are estimated using the most recent year of data for firm

i before day t. The abnormal return R_{it} is the actual return minus the predicted normal return:

$$R_{it} = r_{it} - \hat{r}_{it}$$

As my sample period spans almost a decade, using a rolling asset pricing model allows the firm-specific factor loading coefficients γ_i, δ_i and λ_i to change continuously over time. The two-step estimation approach adopted here has the advantage of being more flexible, as compared to a one-step strategy regressing stock returns on factors and dummy variables indicating the occurrence of events at the same time. Standard errors are calculated allowing shocks ϵ_{it} to be correlated within days across firms, and within 3-digit SIC industries across days (Cameron and Trivedi, 2005).

1.4 Results

1.4.1 Main Results

Estimated coefficients of day dummies are combined to give mean cumulative abnormal returns across days and events. Table 1.3 reports the cumulative abnormal returns on the event days and over two or three day event windows for each case as well as for three cases combined. For McConnell, over the 3 days of granting review, oral arguments, and the decision announcement, politically active firms on average have a cumulative abnormal return (CAR) of -0.27%, significant at the 10% level. The stock values of politically active firms are expected to react negatively to the McConnell events, as the decision upheld campaign finance regulations. Over the

6 event days marking the development of WRTL cases, politically active firms on average have a CAR of 0.41%, significant at the 5% level. Over the 5 event days marking the development of Citizens United, the average CAR is 1.01%, significant at the 1% level. I find similar patterns, with larger magnitudes, if I broaden the event window to the 3 days centered around each event. Combining three cases, with estimates for McConnell entering with the opposite sign as that decision upheld campaign finance restrictions, the mean CAR is 1.68% over the 14 event days and 2.21% over the 14 three-day event windows. These results suggest that relaxing legal constraints on political spending by corporations subsequently increases the stock value of firms that actively participate in the electoral process.

Table 1.3: Cumulative Abnormal Returns (%) around Key Developments of Cases: by Case and Combined

$[\tau_0, \tau_1]$	McConnell v. FEC	FEC v. WRTL	Citizens United v. FEC	Citizens United + WRTL - McConnell	
	3 Events	6 Events	5 Events	14 Events	4 Decisions only
[0,0]	-0.269*	0.408**	1.012***	1.689***	0.391
	(0.160)	(0.166)	(0.260)	(0.292)	(0.443)
[−1,+1]	-0.385	0.906***	1.029**	2.206***	1.535**
	(0.293)	(0.303)	(0.422)	(0.581)	(0.775)
[−1,0]	-0.412*	0.472**	1.166***	1.936***	0.719
	(0.225)	(0.236)	(0.371)	(0.415)	(0.661)
[0,+1]	-0.242	0.842***	0.875***	1.959***	1.207**
	(0.222)	(0.253)	(0.301)	(0.463)	(0.566)

Standard errors in the parentheses are clustered two-way, by day and by 3-digit SIC. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

The left two columns in Table 1.4 report the mean abnormal return over the 14 sample events (again with McConnell entering with an opposite sign) for each day in an eleven-day window centered around the event days. Let Day 0 be the event day. Only Day 0 and Day 2 have statistically significant abnormal returns across events at the 5% level. Day 0 has a positive average abnormal return of 1.69%, while Day 2 has a negative average abnormal return of -1.24%. The negative returns on Day 2 would invalidate our previous conclusions if we believe that investors takes 2 days to digest the event information and realize that deregulation in campaign finance is bad for business. However, this is not the case. The mean CAR from Day 0 through Day 2 after the four Court decisions is 0.95%, significant at 2% level. As reported in the bottom rows of middle two columns, the CAR across 14 events starting from Day 0 is always positive. Reported in the right two columns, CARs measured on an 11-day event window centered around Day 0 are large and positive at 1.93%, albeit imprecisely estimated. The abnormality on Day 2 is likely due to confounding factors, such as industry-wise shocks. In fact, the negative CAR on Day 2 is not robust to alternative measures of abnormal returns as detailed in the next section.

Table 1.4: Cumulative Abnormal Returns (%) around Key Supreme Court Developments of the Three Litigations

			14 Events: Citizens United + WRTL - McConnell		
τ	$\sum\limits_{e \in E} \beta_{e,\tau}$	$[\tau_0, \tau_1]$	$\sum\limits_{\tau_0}^{\tau_1} \sum\limits_{e \in E} \beta_{e,\tau}$	$[\tau_0, \tau_1]$	$\sum\limits_{\tau_0}^{\tau_1} \sum\limits_{e \in E} \beta_{e,\tau}$
-5	0.135	$[-5, 0]$	3.022***	-	-
	(0.580)		(0.817)		
-4	0.685	$[-4, 0]$	2.883***	-	-
	(0.489)		(0.725)		
-3	0.221	$[-3, 0]$	2.286***	-	-
	(0.478)		(0.825)		
-2	0.130	$[-2, 0]$	2.066***	-	-
	(0.477)		(0.497)		
-1	0.247	$[-1, 0]$	1.936***	-	-
	(0.403)		(0.415)		
0	1.689***	$[0, 0]$	1.689***	$[0, 0]$	1.689***
	(0.292)		(0.292)		(0.292)
+1	0.270	$[0, +1]$	1.959***	$[-1, +1]$	2.206***
	(0.404)		(0.463)		(0.581)
+2	-1.240***	$[0, +2]$	0.719	$[-2, +2]$	1.405
	(0.460)		(0.779)		(0.965)
+3	-0.098	$[0, +3]$	0.621	$[-3, +3]$	1.138
	(0.401)		(0.738)		(1.310)
+4	-0.563	$[0, +4]$	0.208	$[-4, +4]$	1.322
	(0.789)		(0.730)		(0.853)
+5	0.817*	$[0, +5]$	0.676	$[-5, +5]$	1.929
	(0.474)		(0.896)		(1.183)

Standard errors in the parentheses are clustered two-way, by day and by 3-digit SIC.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

The market seems to be quick in reacting to new information. From the left column of Table 1.4, the average abnormal return on Day 1 is positive but modest and insignificant. The CARs over windows ending on the event day are all positive and significant, while the CARs over windows starting on the event day become imprecise after Day 1. The mean abnormal returns for each individual day from Day -5 to Day -1 are all positive. However, these returns are not significant, whether individually or combined. Hence, there is at best limited evidence of systematical information leaks before the event day. However, this may not be the case for the decision announcement of Citizens United. On January 20, 2010, at the end of the Wednesday regular morning sections of oral argument, the Court announced that there was going to be a special section starting at 10AM the next day to issue one or more decisions of cases previously heard. Longtime Supreme Court reporter Lyle Denniston, as well as reporters from *The Washington Post* and *The New York Times*, blogged about this unusual move on that day. As it had been more than one and a half year since Citizens United was initially filed with the Supreme Court, observers expected the special section to include the long-awaited decision of Citizens United. Moreover, there was speculation that the decision was going to be controversial. This speculation was, of cause, correct. Justice Stevens, 89 years old, labored for an usually long 20 minutes to announce his dissent. Figure 1.4 shows that on the decision day, the volume of Google searches for "Citizens United" jumped from virtually zero to four times as high as average daily search volume in January 2010, then peaked at one day after the announcement of the decision. The sudden hike of search volume suggests that the public did not anticipate the

decision of Citizens United.

Citizens United was a very unpopular decision. An ABC News/The Washington Post poll conducted in early February 2010 found that 80 percent of respondents opposed the Court's decision, including 65% who strongly opposed it. Citizens United was the only decision announced that day. The Wall Street Journal reported the decision of Citizens United at the top of its front page. The average abnormal return for politically active firms on this day was 0.39%, significant at the 5% level.

Figure 1.4: Search and News Reference Volume of *Citizens United*
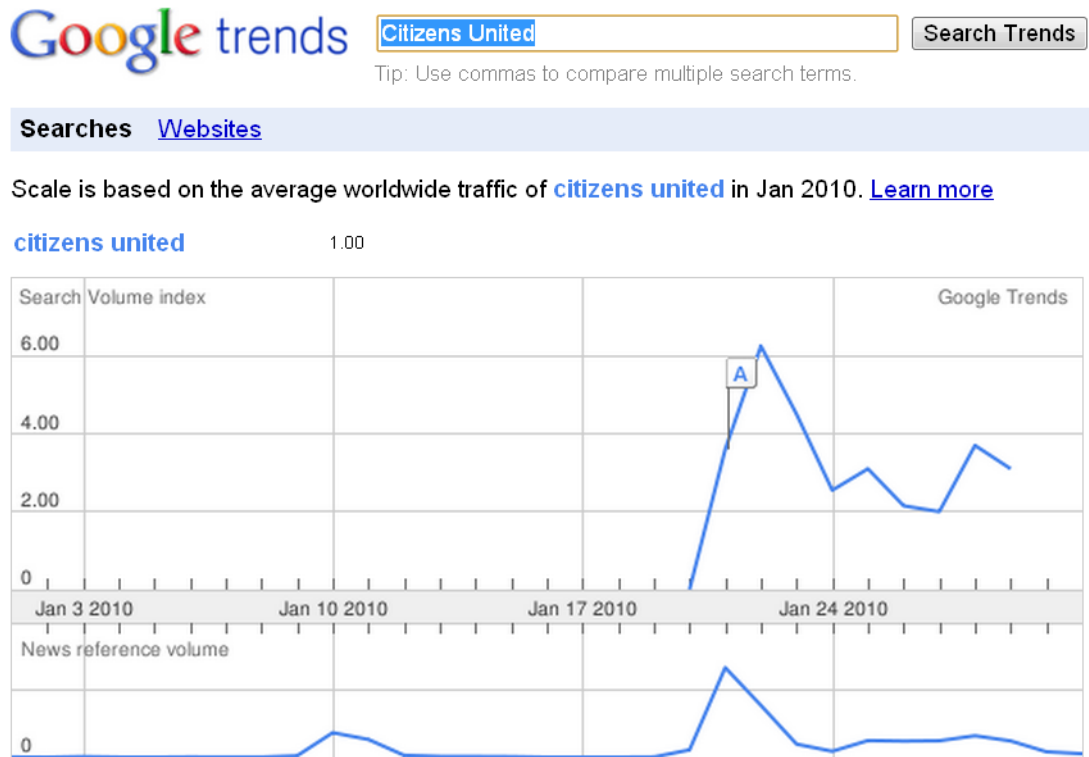
Table 1.5 reports the CARs by type of event. As mentioned, stock returns around both review granting and (initial) oral arguments react in the same way as they do around the decisions. Ordering re-argument and the proceeding of re-

argument are associated with negative CARs. In retrospect, the re-argument order has been seen as an invitation by the Court majority to challenge the facial validity of the BCRA. But ex ante, it was arguably unclear whether it was possible for the Court to overrule McConnell and Austin. However, this discussion may be moot, as the negative CRA associated with re-argument events is not robust to alternative measures of abnormal returns considered in the next section. The combined CARs by day and by event window starting from Day -5 are plotted in Figure 1.5 and Figure 1.6 respectively.

Table 1.5: Cumulative Abnormal Returns around Key Developments of Cases: by Development Type and Combined

Citizens United + WRTL - McConnell

$[\tau_0, \tau_1]$	All Combined 14 Events	Granting Review 4 Events	Oral Argument 4 Events	Re-argument 2 Events	Decision 4 Events
$[0,0]$	1.689***	0.534***	0.840**	-0.076	0.391
	(0.292)	(0.208)	(0.344)	(0.213)	(0.443)
$[-1,+1]$	2.206***	0.754	0.799**	-1.328*	1.535**
	(0.581)	(0.496)	(0.355)	(0.694)	(0.775)
$[-1,0]$	1.936***	0.964***	1.409***	-1.042**	0.719
	(0.415)	(0.287)	(0.326)	(0.421)	(0.661)
$[0,+1]$	1.959***	0.325	0.230	-0.362	1.207**
	(0.463)	(0.403)	(0.345)	(0.473)	(0.566)

Standard errors in the parentheses are clustered two-way, by day and by 3-digit SIC. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Figure 1.5: Combined Cumulative Abnormal Returns: By Day
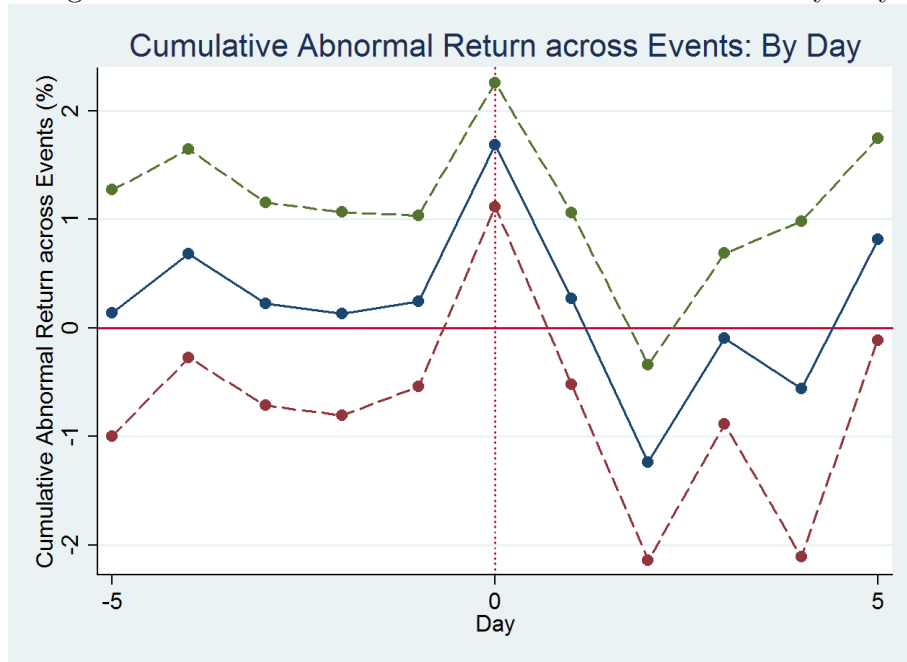
Figure 1.6: Combined Cumulative Abnormal Returns: Event Windows from Day -5
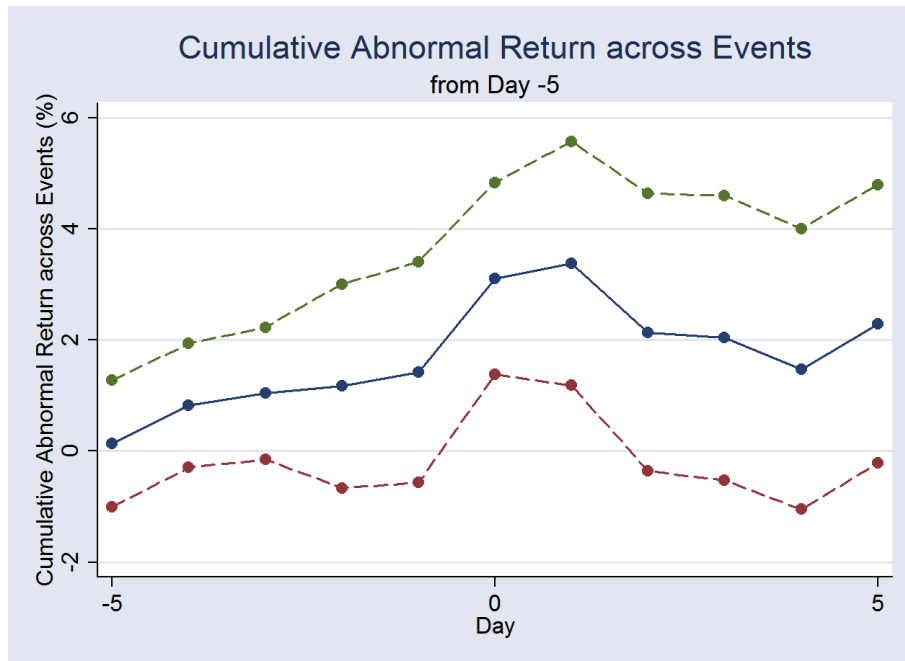
Notes: Dash lines indicate 95% confidence intervals.

1.4.2 Alternative Measures of Stock Returns and Sub-sample of Firms

This section provides results using alternative ways of measuring abnormal returns. First, I start with a simple measure of abnormal returns, namely returns in excess of the return of a market portfolio. Second, I augment a Fama-French three-factor model with an extra factor, the return of an industry portfolio. The industry portfolio is a value weighted portfolio of firms that never contributed in the three election cycles from 2003 to 2008, within the same 3-digit Standard Industry Classification (SIC) of a contributing firm. This measure controls for industry-wide shocks, which may confound our baseline results. Third, I measure the abnormal return as the firm's raw return minus the return of the industry portfolio constructed above. Finally, I measure the abnormal return as the raw return of the contributing firm in excess of a matched non-contributing firm. The matching firm is selected from a set of firms which (i) never contributed in the six election cycles from 1997 to 2008; and (ii) fall within the same 3-digit SIC industry of the contributing firm. Following Dube et al. (2011), contributing firm i is matched to the non-contributing firm m within the firm's 3-digit SIC that minimizes the Mahalanobis distance between the two firms:

$$\underset{m \in SIC3(i)}{\arg\min} \left\{ \sqrt{(d_i - d_m)'V^{-1}(d_i - d_m)} \right\}$$

where d_i and d_m are vectors of measures for firm i and firm m respectively. The vector d includes the mean and standard deviation of daily returns, average daily market capitalization, and factor loading betas from a Fama-French three-factor

model.[6] V is the diagonal matrix of the variance-covariance matrix of the above estimated measures in the corresponding (monthly) matching period.

Drazen et al. (2007) argue that a moderate contribution cap may improve the bargaining position of special interest groups vis-à-vis politicians. The resulting higher rents, in turn, induce entry to the lobbying process. They find evidence of cap-induced entry of PACs at the state level. To minimize the potentially confounding effect of endogenous entry, I re-do the previous analysis using a subsample of firms that also contributed in all three of the election cycles before the BCRA came into effect.

Table 1.6 reports results from the above robustness tests. The upper panel uses the baseline sample of firms contributing to all three election cycles from 2003 to 2008. The lower panel uses a sample of firms contributing to all six election cycles from 1997 to 2008. As compared to baseline results (reported in the first column in the upper panel), results using alternative measures of abnormal returns and/or the sub-sample of firms are qualitatively unchanged. For the larger sample, the average cumulative return in excess of market returns over the 14 event days is negative but imprecisely estimated. However, the average cumulative return in excess of market returns over a three-day window is positive and significant at 3.8%, larger than the baseline result. The negative estimated average cumulative return in excess of market on event days is due to two events, granting review and oral arguments of Citizens United. Both of these events took place during a period of elevated

---

[6]Estimates of factor loading coefficients are updated monthly for each firm, again estimated using data within one calendar year immediate before, excluding any event window studied here; Mean and standard deviation of daily returns, and average daily market capitalization are also updated monthly.

financial turbulence due to the sub-prime mortgage crisis. In the 6 months starting from October 1st, 2008, the stock market lost more than one third of its value. On these 2 event days, the S&P 500 index fell by 2% and 4% respectively. This makes it particularly important to control in a flexible way for the risk factors contributing to stock movements. Taking out these two events, the average cumulative return in excess of market returns is positive. This is because the return in excess of market return, $r_{it} - r_{mt}$, effectively imposes a β of one across all firms, while other columns allow for β to vary by firm and over time. Other specifications allowing for flexible control of risk factors report positive and significant abnormal returns for politically active firms. Moreover, controlling for industry returns, as reported in the last three columns of Table 1.6, slightly attenuate the cumulative abnormal returns. However, these CARs mostly remain statistically significant. Results are similarly robust for the subsample of firms contributing, both before and after BCRA.

Table 1.6: Alternative Measures of Cumulative Abnormal Returns

14 Events: Citizens United + WRTL - McConnell

Firms Contributing in All Three Cycles from 2004 to 2008.

$[\tau_0, \tau_1]$	Fama-French 3 Factors	Return in Excess of Market	Fama-French 3 & Industry	Return in Excess of Industry	Return in Excess of Matched
[0,0]	1.689***	-0.470	1.151***	1.518***	1.912***
	(0.292)	(0.384)	(0.361)	(0.539)	(0.557)
[−1,+1]	2.206***	3.801***	1.715***	1.720*	0.678
	(0.581)	(0.756)	(0.597)	(0.929)	(0.802)
[−1,0]	1.936***	2.057**	1.203**	1.090	1.622**
	(0.415)	(0.908)	(0.593)	(0.796)	(0.776)
[0,+1]	1.959***	1.274*	1.663***	2.148**	0.968
	(0.463)	(0.683)	(0.471)	(0.855)	(0.672)

Firms Contributing in All Six Cycles from 1998 to 2008.

$[\tau_0, \tau_1]$	Fama-French 3 Factors	Return in Excess of Market	Fama-French 3 & Industry	Return in Excess of Industry	Return in Excess of Matched
[0,0]	1.910***	0.382	1.518***	2.127***	2.317***
	(0.373)	(0.489)	(0.424)	(0.563)	(0.844)
[−1,+1]	2.028***	3.823***	1.422**	1.321	0.838
	(0.656)	(0.593)	(0.633)	(1.052)	(1.148)
[−1,0]	2.119***	2.596***	1.322**	1.105	2.050*
	(0.488)	(0.715)	(0.588)	(0.829)	(1.116)
[0,+1]	1.818***	1.610**	1.618***	2.343**	1.105
	(0.546)	(0.807)	(0.534)	(0.954)	(0.909)

Standard errors in the parentheses are clustered two-way, by day and by 3-digit SIC. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

1.4.3   Uniform Rank Test

Given that the number of events is small, a test based on large sample asymptotics may have a distorted test size due to the non-normality of the distribution of stock returns. Dube et al. (2011) propose a nonparametric small sample exact test that does not depend on asymptotic normality. The test, called the uniform rank test, utilizes the fact that the cumulative distribution function (CDF) of a random variable follows a uniform distribution over $[0, 1]$. The sum of M independently, identically, and uniformly distributed random variables with support $[0, 1]$, denoted by Q_M, has the following CDF:

$$F_{Q_M}(x) = \sum_{j=0}^{M} \left(\frac{(-1)^j (x-j)^M \mathbf{1}(x \geq j)}{j!(M-j)!} \right). \tag{1.1}$$

This provides a basis for a finite sample test free of distributional assumptions. To implement the test, I calculate the average daily abnormal return across the contributing firms over the sample period from November 6, 2002 to December 30, 2011. The average abnormal return for each event day is ranked against the average abnormal returns of other days outside of any 11-day event window to obtain a quantile statistic. The quantile statistic should be fairly precisely estimated because (i) for each day the number of contributing firms is large; (ii) there are 2158 days of abnormal returns for contributing firms outside of any event windows; and (iii) order statistics converge fast. Quantiles for each event, with those associated with McConnell replaced with their distance from one, are summed to generate a test

statistic. Under the null hypothesis that abnormal returns have the same distribution on event and non-event days, this test statistic would be close to 7, the average sum of 14 uniformly distributed random variables over the unit interval. If the test statistic is sufficiently high, based on the one-tail p-value calculated according to Eq. (1), one can conclude that campaign finance deregulation is associated with significantly higher stock values. I construct similar quantiles and test statistics for average CARs over 2- and 3-day event windows. Table 1.7 reports the combined mean CARs of the 14 events using various measures of abnormal returns as well as the associated p-values from the uniform rank test, for both the full sample and the subsample of firms contributing in all six election cycles. Because the point estimates of CARs in Table 1.7 are simple averages of various measures CARs over the event windows, they slightly differ from those reported in Table 1.6, which are obtained from adding up estimated coefficients of dummy variables indicating event days. These results confirm the baseline results.

Table 1.7: Mean Cumulative Abnormal Returns and Uniform Rank Test

14 Events: Citizens United + WRTL - McConnell

Firms Contributing in All Three Cycles from 2004 to 2008.

$[\tau_0, \tau_1]$	Fama-French 3 Factors		Return in Excess of Market		Fama-French 3 & Industry		Return in Excess of Industry		Return in Excess of Matched	
	CAR(%)	p-value	CAR(%)	p-value	CAR(%)	p-value	CAR(%)	p-value	CAR(%)	p-value
$[0,0]$	1.620***	0.006	-0.283	0.490	1.190**	0.016	1.473**	0.021	1.921**	0.023
$[-1,+1]$	2.116**	0.026	4.310**	0.015	1.796*	0.052	1.814	0.161	1.072	0.147
$[-1,0]$	1.914**	0.050	2.379**	0.048	1.245	0.166	1.230	0.318	2.007	0.199
$[0,+1]$	1.823**	0.011	1.649	0.145	1.740**	0.012	2.058*	0.078	0.986*	0.071

Firms Contributing in All Three Cycles from 2004 to 2008.

$[\tau_0, \tau_1]$	Fama-French 3 Factors		Return in Excess of Market		Fama-French 3 & Industry		Return in Excess of Industry		Return in Excess of Matched	
	CAR(%)	p-value	CAR(%)	p-value	CAR(%)	p-value	CAR(%)	p-value	CAR(%)	p-value
$[0,0]$	1.845***	0.006	0.542	0.193	1.536***	0.007	2.055***	0.006	2.312**	0.010
$[-1,+1]$	1.990*	0.061	4.321***	0.009	1.464*	0.064	1.385	0.225	1.241*	0.087
$[-1,0]$	2.146**	0.037	2.933**	0.014	1.348*	0.076	1.240	0.263	2.459*	0.078
$[0,+1]$	1.688**	0.024	1.930*	0.065	1.652**	0.013	2.199	0.114	1.094**	0.039

p-values are from one-side uniform rank tests; * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

1.4.4   Outliers and Heterogeneity

Results from simple averages of cumulative abnormal returns and associated nonparametric tests, as reported in Table 1.7, suggest that the main results are unlikely to be driven by outliers. However, if the main results are driven by a small set of firms benefiting extraordinarily from the deregulation of campaign finance, our baseline results are susceptible to an overly broad interpretation. To address this concern, I carry out various methods limiting the influence of stocks with extreme movements. First, I apply the least absolute deviation (LAD) method, which is robust to outliers. If the effects of multiple events on a median firm's stock value are additive, LAD estimates can also be interpreted as the combined effect on the median firm's stock value. Second, stocks whose prices are volatile over time are down weighted in least squares estimates. I apply the Weighted Least Square (WLS) method where weights are inversely proportional to the firm's standard deviation of abnormal returns throug out the sample period. Third, stock returns that fall in either tail of the daily returns distribution are trimmed. As reported in Table 1.8, estimates using these alternative methods continue to yield positive and significant impacts of deregulation on stock prices, although the magnitudes are a bit smaller.

Table 1.8: Robustness to Outliers

14 Events: Citizens United + WRTL - McConnell

	Least Absolute Deviation	Weighted Least Squares	Both 1% Tails Trimmed, Daily	Both 5% Tails Trimmed, Daily	Both 10% Tails Trimmed, Daily
[0, 0]	0.869***	1.238***	1.425***	1.104***	0.923***
	(0.266)	(0.253)	(0.315)	(0.308)	(0.199)
[−1, +1]	1.480***	2.322***	2.007***	1.746***	1.552***
	(0.462)	(0.396)	(0.452)	(0.382)	(0.292)
[−1, 0]	0.967**	1.703***	1.683***	1.290***	1.002***
	(0.376)	(0.285)	(0.279)	(0.314)	(0.240)
[0, +1]	1.382***	1.856***	1.750***	1.560***	1.473***
	(0.376)	(0.296)	(0.424)	(0.315)	(0.216)

Dependent variables are abnormal returns from a rolling Fama-French three-factor model.

All estimates are based on the specification as reported in the first column of Table 1.6.

The first column contains Least Absolute Deviation estimates.

In the 2nd column, weights are the inverse of the firm's standard deviation of abnormal returns through out the sample period.

In the last three columns, $q\%$ on either tail of daily FF-3 abnormal returns are trimmed, $q\%$ being 1%, 5% and 10% respectively.

In the last four columns, standard errors in the parentheses are clustered two-way, by day and by 3-digit SIC.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

While my main results do not appear to be driven by outlier firms, it is likely that some firms will benefit more from loosened campaign finance law than others. In the remainder of this section, I explore two possible sources of heterogeneity.

The first characteristic relates to the growth prospects of a firm. Sunset industries are known to be more successful than others in tilting policy in their favor (Grossman and Helpman, 1996; Baldwin and Robert-Nicoud, 2007). Baldwin and Robert-Nicoud (2007) argue that, for sunset industries, rents generated by lobbying are not eroded by new firms. Firms in sunset industries incurred a sunk fixed investment in the past. While their assets may be costly to replace, they are expected to generate limited cash flows in the future. For these industries, the fair value of assets calculated from discounted expected cash flows is low relative to their replacement cost. As long as rents from lobbying are not too high, they induce no entry and incumbents can therefore enjoy all the rents. This is not true for growing industries. In these industries, capital stocks are expanding, adjustments to capital stocks are frequent, and the replacement value of assets should be close to fair value. Higher rents could induce new firm entry, which in turn would dissipate rents.

Consistent with this argument, I find that firms with low profit margins, low net capital expenditures, and high book-to-market ratios of equity have higher abnormal returns on event days loosening campaign finance laws. I pool the abnormal returns over the 14 event days and regress them over proxies of growth prospects (or lack thereof). Event dummy variables are also included in the regression.Table 1.9 reports the univariate and multivariate regression results. Profit margin is defined as earnings before interest, taxes, depreciation, and amortization (EBITDA) divided

by total revenue in the latest fiscal year. Net capital expenditure is the capital expenditure net of depreciation, normalized by total revenue in the latest fiscal year. The book-to-market ratio of assets measures the replacement value of total assets related to the market value of a firm (to creditors and equity holders). A higher value for this measure indicates that lower growth prospects are priced into a firm's value. Notice that a negative relationship between growth prospects and abnormal returns on event days is not likely due to risk factors common to all low growth firms, as I accounted for such factors in the Fama-French three-factor model used to calculate abnormal returns.[7]

---

[7]In the baseline Fama-French three-factor model used in this paper, one risk factor is book-to-market equity. Regression using book-to-market equity instead of book-to-market assets provides even stronger statistical relationship between growth prospects and abnormal returns on event days.

Table 1.9: Growth Prospects and Abnormal Returns on Event Days

Dependent Var.	Daily FF-3 Abnormal Returns of Contributing Firms (Negative of AR for *McConnell v. FEC* Event Days)			
	Coeff./(S.E.)	Coeff./(S.E.)	Coeff./(S.E.)	Coeff./(S.E.)
Profit Margin	-0.496**			-0.313
	(0.222)			(0.261)
Book-to-Market Assets		0.431***		0.355**
		(0.146)		(0.149)
Net Capital Expenditure / Total Revenue			-1.379**	-1.437**
			(0.570)	(0.575)

Summary Statistics of Explanatory Variables:

Mean	0.200	0.728	0.019	
Median	0.182	0.754	0.002	
Standard Deviation	0.245	0.457	0.062	
Interquartile range	0.178	0.384	0.034	
F.E.	Event	Event	Event	Event
S.E. Method	Cluster by Firm	Cluster by Firm	Cluster by Firm	Cluster by Firm
R-Squared	0.006	0.007	0.006	0.008
# Observations	5464	5467	5303	5069

The specification is: $AR_{it} = \alpha + \beta G_{it} + \delta_t + \epsilon_{it}$, where the dependent variables, AR_{it}, are abnormal returns of firm i in event t from a rolling Fama-French three-factor model, in percentage;

δ_t is an event fixed effect; and G_{it} is one or all of the following measures of growth prospects:

Profit Margin is earnings before interest, taxes, depreciation and amortization divided by total revenue in the latest fiscal year;

Book-to-market Assets is the ratio of total book assets divided by total market value of a firm, i.e. the market equity value plus total liability;

Net capital expenditure is total capital expenditure subtracted by depreciations in the latest fiscal year;

Financial ratios are trimmed at 1% on either tail of their distributions.

$* \ p < 0.10; ** \ p < 0.05; *** \ p < 0.01.$

47

Abnormal return on event days are also correlated with the concentration of an industry's employment across states. Conditional on overall employment, industries whose employment is concentrated in a few states are likely to have more influence on legislators, even without resorting to campaign contributions or auxiliary electoral spending. Re-election concerns alone would motivate congressional delegates from states with a large number of voters employed by a particular industry to promote bills in favor of the industry and block bills detrimental to the industry. Cohen et al. (2012) find that senators' votes on bills pertaining to large industries in their states predict subsequent stock performance of these industries, which suggests that senators possess superior information regarding the impact of bills on industries in their states and vote in line with the interest of such industries. Whether lobbying is considered as information transmission as in Grossman and Helpman (2001), or as subsidizing legislative effort to friendly legislators as in Hall and Deardorff (2006), it seems likely that industries whose employments is concentrated in just a few states are better positioned to lobby than industries where employment is geographically dispersed.

To the extent that money could partially make up for an industry's lack of effective representation in Congress, loosening campaign finance regulation could be especially beneficial to industries with employment scattered across states (Bombardini and Trebbi, 2011). To measure the geographical concentration of an industry's employment, I construct three variables as follows. Let e_{ij} be employment of industry i's employment in state j. Then I define:

$$\text{Herfindahl Index} = \sum_j \left(\frac{e_{ij}}{\sum_j e_{ij}} \right)^2$$

$$\text{Concentration Index} = \sum_j \left(\frac{e_{ij}}{\sum_i e_{ij}} - \frac{\sum_j e_{ij}}{\sum_i \sum_j e_{ij}} \right)^2$$

$$log(1 + \#Top5) = log(1 + \text{Number of States in which industry } i \text{ is a top 5 employer})$$

The Herfindahl index is the sum of squared state shares of an industry's employment. The concentration index is the sum of squared deviations of an industry employment fraction in a state from its employment fraction nationally. The last measure is a log transformation of the number of states in which a firm's industry is a top 5 employer. Since the an industry's national employment is controlled for in the regression, this measures capture the concentration of an industry's employment.

As reported in Table1.10, geographic concentration of employment tends to reduce the abnormal returns resulting from campaign finance deregulation. A one standard deviation increase in either of the two concentration indices lowers the abnormal returns by about 0.06 percentage point on each event day, implying an overall decline in the CAR across 14 events of 0.8 percentage point, which is substantial when compared to the average baseline CAR (1.689 percentage points).[8] The number of states in which an industry is a top 5 employer also is negatively related to abnormal returns around event days, though with weaker statistical power and a smaller effect.

[8]Again, abnormal returns on event days related to McConnell enter in opposite sign.

Table 1.10: Industrial Employment Concentration Across States and Abnormal Returns

Dependent Variable:	Daily FF-3 Abnormal Returns of Contributing Firms (Negative of AR for *McConnell v. FEC* Event Days)		
	Coeff./S.E.	Coeff./S.E.	Coeff./S.E.
Herfindahl Index	-0.981**		
	(0.384)		
Concentration Index		-0.891**	
		(0.351)	
$log(1 + \#Top5)$			-0.012*
			(0.007)
Industry's Share of	-3.431*	-1.941	5.843
National Employment	(2.071)	(2.054)	(4.536)
# Obs.	5718	5718	5718
S.E. method	Cluster by firm	Cluster by firm	Cluster by firm
F.E.	Event	Event	Event

The specification is: $AR_{it} = \alpha + \beta C_{it} + \delta_t + \epsilon_{it}$, where AR_{it} is the abnormal return of firm i in event t; δ_t is a event fixed effect; and C_{it} is one of the employment concentration measures defined below:

Let e_{ij} be employment of industry i's employment in state j,

Herfindahl Index= $\left(\frac{e_{ij}}{\sum_j e_{ij}} \right)^2$

Concentration Index= $\sum_j \left(\frac{e_{ij}}{\sum_i e_{ij}} - \frac{\sum_j e_{ij}}{\sum_i \sum_j e_{ij}} \right)^2$

$log(1 + \#Top5) = log(1 + $ No. of States in which industry i is top 5 industry by employment)

Constants are included but not reported.

Industries are at 3-digit of NACIS. Dependent variable is measured in percentage point.

One standard deviation of Herfindahl and Concentration index are 0.064 and 0.074 respectively.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

1.4.5 Do Campaign Finance Decision Affect the Overall Market?

One rationale for campaign finance regulation is to restrict unfair influence by big corporations with a vast amount of money. Without restrictions on political spending, large corporations, individually and as a group, may exercise undue influence on the electoral process to obtain policies biased toward them. On the other hand, the benefits of a pro-big-business policy environment may not be limited to politically active firms as defined here.

There is some support in the data for the idea that some politically inactive firms may benefit from loosening campaign finance restrictions. On days with developments leading to campaign finance deregulation, firms with small market capitalization perform poorly relative to firms with large market capitalization. The upper panel of Table 1.11 reports cumulative returns of the small-minus-big (SMB) Fama-French factor over the 14 case events, again with McConnell returns entering with an opposite sign. The Fama-French SMB factor, which is the return differential between value-weighted portfolios of firms below and above median market capitalization, has a cumulative return of -4.12% over the 14 event days, with a p-value of 0.071 from a uniform rank test analogous to previous one. However, this result loses its statistical significance if a wider event window is used.

Table 1.11: Implications of Campaign Finance Deregulations for Board Market

14 Events: Citizens United + WRTL - McConnell

Cumulative Returns of Fama-French Factors and Uniform Rank Test

	Market Return (CRSP All Firms Portfolio)		Small-minus-Big (Market Capitalization)		High-minus-Low (Book-to-market Equity Ratio)	
$[\tau_0, \tau_1]$	%	p-value (neg. effect)	%	p-value (neg. effect)	%	p-value (pos. effect)
$[0, 0]$	-7.025	0.165	-4.120*	0.071	1.480*	0.059
$[-1, +1]$	-0.538	0.262	1.160	0.552	6.240*	0.062
$[-1, 0]$	3.873	0.588	-2.090	0.250	5.900**	0.012
$[0, +1]$	-11.438*	0.088	-0.870	0.236	1.820	0.198

Average Returns of Portfolio by Size and Book-to-Market Equity Ratio around Events:
Coefficients of Interactions between Event Indicator and Quintile Number

	Size Quintile Smallest (QU1) to Largest (QU5)		Book-to-Market Quintile Growth (QU1) to Value (QU5)	
$[\tau_0, \tau_1]$	Coeff. (S.E.)	p-value	Coeff. (S.E.)	p-value
$[0, 0]$	0.093**	0.027	0.060***	0.000
	(0.042)		(0.007)	
$[-1, +1]$	0.004	0.875	0.027***	0.000
	(0.028)		(0.004)	
$[-1, 0]$	0.036	0.238	0.037***	0.000
	(0.031)		(0.001)	
$[0, +1]$	-0.015	0.626	-0.004	0.238
	(0.031)		(0.003)	

p-values in the upper panel are from one-side uniform rank tests;

In the lower panel, standard errors in the parentheses are clustered two-way, by day and by quintile.

Quantile-specific intercepts and quantile-specific reaction to market excess returns are included but not reported.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

52

With campaign finance deregulation, firms whose prices suggest lower growth prospects (i.e. value firms), also perform well relative to growth firms. The high-minus-low (HML) Fama-French factor is defined as the return differential between value weighted portfolios of firms with top third and bottom third book-to-market equity ratio. The HML over the 14 event days is 1.48%, with a p-value of 0.059 from a uniform rank test. This is consistent with previous evidence that firms in sunset industries benefit more from loosened campaign finance regulation. These results suggest that on top of any aggregate impact of the loosened campaign finance regulations, contributing firms with low growth prospects gain more. Finally, Table 1.11 also reports the cumulative overall market return across events. There is no evidence that campaign finance deregulation is associated with higher stock values for all listed firms in the United States.

The above relationships are confirmed by estimates from the following model

$$r_{qt} - r_t^f = \alpha_i + \beta_q(r_t^m - r_t^f) + \gamma(D_t \times q) + \epsilon_{qt}$$

where $q = 1, 2, \cdots, 5$ indicate valued-weighted portfolios formed by sorting firms into quintiles by market capitalization or book-to-market equity ratio, with $q = 1$ being the portfolio of smallest firms by market capitalization or firms with the lowest book-to-market ratio and $q = 5$ being the portfolio of the largest firms or firms with the highest book-to-market ratio; r_{it} is the raw return of portfolio i on day t; r_t^f is the risk-free 90-day treasury bill return on day t; r_t^m is the market return; and D_t is a variable indicating whether day t is in an event window associated with

relaxing campaign finance restrictions ($D_t = 1$), maintaining restrictions ($D_t = -1$) or otherwise ($D_t = 0$).

Using data from Kenneth French's website, in which constituent firms of various portfolios are updated regularly, the lower panel of Table 1.11 reports the estimates of γ for various event windows. Focusing on a one-day event window, which should be less noisy, smaller and high-growth firms have lower returns in reaction to campaign finance deregulation. Firms in one lower (smaller) quintile on average have 0.093% lower returns on days with campaign finance deregulation. The fourteen events together imply a cumulative return that is lower by 1.30%. Similarly, the fourteen events together imply that firms with the lowest book-to-market equity ratio, i.e. firms priced with the highest growth prospects, have a cumulative return 3.36 percentage points lower than firms priced with the lowest growth prospects.

1.5   Conclusion

In this paper, I document that the stock value of firms with a history of contributing to congressional candidates reacts positively to court-ordered deregulations of political spending.

In *McConnell v. FEC*, the Supreme Court upheld most provisions in the Bipartisan Campaign Reform Act of 2002, which regulated soft money contributions and independent expenditures on issue ads for electoral advocacy. Around the days when the Supreme Court granted review, heard oral arguments, and announced the decision the stock value of these firms decreased by 0.27% on average. In *FEC v.*

Wisconsin Right to Life and *Citizens United v. FEC*, the Supreme Court weakened and struck down provisions on independent expenditures. Around the key developments of the two cases, contributing firms experienced a 1.5% increase in their stock value on average. These results suggest that firms benefit from their engagements in the electoral processes, and that politically active firms benefit from loosening constraints on their political spending. Campaign finance regulations are, to some extent, able to limit the influence of interest groups through political spending.

Moreover, the stock market as a whole did not react positively to these deregulations. Firms with dimmer growth prospects benefited more from the deregulation of political spending. This is consistent with the argument that sunset industries are more successful in lobbying because lobbied rents would not be dissipated by entry of new firms. Overall, I find no evidence supporting the argument that, by fostering a competitive marketplace of ideas, deregulation of political spending by corporations improves political processes toward more economically efficient policies.

Chapter 2: National Representation and Local Public Expenditure: A Natural Experiment from Japan

2.1 Introduction

Does the number of political representatives affect the allocation of public resources? In a representative democracy, the primary means for citizens to affect policies is through their representatives. Therefore, the number of representatives is often considered a proxy of political power possessed by a group of citizens. For example, each state has two senators in the U.S. Senate, regardless of population. Small states therefore have greater representation in the Senate in per-capita terms. Altas et al. (1995) and Lee (1998) find that per-capita federal spending is larger in smaller states. However, it is unclear whether the positive relationship between the number of representatives per capita and public spending is causal. And if so, what is the causal mechanism? In particular, since politicians are motivated or constrained by elections, what role do electoral incentives have in translating greater political representation into more public spending?

In this paper, I extend the conventional regression discontinuity estimator applied to vote shares to estimate the effect of having an additional representative

on local public expenditure in Japan. In Japan's mixed-member electoral system, a candidate who fails to obtain a plurality of votes in a single-winner district may still be elected through a party list, effectively giving her district two representatives instead of one. I find that having an additional representative on average increases total municipal expenditure by 1.8% and discretionary spending on public works by 7.7%. The higher expenditures are attributable to more transfers from the central government.

Moreover, within districts that are gaining representation, municipalities with a large share of supporters for the additional representative gain, but so do municipalities with strong support for the first representative. Because the second representative is likely to compete with the first representative in the following election, the presence of an extra representative weakens the incumbency advantage of the first representative, intensifying electoral competition. This result suggests that political competition incentivizes politicians to bring public spending to core supporters in their districts. I provide some evidence that strongholds for either the first representative or the additional representative have higher voter turnout rates in the following election. This is consistent with politicians delivering electorally motivated spending in order to turn out their core supporters to vote in future elections.

The main results described above are obtained from a quasi-randomized sample I construct by extending the conventional regression discontinuity design. I exploit two sources of discontinuity in Japan's electoral system. A candidate who loses in a district may still be elected if her ranking on the party list is high enough.

Her ranking on the party list depends on her performance in the district race relative to the winner in her district race. A small change in the vote share of either the losing candidate or the winning candidate may alter the ranking of the losing candidate on the party list. This is the first source of discontinuity that I exploit.

The second discontinuity that I exploit comes from the ripple effects of the outcomes of close elections. A candidate who narrowly loses in a close election is likely to have a high ranking on her party list. If due to a small electoral shock the candidate instead wins in the close election, she vacates her position on the party list, allowing another candidate on the same party list to be elected. A close election in one district may therefore create a ripple effect on whether other districts have an additional representative.

In a conventional regression discontinuity design, two candidates compete for office. Whichever candidate obtains more than 50% of the votes wins. The identification assumption is that in elections where candidates' vote shares are sufficiently close to the 50% threshold, the assignments of winners are as if random because a small random shock could alter them. I generalize this idea by perturbing the observed vote shares slightly to generate a counterfactual allocation of extra representatives to districts. Essentially, I construct a quasi-randomized sample, which consists of districts that may marginally gain or lose an additional representative when subjected to small perturbations to observed vote shares. In this sample, whether a district has an additional representative is as if random.

The natural experiment I analyze in this paper relates to three strands of literature on political representation, electoral competition and distribution of public

58

spending. First, it relates to the literature that examines the empirical relationship between the number of representatives per capita and public spending. In Altas et al. (1995) and Lee (1998), since the number of seats for an electoral district is fixed, cross-sectional variation in the number of representatives per capita is driven by variation in population. But population potentially correlates with a large number of other factors affecting public expenditure, creating difficulties for causal inference. Ansolabehere et al. (2002) adopt a novel difference-in-difference (DID) strategy, using an arguably exogenous Supreme Court decision mandating the one-person-one-vote principle in the apportionment of state legislatures to eliminate potentially confounding time-invariant heterogeneity. However, a mandated equalization of apportionment may change the power structure in the state legislature. For example, previously underrepresented urban interests may gain seats in the state legislature at the expense of rural interests. In this case, transfers to a local area may change even if its representation as measured by the seat-to-population ratio remains unchanged. In other words, the DID assumption of parallel trends may be violated.

Similar limitations also apply to the DID strategy adopted by Horiuchi and Saito (2003). They use changes in seat-to-population ratio due to the 1994 electoral reform in Japan. In this case, not only was the entire electoral system overhauled, but campaign finance regulations were also reformed to favor parties over individual politicians. For example, public subsidies to parties for campaigns and general administration were introduced, and corporate and labor union contributions to individual politicians were banned. Both the power structure of the legislature and the electoral incentives are likely to have changed after the electoral reform.

59

In this paper, I examine the effects of having an extra representative on public spending, holding the population and composition of an electoral district unchanged. The empirical strategy allows me to hold the power structure in the legislature as fixed, isolating the effects of effective representation on public spending in local areas. This paper adds to an emerging empirical literature that uses regression discontinuity designs to study political representation and policy outcomes. Albouy (2013) studies the effects of political representation in the majority party in the U.S. Congress on federal grants received by states. Pattersson-Lidbom (2008) studies the effects of majority control by left-wing parties in Swedish local governments on taxation and government expenditure. Folke (forthcoming) studies the effects of partisan representation in Swedish local governments on local immigration, environmental and tax policies. This paper differs from Pattersson-Lidbom (2008) and Folke (forthcoming) by studying distributive policies by the national government, and differs from Albouy (2013) by focusing on the effects of number of representatives on local public expenditure in a parliamentary country.

Second, this paper relates to the literature on political agency problems. Incumbency advantage is often considered undesirable because it allows politicians to be less responsive to voters (Besley and Burgess, 2002). However, in a political agency model with both moral hazard problems and adverse selection problems, incumbency advantage naturally arises as voters are to some extent able to select better politicians through previous elections. The challenge is to empirically disentangle the incentive effects of incumbency advantage from the selection effects of incumbency advantage. In this paper, the quasi-randomized assignment of an ad-

ditional representative to a district constitutes a negative shock to the incumbency advantage of the first representative. When a district is exogenously assigned a second representative, such a shock has no effect on the selection of the first representative. However, the disincentive effect of incumbency advantage for the first representative is weakened because the first representative is likely to compete with another incumbent in the following election. This result suggests that electoral competition is of first order importance in translating greater representation into more public spending.

Third, this paper adds to the literature on electoral rules and public finance. Electing legislators from small, single-winner districts holds politicians individually accountable, which may limit corruption (Persson et al., 2003) and help select better politicians (Besley, 2007). Legislators elected in large electoral districts that use party lists and proportional representation rules represent broad interests rather than narrow, geographically defined interests (Persson and Tabellini, 2000; Milesi-Ferretti et al., 2002). Combining two sets of electoral rules, a mixed-member system is often thought to have the best of both worlds and has been adopted in more than a dozen new and existing democracies (Shugart and Wattenberg, 2001). However, this paper documents a subtlety in the design of a mixed-member electoral system, which makes representatives elected through party lists responsive to narrow, geographically defined interests. In Japan, the supposedly broad representation of representatives elected from party lists is compromised by the linkage between candidates' ranking on the party lists and their performance in their small home districts.

The remainder of the paper is organized as follows. Section 2.2 provides institutional backgrounds and data description. Section 2.3 describes my empirical strategy. Section 2.4 presents the main estimates on the effects of political representation on local public finance. Section 2.5 discusses the role of political affiliation and legislative bargaining in driving the main results. Section 2.6 discusses how having an additional representative affects local public expenditure in more heterogeneous districts. Section 2.7 shows how having an additional representative differentially affects swing and core municipalities within a district. Section 2.8 concludes.

2.2 Institutional Background and Data

2.2.1 Local Public Finance in Japan

Compared to the U.S., subnational governments of Japan account for a relatively high share of total public expenditure. Figure 2.1 shows, for both Japan and the U.S., the shares of non-defense expenditure by the national government, locally financed expenditures by subnational governments, and expenditures by subnational governments financed by transfers from the national government.

In Japan, 59% of non-defense public expenditures in Fiscal Year (FY) 2007 were spent by subnational governments, as compared to 52.2% in the U.S. Because intergovernmental transfers amount to about 10% of total non-defense public expenditure in both Japan and the U.S., this means that the national government of Japan transfers a larger share of its revenue to subnational governments. However, subnational governments in Japan have very limited autonomy in generating

Figure 2.1: Public Expenditure by National and Subnational Governments in Japan and U.S.

Government Expenditure & Inter−governmental Transfers
Fiscal Year 2007

Japan

9.9%

49.1%

41.1%

U.S.

10.1%

42.1%

47.8%

Transfers from the National Government to Subnational Governments
Total Expenditure by the National Government (excl. Transfers & Defense)
Locally Financed Expenditures by Subnational Governments
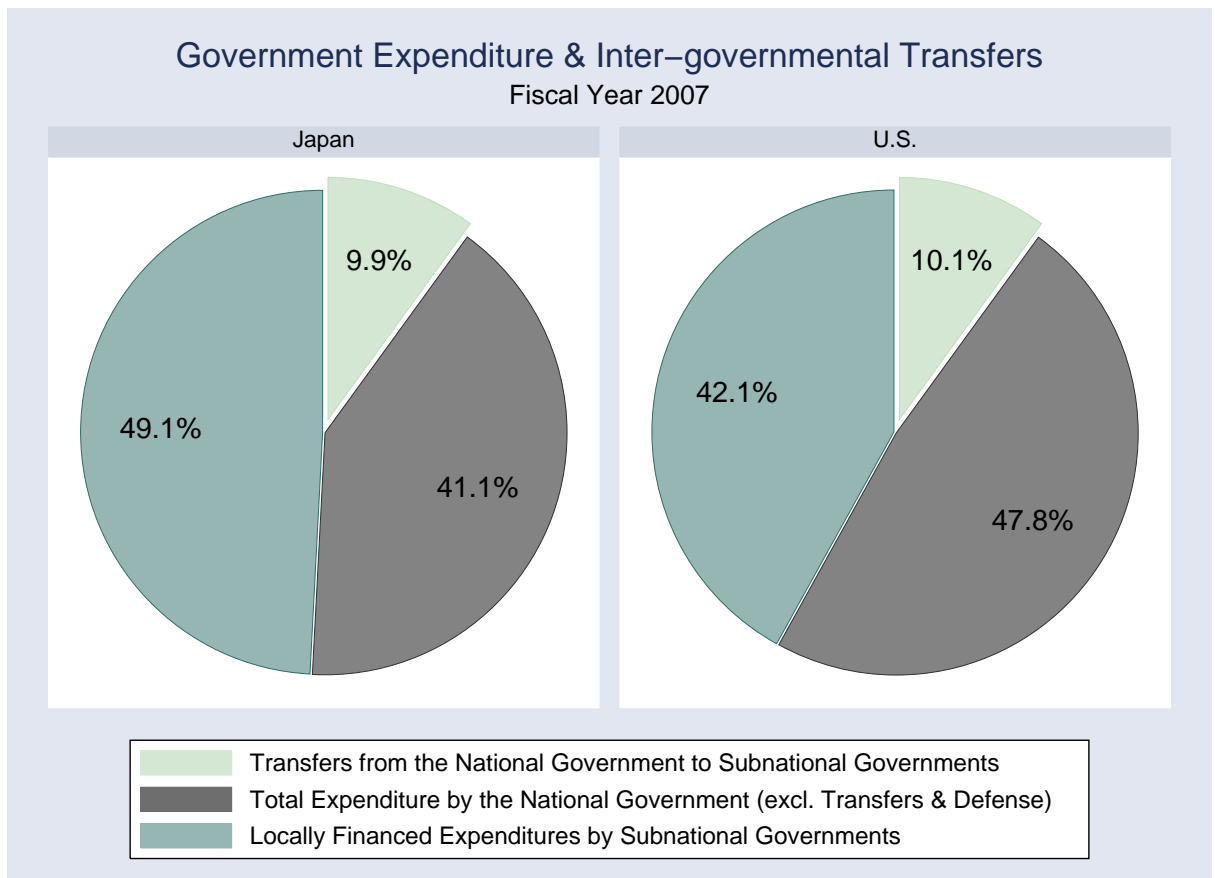
Notes: Defense expenditures are excluded for both Japan and the U.S. Total expenditures by subnational governments are equal to locally financed expenditure plus transfers from the national government.

local tax revenue (Weese, 2012). Prefectural and municipal governments rely on the national government as a major source of revenue.[1] From FY 2002 to FY 2010, total tax revenue of municipal governments on average accounted for 37.2% of total expenditure by municipal governments. Transfers from the national government and the prefectural governments accounted for 33.3% and 4.7%, respectively. Other sources such as debt, user fees and revenue from governmental enterprise made up the rest. Figure 2.2 shows these shares over the sample period.

Figure 2.2: Average Revenue Sources of Municipal Governments
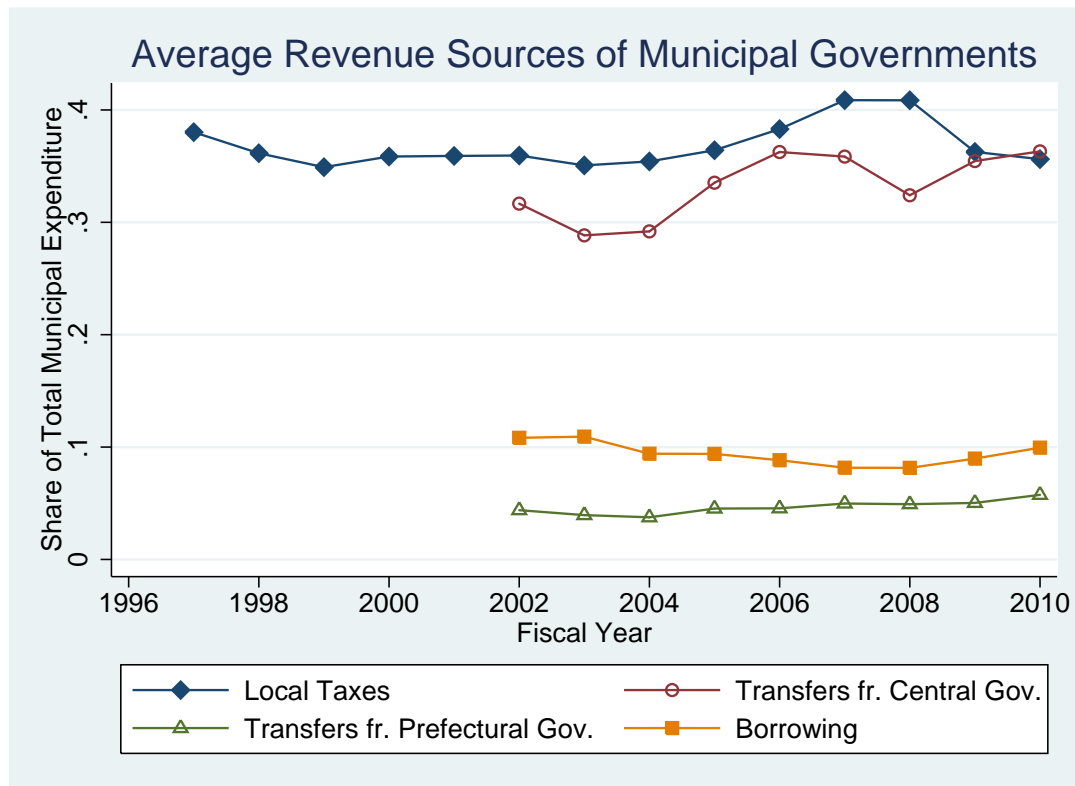
Because large municipalities are more capable of generating local tax revenue

---

[1]As the immediately subnational administrative divisions, prefectural governments are analogous to state governments in the U.S. Prefectures are further divided into a number of municipalities.

than small municipalities, the median municipality relies even more on transfers from the national government than those averages would suggest. The median share of municipal revenue due to transfers from the national government ranges between 40% to 50% from FY 2002 to FY 2010. Figure 2.3 shows the median shares of municipal revenue from various sources over this period.

Figure 2.3: Median Revenue Sources of Municipal Governments
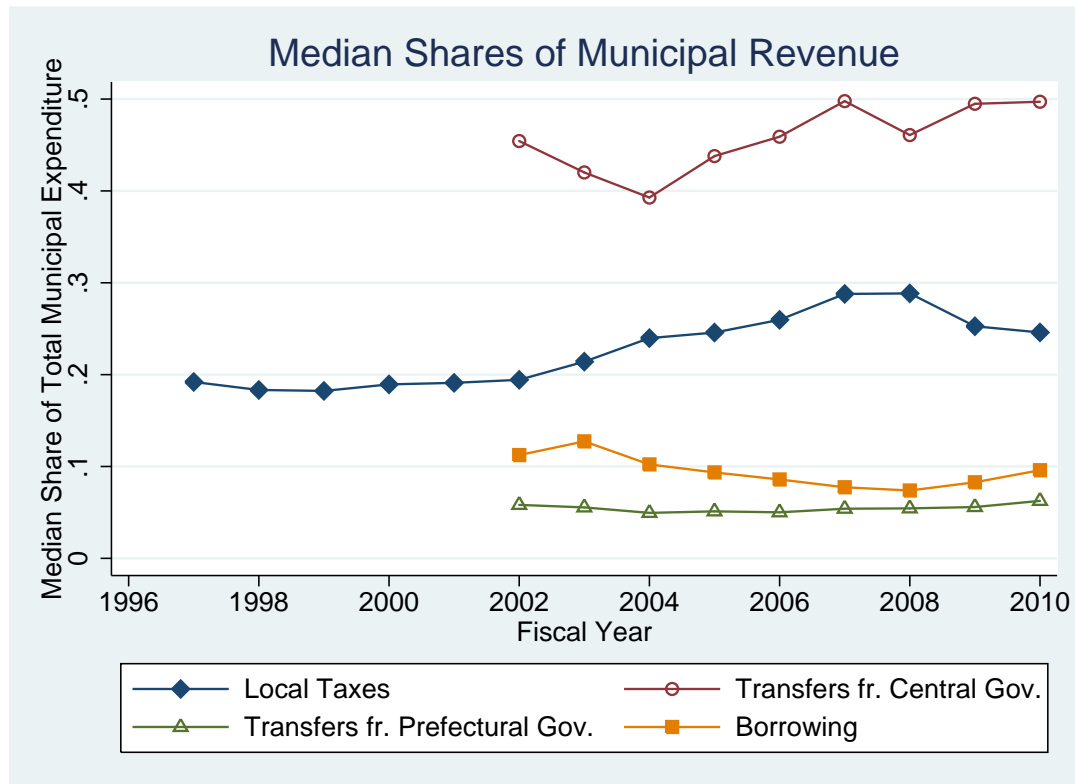
Transfers from the national government are implemented by a tax sharing system. Several programs distribute funds to municipal governments, including the Local Allocation Tax, National Treasury Disbursements and the Local Transfer Tax. The Local Allocation Tax (LAT) is a formula-based general-purpose grant program that transfers fixed percentages of revenue of several major national taxes to munici-

pal governments. To calculate the LAT transfer, national agencies take the difference between the cost of providing basic public services prescribed by law and the fiscal capacity of a municipal government. The National Treasury Disbursements provide mandatory cost sharing of certain public services, the cost of performing responsibilities of the national government entrusted to local governments and support of specific policies. Finally, the Local Transfer Taxes transfer a fixed proportion of revenue of several national taxes, mostly excise taxes, to local governments. Though these programs are more or less formula-based, numerous factors and discretionary adjustments are considered. Anecdotal evidence suggests that the bureaucratic application of transfer formulas is not carried out entirely free of political interventions. For example, politicians in the late the 1990s and early 2000s successfully lobbied the Ministry of Home Affairs to include access to high-speed rail as a basic public service, allowing the use of LAT grants to fund bullet train expansion projects in remote areas (DeWit, 2002).

Given the municipal governments' fiscal reliance on the national government, it is reasonable to use total municipal expenditures to measure the effect of political representation in the national government on local public finance. However, I also study the effect of political representation on transfers from the national governments, the gap between total public expenditure and local tax revenue, and more disaggregate spending measures, although data for these measures are more limited.

2.2.2 Japan's Mixed-Member Electoral System

From 1947 to 1993, Japan had an electoral system featuring multi-member districts (MMD) and a single, non-transferable vote (SNTV). The nation was divided into more than a hundred median-size districts. Each district elected two to six members to the House of Representatives, the lower house of Japan's parliament, the National Diet, for a term of four years. Candidates in each district with the highest vote count would be elected. The upper house, the House of Councillors, was elected through a similar multi-member district plurality rule, though its members were elected from larger districts for a longer term. Typically, then and now, a majority coalition in the House of Representatives forms the government and elects one of its members as prime minister. The prime minister can dissolve the House of Representatives before its term expires and call for early elections, but not for the House of Councillors. While the House of Councillors retains considerable legislative power, the House of Representatives prevails in disagreements between the two chambers on important decisions such as passing a budget, ratifying treaties and choosing a candidate for prime minister. Moreover, the lower house can override the upper house's objection on a regular bill by a two-thirds majority. Given the dominant role of the House of Representatives, Japan's constitutional design is referred to as a "one-and-a-half house solution" by Ackerman (2000). I shall focus on the House of Representatives in this paper.

The Liberal Democratic Party (LDP) had been the ruling party since 1955. However, in the 1993 general election, it lost its governing position for the first time.

A governing coalition was formed by eight small anti-LDP parties. Led by Prime Minister Morihiro Hosokawa in 1994, the 11-month governing coalition replaced the previous MMD-SNTV system with a mixed system for the lower house.

Under the reform, the House of Representatives was given 500 seats, of which 300 seats were from single-member districts (SMDs) with a first-past-the-post (FPTP) rule, while 200 seats were elected from proportional representation (PR) party lists grouped by 11 regional PR blocks.[2] Under the new system, each voter is given two votes, one for a candidate in her single member district and another for a party list in her PR block. The SMD vote need not be for a candidate from the same party as the PR vote. The boundaries of PR blocks do not cross the boundaries of prefectures, the immediate sub-national level of administrative unit. Conversely, the boundaries of prefectures do not cross the boundaries of SMDs. Hence, a PR block contains one or several prefectures, and a prefecture contains several SMDs. Figure 2.4 is a map showing how Japan is divided into 11 PR blocks, each filled with different colors. Each PR block consists of one or several prefectures, as delineated by dashed lines. The number of SMDs in each prefecture in the most recent 2012 election is labeled on top. A fixed number of PR seats is allocated to a PR block before each election. Parties propose a party list in each PR block to contest for the PR seats allocated to that block. PR seats in a PR block are allocated to parties in proportion to their PR vote shares in the block. Vote shares outside a PR block have no bearing on the allocation of the PR seats within the PR block.

---

[2]After the 1996 election, the first after the reform, the number of PR seats was reduced to 180, while the number of SMD seats was unchanged.

Figure 2.4: The Division of PR Blocks and the Number of SMDs in Each Prefecture
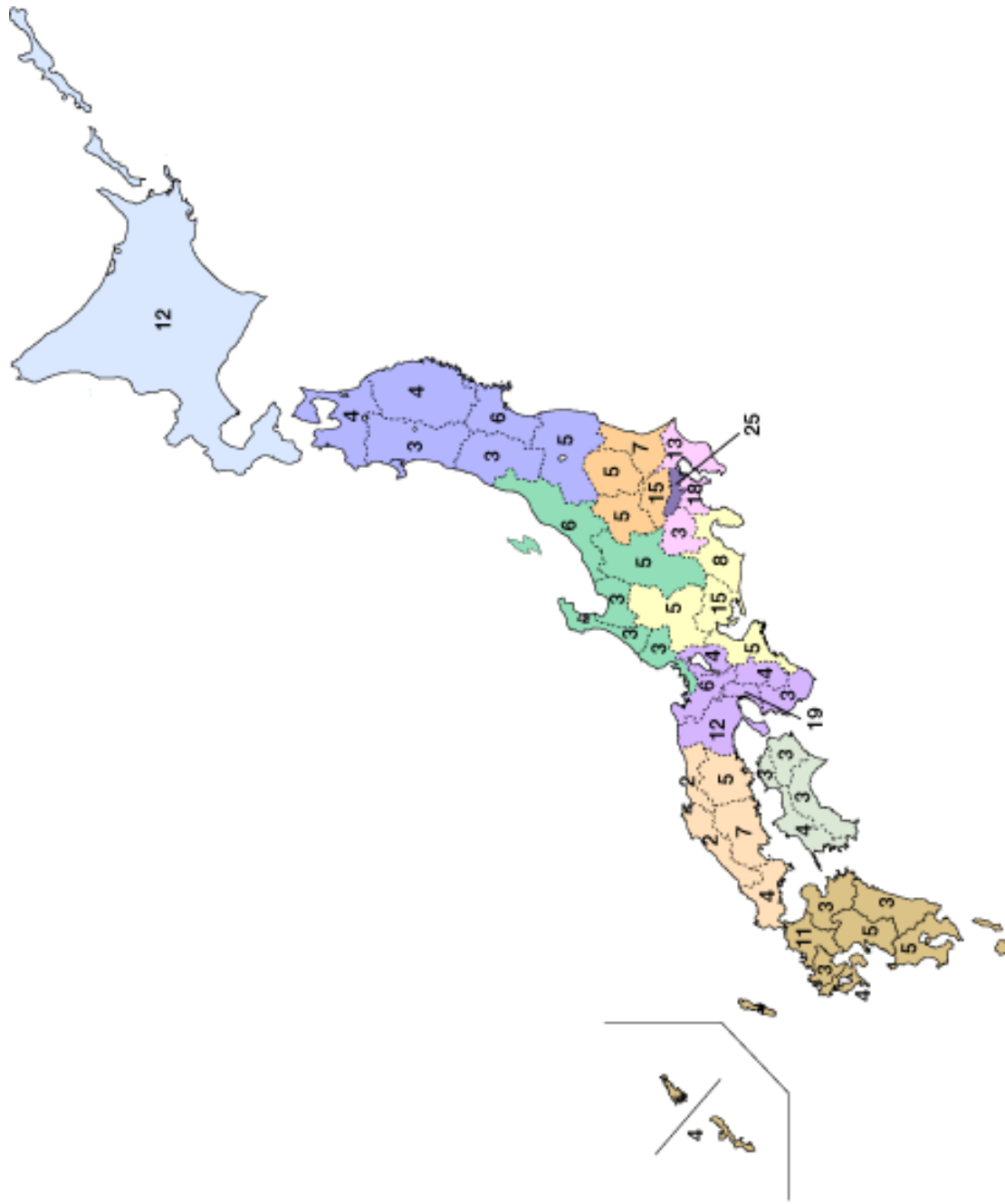
Different PR Blocks are color-coded. Numbers indicate the number of SMDs in a prefecture.
Source: Japanese Ministry of Internal Affairs and Communication, as of 2012.

As in some other mixed-member systems, such as those of Germany and New Zealand, dual candidacy is permitted. A candidate can be on both the SMD ballot and the PR list ballot. If a candidate wins a seat from an SMD, she takes that seat and vacates her position on the party list. If a candidate loses in the SMD race, she can still obtain a PR seat if her ranking on the PR list is favorable relative to the number of PR seats her party won in the regional PR block. In Germany and New Zealand, the allocations of PR seats are used to top up district seats, so that the overall shares of seats going to each party in the end proportionally reflects vote shares of parties nationwide. But in Japan's system, the number of SMD seats (or constituent seats) and the number of PR seats are fixed. The SMD system and the PR system are parallel in the sense that the number of PR seats a party obtains only depends on its performance in the PR vote and the number of SMD seats a party obtains only depends on its candidates' performance in SMD races.

Consider further the comparison of Germany and Japan. The Bundestag, the German Federal Diet, consists of 598 members, with half elected from single member districts and the other half from party lists, proportionally allocated to parties according to nationwide party vote shares. If a party obtains 50% of party votes nationwide and its nominees win 100 seats in the single member districts under the first-past-the-post rule, the number of PR seats allocated to the party is 199 = 598 / 2 - 100.[3] In Japan, on the other hand, the number of PR seats a party wins is the sum of PR seats won in each PR block, which in turn is determined solely

---

[3]In the case that a party has more members elected from SMDs than its overall seat share implied by the national party vote share, some additional seats known as overhang seats are added to the 598 regular seats to accommodate the crowd-out of PR seats for other parties that would otherwise occur.

by PR vote shares in each block, independent of the number of SMD seats won or nationwide PR vote shares.[4] The number of PR seats, prefectures and SMDs in each PR block are summarized in Table 2.1.

Table 2.1: Division of Proportional Representation Blocks

PR Block	Number of Prefectures	# PR Seats			# SMDs	
		1996	2000	2003 - 2012	Pre-2002	Post-2002
Chugoku	5	13	11	11	21	20
Hokkaido	1	9	8	8	13	12
Hokurikushinetsu	5	13	11	11	20	20
Kinki	6	33	30	29	47	48
Kitakanto	4	21	20	20	31	32
Kyushu	8	23	21	21	38	38
Minamikanto	3	23	21	22	32	34
Shikoku	4	7	6	6	13	13
Tohoku	6	16	14	14	26	25
Tokai	4	23	21	21	34	33
Tokyo	1	19	17	17	25	25
Total	47	200	180	180	300	300

While the SMD system and PR system are parallel in that the allocation of PR seats across parties does not depend on the outcomes of SMD races, the two systems are connected in the allocation of intra-party PR seats. A special feature of the party PR lists is that rankings are partially determined ex ante and partially determined ex post. Candidates on the PR lists are ranked by their parties before the election. However, parties can give multiple candidates equal rank on the ballot. Dual candidates' ex post ranks within a cluster (conditional on ex ante equal rank) are determined by their performance in their own SMD, specifically by their vote

---

[4]The mapping from PR vote share to PR seat share in a PR block follows the D'Hondt method.

share divided by the winning candidate's SMD vote share. The higher is this ratio (hereafter known as the narrowness-of-defeat ratio or simply the narrowness ratio), the higher is a dual candidate's rank within the cluster. For example, suppose all candidates on a party list are dual candidates who lose their SMD races. Amy ranks first ex-ante on the list, but Ben, Cameron and David rank equally second ex-ante. The ex-post ranks of Ben, Cameron and David will be given by their vote shares in the SMD races as compared to the winning candidates from the respective SMDs. If their party obtains two seats in the PR block, Amy will get a PR seat regardless of her narrowness ratio, while the candidate among Ben, Cameron and David with the highest narrowness ratio will get the second seat.[5]

If legislators who are defeated in the SMD races but elected through the PR system are motivated to maintain a local base, such a parallel voting system creates variation of *de facto* representation in the lower house across districts. There are several reasons candidates would have incentives to cater to local interests (McKean and Scheiner, 2000). First, dual candidacy provides insurance to candidates for a seat via an alternative route. If a candidate loses the SMD race, she may still be able obtain a seat through the party list. Secondly, the PR list is partially open in that a dual candidate's ranking on the list is partially determined by her performance in the SMD. Third, new formation of parties and changes of party membership are relatively frequent in Japan. The Democratic Party of Japan, which recently lost its

---

[5]There is one caveat. After the 1996 general election, the election law was amended such that any candidate who fails to obtain a 10% vote share in the SMD race will be disqualified. Her position on the PR list would be vacated regardless of her narrowness ratio, and her deposition for candidacy would be forfeited. This amendment has been taken into consideration in the implementation of my empirical strategy.

majority in the 2012 general election, was founded only in 1998. The current third largest party, the Japan Restoration Party with 54 seats, and the sixth largest party, the Tomorrow Party of Japan with nine seats, were both founded in 2012. A local base provides politicians with political capital and puts them in a good bargaining position should change of party affiliations occur. Fourth, it is not uncommon in Japan's political culture that seats are inherited by staffers or children of the incumbents (Taniguchi, 2008). A local base would facilitate such inheritance.

2.2.3 Data

There have been six general elections for the House of Representatives since the electoral reform in 1994. They were held in years 1996, 2000, 2003, 2005, 2009 and 2012. I downloaded election results and party lists from the website go2senkyo.com for all six elections, and from the website of the Japanese Ministry of Internal Affairs and Communications for the last three. I obtained municipal level voting data from 1996 to 2005 from Asahi Shimbun, one of five major national newspapers in Japan. Municipal election data for 2009 were complied in part from various websites of prefectural election commissions. I mainly used the election data from the website go2senkyo.com, as they were more complete, but verified them with data from the other two sources, finding few discrepancies.

In these elections, among candidates who lost their SMD races but ran again in the next election, 88% of challengers who were not members of the Lower House ran again in the same district, while PR incumbents were 8.6% more likely than

non-members to run in the same SMD. This difference is statistically significant, as shown in Table 2.2 using a linear probability model. A logit model gives a similar result. This suggests that most candidates run in the same district if they run again in the next election, and that PR incumbents are particularly inclined to do so.[6]

Fifty-nine percent of candidates contesting for SMD seats since 1994 have been dual candidates. The percentage has been higher among competitive candidates; 84% of candidates finishing first or second in SMD races have been dual candidates. Moreover, 81% of candidates on the party lists over this period have also been on the ballot of an SMD race, suggesting a preference for being elected to an SMD seat. This is consistent with SMD incumbents having a higher re-election rate than do PR incumbents. While incumbents of PR seats enjoy substantial electoral advantages, incumbents of SMD seats have considerably higher probability of getting re-elected to the lower house. Based on a linear probability model relating re-election probability to incumbent status, controlling for party-election fixed effects, the incumbency advantage of SMD incumbents is about 63% to 157% higher than that of incumbents elected through the party lists. These regression results are shown in columns (1) to (4) of Table 2.3. Even among incumbents who were elected in close SMD elections, so that the assignment to SMD seats versus PR seats is close to random, SMD incumbents had a higher rate of getting re-elected. This is shown in columns (5) and (6) of Table 2.3.

Demographic data and basic public finance data for municipalities were taken

---

[6]Unsurprisingly, incumbents of SMD seats almost always ran in the same district from which they were elected.

from two sources: the Minryoku database and the Ministry of Internal Affairs and Communications. The Minryoku database was compiled by Asahi Shimbun Publications Inc. from various governmental agencies. Municipal public expenditure data and local tax revenue from FY 1997 to FY 2009 were available in the Minryoku database. More detailed breakdowns of revenue and expenditure of municipal governments from FY 2002 to FY 2010 are available from the Ministry of Internal Affairs and Communications.

Table 2.2: Probability of an SMD-Losing Candidate Running in the Same SMD in the Next Election

| | OLS | | Logit | |
Dependent Variable: =1 if the Candidate Runs Again in the Same SMD; 0 otherwise	(1)	(2)	(3)	(4)
Being a PR Incumbent	0.0862***	0.0696***	0.1147***	0.0978***
	(0.0147)	(0.0151)	(0.0271)	(0.0273)
Losing Margin in the Last SMD Election		-0.1415***		-0.1271***
		(0.0468)		(0.0446)
Constant	0.8801***	0.9145***		
	(0.0111)	(0.0140)		
# Observations	1215	1215	1215	1215

The sample consists of SMD-losing candidates who run again as an SMD candidate in the next election;

PR Incumbent is a dummy variable equal to one if the candidate running again is an incumbent of a PR seat; and zero otherwise;

Losing Margin is the difference of vote share between the SMD winner and the SMD-losing candidate in the last election;

Standard errors are in parentheses;

Standard errors of the OLS estimates are heteroskedasticity robust;

Estimates from the logit models are average marginal effects;

Standard errors of the logit estimates are calculated using the Delta Method;

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 2.3: Electoral Advantages of PR Incumbents and SMD Incumbents

	Dependent Variable: =1 if Elected to ... ; 0 otherwise					
	Elected to an SMD Seat	Elected to Any Seat	Elected to Any Seat	Elected to Any Seat	Elected to Any Seat	Elected to an SMD Seat
	(1)	(2)	(3)	(4)	(5)	(6)
SMD Incumbent	0.2851***	0.1634***	0.2073***	0.2513***	0.0890***	0.0890**
	(0.0204)	(0.0162)	(0.0188)	(0.0199)	(0.0026)	(0.0388)
Incumbent	0.1292***	0.2598***	0.1792***	0.1506***		
	(0.0170)	(0.0180)	(0.0255)	(0.0234)		
Constant	0.1541***	0.3460***	0.3740***	0.2561***	0.5777***	0.4649***
	(0.0058)	(0.0084)	(0.0113)	(0.0067)	(0.0015)	(0.0239)
Fixed Effects	Party–Election	Party–Election	Party–Election	Party–Election	Party–Election	Party–Election
Clustering	SMD–Election	Block–Election	Block–Election	Block–Election	Block–Election	SMD–Election
Sample	SMD Candidates (incl. Dual)	PR Candidates (incl. Dual)	Dual Candidates Only	All Candidates	Incumbents who were dual candidates in close SMD elections	Incumbents who were dual candidates in close SMD elections
R-Squared	0.5471	0.4092	0.4433	0.5702	0.0647	0.6330
# Obs.	5647	4432	3507	5647	356	343

Incumbent is a dummy variable equal to one if the candidate is an incumbent; zero otherwise;

SMD Incumbent is a dummy variable equal to one if the candidate is an SMD incumbent; zero otherwise;

For Column (5) and (6), the sample consists of incumbents who were dual candidates in the last election, and who were either a winner or a runner-up in SMD elections with margin of victory less than 4%.

Standard errors robust to clustering are in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

2.3 Empirical Strategy

2.3.1 Sources of Discontinuities to be Exploited

In light of the above-described electoral rules linking the Majoritarian and the PR system, which are imposed uniformly across parties, there are two sources of discontinuity to be exploited for exogenous variation. The first is close narrowness ratios among ex ante equally ranked dual candidates. To illustrate this, consider the party list of LDP in the general election of 2009 for the PR Block of Kitakanto in Table 2.4.[7] Pure PR candidate Genichiro Sata occupied the singleton top rank on the list. After Genichiro Sata, 26 candidates were ranked equally second. They were each dual candidates, competing in one SMD within the Kitakanto PR block. On the bottom of the list, two pure PR candidates were ranked 28th and 29th, respectively.

Twenty seats were allocated to the PR Block of Kitakanto in 2009. LDP won 25.84% of party votes in this PR block, hence obtaining six seats according to the D'Hondt method. Genichiro Sata took up one PR seat by being on top of the list as a pure PR candidate, leaving five seats for candidates below him. Three dual candidates won in their respective SMDs, hence taking the SMD seats and vacating their positions on the party list. The SMD-losing dual candidates in the second-rank cluster were then ranked according to their narrowness-of-defeat ratio, i.e., their vote share divided by the vote share of the winner in their own district. The

---

[7]The PR Block of Kitakanto is north of Tokyo Prefecture, and is painted in orange in Figure 2.4.

five candidates with highest narrowness ratios obtained the remaining PR seats. The narrowness ratio of Tsutomu Sato, who took the last PR seat for LDP in Kitakanto, was 0.781. Yuya Niwa, who had a narrowness ratio of 0.772 and was ranked ex post immediately below Tsutomu Sato, did not get a PR seat. In this case, Tochigi 4, the district of Tsutomu Sato, obtained an additional *de facto* representative through the PR system, while Ibaraki 6, in which Yuya Niwa competed, did not.

Notice that, given the number of seats a party obtains, the cut-off narrowness ratio for the party's last PR seat is potentially determined by order statistics of the narrowness ratios from all equally ranked candidates in a PR list cluster, rather than a single number as in the FPTP two-party elections. Determination of the cut off depends on multiple vote counts among candidates whose identities are ex-ante uncertain. Therefore, it would be difficult to engage in electoral manipulations just around the cut-off in order to gain the last PR seat and award an SMD an extra *de facto* representative. Endogenous sorting in a small neighborhood of the cut-off is highly unlikely, avoiding the most dangerous pitfall invalidating a traditional regression discontinuity design, particularly in studies examining two candidates contesting under the plurality rule. In the above example, if due to random factors Yuya Niwa had achieved an additional 0.5 percentage point in vote share, he would have obtained the last PR seat at the expense of Tsutomu Sato. Notice that Yuya Niwa actually had a higher vote share than Tsutomu Sato did. The reason he was not able to obtain the last PR seat is that the winner in Yuya Niwa's SMD did better than the winner of Tsutomu Sato's SMD. Had the winner of Yuya Niwa's SMD attained a $\frac{3}{4}$ percentage point lower vote share, or had the winner of Tsutomu

Sato's SMD achieved a $\frac{3}{4}$ percentage point higher vote share, Yuya Niwa would have obtained the last PR seat instead of Tsutomu Sato. Thus, the winner of the last PR seat depended on at least four vote counts: Niwa's and Sato's votes and the votes of the winners in their districts. Moreover, the identities of these four vote counts are only relevant conditional on the LDP obtaining six PR seats and having four dual candidates with narrowness ratios higher than Tsutomu Sato did, both of which were uncertain before the election results were revealed.

The second source of discontinuity is close elections in SMD races. A narrow winner in one SMD could potentially change the representation of another district in the same PR block, because of its implications for the intra-party allocation of PR seats. This is because winners of SMD races vacate their positions on the party lists. To see this operating in reality, consider again the LDP's party list in Table 2.4. The SMD-losing candidate with highest narrowness ratio at 0.976 was Fukushiro Nukaga from district Ibaraki 2. If for random reasons he had obtained an additional 1.2 percentage points in vote share, he would have won the SMD seat and vacated his position on the PR list. The last PR seat would have then gone to Yuya Niwa. In such a scenario, the opponent of Fukushiro Nukaga, who would have lost the SMD race by a narrow margin, would have occupied a high ex post ranking on his party's PR list, potentially kicking out another SMD-losing candidate from that party. The outcome of a narrow election in SMD Ibaraki 2, though perhaps not consequential for its own representation, thus has a ripple effect on the representation of two other districts.

Table 2.4: Party List of LDP for the PR Block of Kitakanto in the General Election
of 2009

Rank ex ante	Name of Candidate	Narrowness ratio	Rank ex post	Seat won	SMD (dual)	V. Share in SMD	Winner's v. share
1	G. Sata	-	1	PR	-	-	-
2	Y. Obuchi	-	-	SMD	Gunma 5	0.710	0.710
2	T. Motegi	-	-	SMD	Tochigi 5	0.517	0.517
2	H. Kajiyama	-	-	SMD	Ibaraki 4	0.507	0.507
2	F. Nukaga	0.976	2	PR	Ibaraki 2	0.479	0.491
2	K. Nagaoka	0.812	3	PR	Ibaraki 7	0.301	0.370
2	Y. Shindo	0.801	4	PR	Saitama 2	0.401	0.500
2	M. Shibayama	0.797	5	PR	Saitama 8	0.391	0.491
2	T. Sato	0.781	6	PR	Tochigi 4	0.402	0.515
2	Y. Niwa	0.772	7	-	Ibaraki 6	0.420	0.543
2	Y. Yamaguchi	0.770	8	-	Saitama 10	0.425	0.551
2	H. Funada	0.765	9	-	Tochigi 1	0.413	0.540
2	T. Otsuka	0.728	10	-	Saitama 9	0.412	0.567
2	T. Kojima	0.715	11	-	Saitama 12	0.409	0.572
2	Y. Tanaka	0.711	12	-	Saitama 15	0.371	0.521
2	Y. Hanashi	0.702	13	-	Ibaraki 3	0.401	0.571
2	S. Tsuchiya	0.701	14	-	Saitama 13	0.361	0.515
2	T. Mitsubayashi	0.687	15	-	Saitama 14	0.393	0.572
2	H. Makihara	0.650	16	-	Saitama 5	0.385	0.592
2	H. Chuko	0.618	17	-	Saitama 4	0.335	0.542
2	H. Imai	0.617	18	-	Saitama 3	0.371	0.600
2	N. Akagi	0.612	19	-	Ibaraki 1	0.350	0.571
2	H. Okabe	0.594	20	-	Ibaraki 5	0.364	0.613
2	K. Nishikawa	0.567	21	-	Tochigi 2	0.357	0.629
2	Z. Kaneko	0.476	22	-	Saitama 1	0.290	0.609
2	K. Nakane	0.453	23	-	Saitama 6	0.306	0.676
2	E. Arai	0.363	24	-	Saitama 11	0.256	0.707
28	M. Namiki	-	25	-	-	-	-
29	M. Otaka	-	26	-	-	-	-

Kitakanto is an area north of the Tokyo prefecture.

SMDs are named with its prefecture followed by the district number in the prefecture.

For example, Gunma 5 is District 5 of Gunma Prefecture;

In the general election of 2009, LDP won 25.84% of party votes in the PR Block of Kitakanto.

Therefore, 6 out of 20 seats in the PR block were allocated to LDP.

Moreover, 3 dual candidates won in their SMDs, thereby vacating their positions on the party list.

The last column is the vote share of the winner in the SMD the dual candidate is contesting.

There is another source of discontinuity that can potentially be utilized. Folke (2011) proposes a method of applying the regression discontinuity design in proportional representation systems, exploiting the discontinuous jumps in the mapping of practically continuous vote shares to discrete seat shares. He then applies this method using Swedish municipal elections, which have a pure PR system, to study the effects of party representation on environmental, immigration and tax policies. The benefit of exploiting such discontinuity in Japan's case is that it would provide an extra source of exogenous variation of effective representation due to the marginal change of PR seats obtained by a party, which may lead to the election (or non-election) of SMD-losing dual candidates from the affected parties. One cost, however, is that this strategy would introduce another layer of complexity, as such discontinuity rests on the particulars of the mapping from the PR vote shares to the number of PR seats obtained by each party. More importantly, inter-party re-allocations of PR seats may have wider political and public policy implications than intra-party reallocations of PR seats across districts. As shown in Folke (2011), the assignment of a seat in the municipal legislature to parties with different agendas has large effects on local immigration and environmental policies. Inter-party re-allocations of PR seats may also alter coalition formation, regional bargaining positions, public policy priorities and so on. Exploiting this discontinuity therefore confounds the distributional consequences of different levels of effective representation, holding the partisan configuration of a legislature fixed. I shall focus instead on the cross-municipality variation of effective representation induced by intra-party assignment of PR seats.

2.3.2 A Quasi-Randomized Sample of Districts

To motivate how I incorporate the two sources of discontinuity in my empirical work, consider the following thought experiments. Imagine that due to random factors, such as weather on the election day affecting turnout of voters for candidates differentially, the vote shares of the winner and the runner-up candidate in a particular SMD are perturbed. In particular, suppose I transfer an amount ϵ of vote share from one candidate to the other. This may or may not affect the outcome of the perturbed SMD race. If under this counter-factual vote share profile, the allocation of representatives to districts via the PR system does not change, the district is not assigned to either the treatment or control sample. However, if a district having exactly one additional representative through the PR system loses it in the counter-factual, the district is tagged as randomly assigned to the treatment of having two effective representatives. If a district having no additional *de facto* representative through the PR system gains one in the counter-factual, the district is tagged as randomly assigned to the control group of having a single representative. The counter-factual vote shares may result in changes in district representation due to either or both of the above-mentioned sources of discontinuity. To construct a sample of districts with quasi-randomly assigned treatment status, I carry out the concrete version of the above thought experiments on each SMD in each election, perturbing one SMD election at a time and holding everything else constant. This generates a set of treatment districts (i.e., districts having exactly one PR representative who would lose it in at least one counter-factual) and a set of

control districts (i.e., districts having no PR representative who would gain one in at least one counter-factual). Note that a district may qualify for treatment status under multiple perturbations to different elections, but such districts are not double counted in the quasi-randomization sample.

I focus on the margin of having zero or one PR representative, so that districts in the quasi-randomized sample have identical and exactly one treatment status out of two, regardless of which thought experiment generates the treatment status. This avoids complexity arising from situations such as a district having a treatment status at the 0–1 margin but a control status at the 1–2 margin. Moreover, it is so rare that a district could gain or potentially gain two PR representatives that precise estimation at margins other than zero-one is difficult. Furthermore, it should be noted that a given perturbation does not always generate treatment and control districts in pair. It is possible that a vote share perturbation generates a treated district but not a control district, and vice versa, because a dual candidate may gain or lose a seat to a pure PR candidate.

In the regression discontinuity (RD) design of Lee et al. (2004), who study U.S. House elections, the authors suggest a non-parametric estimate using close elections with a margin of victory of less than 4% in the two-party vote share. In those elections, election outcomes are considered to be as if random. Since vote share transfers of up to 2% between the two candidates are sufficient to alter the outcomes in these elections, I similarly use 2% perturbations of vote shares to construct the quasi-randomized sample, i.e. $\epsilon = 0.02$. Table 2.5 shows how many SMDs have additional representatives after each election, in both the full sample and the quasi-

randomized sample.

Table 2.5: Distribution of SMDs with PR-elected Representatives

| | Full Sample | | | | | |
| | Number of SMDs by Election | | | | | |
Number of Additional PR Representatives	1996	2000	2003	2005	2009	2012
0 (without dual candidate)	12	5	3	0	0	2
0 (with dual candidate)	212	220	182	186	206	183
1	70	69	111	111	91	105
2	6	6	4	3	3	10
Total	300	300	300	300	300	300

| | Quasi-Randomized Sample | | | | | |
| | Number of SMDs by Election | | | | | |
Treatment Status	1996	2000	2003	2005	2009	2012
One Additional PR Representative	24	24	57	37	32	37
No Additional PR Representative	54	69	66	80	69	70
Total	78	93	123	117	101	107

To check whether the constructed quasi-randomized sample has close to random assignments of treatment status (i.e., having a PR representative or not), I examine the correlations between treatment status and a list of demographic and political variables. This list includes municipal population growth rate, area of the municipality, population density, number of SMD candidates, total vote share of the top two SMD candidates, whether the SMD elected a LDP candidate and whether the SMD elected a candidate of the Democratic Party of Japan (DPJ), which was the main opposition party for most of the sample period. Results are reported in Table 2.6. None but the dummy variable indicating a DPJ winner are found to be significantly correlated with the treatment status of a municipality at the 10% level.

Table 2.6: Quasi-Randomization Check: Whether Treatment Status Correlates with Observables

Dependent Variable	Coefficient	S.E.	p-value	# Obs.
	Univariate Explanatory Variable: =1 if having an PR Representative; =0 otherwise			
Municipal Level:				
Population (log)	-0.0053	0.1018	0.9584	10208
Taxable Income per capita (log)	-0.0201	0.0233	0.3889	10156
Population Share of Age 0 to 4	0.0006	0.0006	0.2957	10208
Population Share of Age 5 to 19	0.0004	0.0023	0.8558	10208
Population Share of Age 65 +	0.0007	0.0056	0.8965	10208
Area (log)	0.0310	0.1068	0.7714	9251
Population Density (log)	-0.0483	0.1739	0.7813	9251
Population Growth Rate	-0.0004	0.0013	0.7645	9336
District Level:				
Size of District Electorate (log)	-0.0153	0.0184	0.4067	512
Number of SMD Candidates	-0.0299	0.0851	0.7254	619
Vote Share of Top 2 SMD Cand.	0.0043	0.0100	0.6640	619
LDP Candidate won	-0.0332	0.0422	0.4313	619
DPJ Candidate won	-0.0714*	0.0395	0.0710	619
Voter Turnout Rate	0.0034	0.0063	0.5899	512
SMD Winner in Governing Coalition	-0.0542	0.0424	0.2014	619

LDP Candidate equals 1 if the SMD seat is won by a LDP candidate; 0 otherwise;

DPJ Candidate equals 1 if the SMD seat is won by a DPJ candidate; 0 otherwise;

The sample is the quasi-randomized sample constructed with 2% vote share perturbations;

For the upper panel, the unit of observation are municipalities, where treatment status is identical for all municipalities within an SMD;

Standard errors in this case are robust to clustering two-way on municipality and on SMD-House term.

For the lower panel, the unit of observation are district;

Standard errors in the case are heteroskedasticity robust;

on SMD–House term.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

2.4 Additional Representation and Local Public Finance

2.4.1 Municipal Public Expenditure

To estimate the effect of having an additional *de facto* representative through the PR system on public expenditure, my main specification is

$$log(y_{it}) = \alpha + \delta PR_{it} + X'_{it}\beta + \mu_i + \pi_t + \epsilon_{it} \tag{2.1}$$

where y_{it} is the public expenditure per capita for municipality i in fiscal year t; PR_{it} is a dummy variable equal to one if municipality i has one or more SMD-losing but PR-elected representative at time t and zero otherwise; X_{it} is a vector of demographic and economic controls; μ_i is a municipal fixed effect and π_t is a year fixed effect.

First, in Table 2.7, I present coefficient estimates using the full sample of municipalities, except a few large municipalities that span multiple districts, from FY 1997 to FY 2010. It should be noted that municipalities are rarely split into multiple SMDs except when the municipality is very large in population. If time-invariant heterogeneity across municipalities is correlated with having an additional PR representative, but time-varying factors are not, this specification provides consistent estimates through the inclusion of municipal fixed effects. For comparison with the later results from the quasi-randomized sample, here PR_{it} is a dummy variable equal to one if municipality i has one or two SMD-losing but PR-elected representatives

and zero otherwise. Adding another dummy variable indicating having two extra PR representatives does not change the results. As reported in Table 2.8, having two extra PR representatives rather than one further increases public expenditure, but its effect is imprecisely estimated due to the small number of districts having two PR representatives. In the full sample, municipalities with at least one PR representative have a public expenditure per capita 0.86% higher than comparable municipalities without a PR representative; this result is significant at the 5% level.

To control for economies of scale in public goods provision, the cost of providing public goods and the demand for public goods, I include log municipal population, log taxable income per capita and population shares of age groups 0–4, 5–19 and 65+ as control variables. To control for and compare the traditionally estimated effect of mal-apportionment, I include the log voting population of the SMD the municipality belongs to. The estimates of the main representation effect are robust to the inclusion of these controls. Here, as in later estimations, standard errors are robust to two-way clustering on municipality and on PR block–House term. This allows for time series correlation within municipalities and cross-municipality correlation within a PR-block in a House term. There may be cross-municipality correlation within a PR block–House term because some municipalities share the same representatives or the elections of PR representatives are correlated within a PR block.[8]

---

[8]One-way clustering, either on municipality or PR block–House term, results in smaller standard errors for most estimates reported in this paper.

Table 2.7: Additional Representation and Local Public Expenditure Per Capita (Full Sample)

	Dependent Variable: Municipal Public Expenditure per capita (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0085***	0.0085***	0.0080**	0.0082**	0.0087***	0.0073**
	(0.0033)	(0.0032)	(0.0034)	(0.0032)	(0.0032)	(0.0030)
Population (log)		0.0211				0.0911
		(0.0593)				(0.0554)
Taxable Income per capita (log)			0.1503***			0.1942***
			(0.0513)			(0.0476)
Age 0 to 4 / Population				-1.2553**		-1.1071**
				(0.5185)		(0.5036)
Age 5 to 19 / Population				0.0584		0.1413
				(0.3401)		(0.3457)
Age 65 + / Population				1.1511***		1.5540***
				(0.2478)		(0.2741)
Size of District Electorate (log)					-0.0124	-0.0068
					(0.0463)	(0.0464)
Fixed Effects	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year
Weighted	No	No	No	No	No	No
R-squared	0.9596	0.9596	0.9601	0.96	0.9596	0.9608
# Obs.	34906	34906	34717	34906	34838	34649

PR Representative is a dummy variable equal to one if the municipality has at least one PR representative and zero otherwise; Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 2.8: Additional Representation and Local Public Expenditure Per Capita (Full Sample)

	Dependent Variable: Municipal Public Expenditure per capita (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
Any PR Representative	0.0084**	0.0084**	0.0078**	0.0082**	0.0086***	0.0071**
	(0.0033)	(0.0033)	(0.0034)	(0.0033)	(0.0032)	(0.0030)
Two PR Representatives	0.0063	0.0063	0.0101	0.0029	0.0065	0.0070
	(0.0140)	(0.0140)	(0.0154)	(0.0115)	(0.0139)	(0.0125)
Population (log)		0.0211				0.0912
		(0.0593)				(0.0554)
Taxable Income per capita (log)			0.1505***			0.1943***
			(0.0513)			(0.0476)
Age 0 to 4 / Population				-1.2547**		-1.1052**
				(0.5191)		(0.5046)
Age 5 to 19 / Population				0.0572		0.1384
				(0.3394)		(0.3449)
Age 65 + / Population				1.1507***		1.5533***
				(0.2472)		(0.2734)
Size of District Electorate (log)					-0.0126	-0.0070
					(0.0461)	(0.0464)
Fixed Effects	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year
Weighted	No	No	No	No	No	No
R-squared	0.9596	0.9596	0.9601	0.9600	0.9596	0.9608
# Obs.	34906	34906	34717	34906	34838	34649

Any PR Representative is a dummy variable equal to one if the municipality has at least one PR representatives and zero otherwise;
Two PR Representative is a dummy variable equal to one if the municipality has two PR representatives and zero otherwise;
Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

90

One potential concern about these estimates is that there may be unobserved time-varying factors that correlate with both the public expenditure in a district and the probability that the district has a PR representative. For example, recognizing that a PR representative could bring in more public spending, a district with temporarily high demand for public spending may vote strategically for the runner-up to increase its chance of having a PR representative. If the high demand for public spending, say due to a natural disaster, would be partially fulfilled even in the absence of a PR representative, the estimated effect of having a PR representative on public expenditure would be biased upward. On the other hand, if a district's SMD representative is very successful at bringing in pork barrel spending and is rewarded electorally by voters, the narrowness ratio of the runner-up would be low and the district may not have a PR representative. If there is persistence in how much pork barrel spending an SMD representative brings, having a PR representative would be negatively correlated with the persistent unobserved component of municipal spending. Using the full sample, the estimated effect of having a PR representative on expenditure would be biased downward. To address such concerns, I estimate the effect of having a PR representative on public expenditure using the quasi-randomized sample described in the previous section. Notice that, even if voters are strategic as described above, this sample still provides a consistent estimate as long as voters are not able to coordinate precisely to gain a PR representative by foreseeing small electoral shocks. There are reasons to believe that voters are not that sophisticated. A district typically has more than 300 thousand eligible voters. It is extremely difficult for voters to coordinate precisely to ensure that their

SMD-losing candidate is sorted into one side of the cut-off for the PR seat in the face of small electoral shocks. Polling and forecasting prior to elections are not very extensive in Japan. For example, the Democratic Party of Japan was surprised by its own success in the 2009 general election. Had it listed two more names on its party list in the Kinki PR block, it could have obtained two more PR seats.

Compared with the full sample, SMD races in the quasi-randomized sample are more competitive. The average margin of victory is 11.5%, compared to 15.5% in the full sample. However, it should be noted that the most competitive districts are unlikely to be included in the quasi-randomized sample. Eighty-four percent of runners-up are dual candidates, and among these, one third are elected to a PR seat. If two dual candidates, the winner and the runner-up, have roughly equal votes, whoever loses in the SMD race would have a high narrowness ratio and hence would rank high among her ex ante equally ranked peers. Thus, districts that are highly competitive will have a PR representative with a probability close to one regardless of who wins the SMD seat. A small perturbation of vote share would not be sufficient to deprive them of a PR representative. Similarly, very safe districts are excluded from the quasi-randomized sample because they require huge electoral shocks in order to elect one of their candidates through the PR system. Therefore, the quasi-randomized sample contains SMDs with meaningful but not the most intensive electoral competition. Inferences based on this sample should be useful for addressing broader issues. For example, the exogenous variation of electoral strength studied in Lee et al. (2004) comes from the closest elections in the past and the incumbency advantages the narrow winners enjoy subsequently. They infer that

electoral strength has limited influence on the voting records of legislators compared with a legislator's identity. They conclude that voters elect candidates already likely to represent their preferred policies, rather than using election pressure to convince representatives to chose their preferred policies. However, this inference need not apply to districts where elections are less competitive. If polarized districts have more competitive elections, policy moderation there may provoke backlash among an incumbent's base voters, harming their electoral prospects via primary challenges or lower turnout from core supporters. This would be consistent with Gerber and Lewis' (2004) finding that legislators' positions diverge more from the preference of median voters in more heterogeneous districts.

Table 2.9 reports estimates using the same specification given by equation (1), but with the quasi-randomized sample. In the baseline specification with fixed effects but no other controls, municipalities with a PR representative are estimated to have on average 1.82% more public expenditure per capita, which is significant at the 1% level. The magnitude and statistical significance of the main coefficient estimate remain stable with the addition of controls. Notice that in the quasi-randomized sample, controls are not in principle necessary for identification even if they are correlated with public expenditure; in practice, adding controls might help to reduce noise and can help us assess the robustness of the estimates in the finite sample. In column (6) of Table 2.9, the voting population of the SMD containing the municipality has a coefficient of -0.2000, significant at the 5% level. This contrasts with the insignificant estimate of -0.0068 from the full sample. The instability of estimates for this coefficient may suggest that the size of the electorate or district

population may proxy for other variables, or it may suggest that the size of electorate

has different true impacts in different samples.

Table 2.9: Additional Representation and Local Public Expenditure per capita (Quasi-randomized Sample with 2% Perturbations)

	Dependent Variable: Municipal Public Expenditure per capita (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0182***	0.0178**	0.0155**	0.0184***	0.0210***	0.0182***
	(0.0066)	(0.0070)	(0.0063)	(0.0068)	(0.0062)	(0.0060)
Population (log)		-0.1860				-0.0513
		(0.1223)				(0.1039)
Taxable Income per capita (log)			0.2912***			0.2866***
			(0.0814)			(0.0603)
Age 0 to 4 / Population				-2.0947**		-1.4602*
				(0.9088)		(0.8786)
Age 5 to 19 / Population				0.6212		0.9935**
				(0.4195)		(0.4699)
Age 65 + / Population				0.9743**		1.3175***
				(0.3910)		(0.3831)
Size of District Electorate (log)					-0.1914***	-0.2000***
					(0.0579)	(0.0733)
Fixed Effects	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year
Weighted	No	No	No	No	No	No
R-squared	0.9717	0.9722	0.9732	0.972	0.972	0.9739
# Obs.	10208	10208	10156	10208	10184	10132

PR Representative is a dummy variable equal to one if the municipality has a PR representative and zero otherwise;

Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

95

2.4.2 Transfers from Central Government

Ideally, one would like to use data on discretionary transfers from the national government to the municipal governments as a dependent variable to confirm the political cause of higher municipal public expenditure. However, I only have categorical expenditure data for a subset of the sample period, and even in this data, discretionary transfers cannot be clearly identified. Moreover, targeted transfers may not be carried out transparently through discretionary items, but rather in a more disguised fashion by tampering with parameters used to determine transfers in various programs. To see if having an additional PR representative affects the total amount of transfers from the national government, I re-estimate Eq. (1) but using log per-capita transfers from the national government as the dependent variable. Using the quasi-randomized sample from FY 2002 to FY 2010, I find that having an additional PR representative has a positive effect of 1.7% to 1.9%, depending on specification. However, these coefficients are imprecisely estimated. Standard errors robust to two-way clustering are about 1.1%, giving most estimates a p-value around 10% if the coefficient is tested against zero. Table 2.10 reports these results, as well as estimates using the full sample over the abbreviated sample period FY 2002 – FY 2010. Results from the full sample are broadly similar, with estimates ranging from 0.87% to 0.93% and mostly significant at the 5% level.

Note that the estimates in Table 2.10 use only a subset of the time periods available in the original sample, due to data limitations. However, since transfers from prefectural governments only account for a small share of revenue for municipal

governments (see Figure 2.2), I can use the difference between total local public expenditure and local tax revenue to proxy the amount of transfers from the national government for a longer sample period. This alternative measure is highly correlated $(\rho = 0.951)$ with the direct measure of transfers from the national government over the period FY 2002 to FY2010. Estimation results using the alternative measure of transfers over the longer sample period FY 1997 to FY 2012 are reported in Table 2.11. In the full sample, estimates from various specifications suggest that an extra representative results in a 1.1% to 1.2% increase of transfers, with all estimates significant at the 5% level. In the quasi-randomized sample, the effect is much larger, ranging from 2.1% to 2.6%, again all significant at the 5% level. Therefore, these results provide evidence that the higher public expenditure associated with having a PR representative is due to more transfers from the central government.

Table 2.10: Additional Representation and Transfers from National Government to Municipal Governments

Dependent Variable: Transfers from National Government to Municipal Governments (log per capita)

	Full Sample (FY 2002 - FY 2010)					
	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0091**	0.0092**	0.0093**	0.0093**	0.0088**	0.0087*
	(0.0044)	(0.0043)	(0.0044)	(0.0044)	(0.0044)	(0.0045)
R-squared	0.9788	0.9789	0.9788	0.9792	0.9788	0.9793
# Obs.	17367	17367	17216	17367	17299	17148

	Quasi-randomized Sample (FY 2002 - FY 2010)					
	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0175	0.0173	0.0177	0.0187	0.0174	0.0185
	(0.0107)	(0.0106)	(0.0108)	(0.0118)	(0.0109)	(0.0119)
R-squared	0.9857	0.9857	0.9857	0.9858	0.9857	0.9858
# Obs.	5956	5956	5912	5956	5932	5888

Control Variables:	(1)	(2)	(3)	(4)	(5)	(6)
Population (log)		Y				Y
Taxable Income per capita (log)			Y			Y
Age 0 to 4 / Population				Y		Y
Age 5 to 19 / Population				Y		Y
Age 65+ / Population				Y		Y
Size of District Electorate (log)					Y	Y

PR Representative is a dummy variable equal to one if the municipality has at least one PR representative and zero otherwise;

Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;

Municipal and year fixed effects are included.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 2.11: Additional Representation and Gap Between Per-Capita Local Public Expenditure and Local Tax Revenue

Dependent Variable: Municipal Public Expenditure minus Local Tax Revenue (log per capita)

Full Sample (FY 1997 - FY 2010)

	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0121***	0.0118***	0.0122***	0.0117***	0.0120***	0.0109***
	(0.0043)	(0.0042)	(0.0045)	(0.0041)	(0.0042)	(0.0040)
R-squared	0.9622	0.9623	0.9623	0.9628	0.9622	0.9632
# Obs.	34906	34906	34717	34906	34838	34649

Quasi-randomized Sample (FY 1997 - FY 2010)

	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0230***	0.0226***	0.0208**	0.0229***	0.0256***	0.0232***
	(0.0083)	(0.0085)	(0.0082)	(0.0086)	(0.0082)	(0.0083)
R-squared	0.9747	0.9748	0.9752	0.975	0.9749	0.9758
# Obs.	10208	10208	10156	10208	10184	10132

Control Variables:	(1)	(2)	(3)	(4)	(5)	(6)
Population (log)		Y				Y
Taxable Income per capita (log)			Y			Y
Age 0 to 4 / Population				Y		Y
Age 5 to 19 / Population				Y		Y
Age 65+ / Population				Y		Y
Size of District Electorate (log)					Y	Y

PR Representative is a dummy variable equal to one if the municipality has at least one PR representative and zero otherwise;

Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;

Municipal and year fixed effects are included.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

2.4.3 Robustness

To see whether the results are driven by small municipalities, I re-estimate the baseline results from Table 2.7 and Table 2.9 with each municipality weighted by its population. Results are shown in Table 2.12. Estimates remain significant at conventional levels. In the full sample, the estimated magnitude is slightly higher than the unweighted results. With the quasi-randomized sample, the estimated magnitude drops modestly. One possible explanation is that smaller municipalities are easier to target for electorally motivated transfers.

From 2003 to 2004, there was a large wave of municipal mergers (see, for example, Weese, 2011). The number of municipalities decreased from more than 3,200 to less than 2,000. While this should not affect the consistency of estimates from the quasi-randomized sample, and while the municipal fixed effects reflect any change of municipal identity, mergers may bias the estimates from the full sample if they are correlated with having a PR representative. For example, there is a trade-off in the number of jurisdictions between economies of scale in public goods provision and heterogeneity of preferences (Alesina and La Farrara, 2000; Weese, 2012). If economic integration after mergers increases public expenditure over time and if political integration increases a district's chance of having a PR representative, the estimated effect of having a PR representative may be biased upward. In estimates reported in the upper panel of Table 2.13, I re-estimate the effect of having a PR representative on per capita public expenditure, as well as the per capita gap between public expenditure and local tax revenue, using a balanced

panel of municipalities that are in the sample for the entire period. In this sample, no municipality is involved in any merger over the sample period. The effects are less precisely estimated, but are quantitatively similar to the baseline results.

In the quasi-randomized sample, a municipality enters the sample following an election in which it received a treatment status or control status for some perturbation and exits if it does not receive a treatment or control status in the next election. One may be concerned that municipalities with infrequent presence in the quasi-randomized sample are considerably different from other municipalities in the randomized sample and that such unobserved characteristics drive the results. For example, suppose that voters are aware that additional representation through the PR system is able to bring in additional funding from the national government, and vote strategically to lower the margin of victory for the SMD winner. This by itself would not invalidate my identification strategy as long as voters are not able to coordinate and precisely control the allocation of vote shares to their candidates. But if municipalities only exercise strategic voting when there is a high demand for public expenditure and when voters anticipate that this demand will be met when a candidate who lost in that SMD is elected through the PR system, the estimated average treatment effect could be largely driven by these municipalities with a high treatment effect. I therefore re-estimate the treatment effect of having a PR representative using a sub-sample of the quasi-randomized sample, including only municipalities present in the sample for at least half of the sample period (i.e. seven years). The estimates, shown in the second part of Table 2.13, are quantitatively similar to the results in the full sample and remain significant at the 5% level.

In the full sample, local political characteristics may correlate with having a PR representative, hence confounding the estimated causal impact of representation. In the quasi-randomized sample, this is not a concern in principle as long as the vote share perturbations are small enough. To see whether political characteristics are a concern in a finite sample, I include an alternative set of political controls. They include the vote share of the SMD winner, the vote margin difference between the SMD winner and SMD runner-up and the narrowness ratio of the runner-up in the SMD. Results reported in Table 2.14 show that the main estimates of interest are robust to the inclusion of these controls in either sample.

Table 2.12: Additional Representation and Local Public Expenditure Per Capita (Population Weighted)

Dependent Variable: Municipal Public Expenditure per capita (log)

Full Sample (FY 1997 - FY 2010)

	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0102***	0.0100***	0.0097***	0.0091**	0.0103***	0.0081**
	(0.0037)	(0.0036)	(0.0038)	(0.0036)	(0.0037)	(0.0034)
R-squared	0.9315	0.9316	0.9325	0.9327	0.9315	0.9345
# Obs.	34906	34906	34717	34906	34838	34649

Quasi-randomized Sample (FY 1997 - FY 2010)

	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0130**	0.0135**	0.0125*	0.0131**	0.0131**	0.0124**
	(0.0064)	(0.0066)	(0.0066)	(0.0064)	(0.0064)	(0.0063)
R-squared	0.9557	0.9559	0.9576	0.9562	0.9561	0.9584
# Obs.	10208	10208	10156	10208	10184	10132

Control Variables:	(1)	(2)	(3)	(4)	(5)	(6)
Population (log)		Y				Y
Taxable Income per capita (log)			Y			Y
Age 0 to 4 / Population				Y		Y
Age 5 to 19 / Population				Y		Y
Age 65+ / Population				Y		Y
Size of District Electorate (log)					Y	Y
Population Weighted	Y	Y	Y	Y	Y	Y

PR Representative is a dummy variable equal to one if the municipality has at least one PR representative and zero otherwise;
Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;
Municipal and year fixed effects are included;
Each observation is weighted by the municipal population in the year.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 2.13: Balanced Full Sample and A Sub-Sample of Municipalities with Long History in the Quasi-Randomized Sample

Balanced Panel of the Full Sample

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
Public Expenditure (log per capita)	0.0073*	0.0072*	0.0063	0.0073*	0.0078*	0.0060
	(0.0043)	(0.0042)	(0.0044)	(0.0041)	(0.0040)	(0.0037)
Expenditure minus Local Tax Revenue (log per capita)	0.0122**	0.0118**	0.0117**	0.0123**	0.0124**	0.0107**
	(0.0058)	(0.0056)	(0.0059)	(0.0054)	(0.0056)	(0.0051)
# Obs.	19943	19943	19941	19943	19913	19911

A Sub-Sample of the Qusai-Randomized Sample: Municipalities in the Qusai-Randomized Sample for at least Half of the Sample Period

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
Public Expenditure (log per capita)	0.0188**	0.0180**	0.0180**	0.0193**	0.0216***	0.0209***
	(0.0081)	(0.0084)	(0.0072)	(0.0084)	(0.0077)	(0.0072)
Expenditure minus Local Tax Revenue (log per capita)	0.0259**	0.0253***	0.0253***	0.0264**	0.0282***	0.0281***
	(0.0101)	(0.0102)	(0.0095)	(0.0107)	(0.0099)	(0.0101)
# Obs.	3706	3706	3701	3706	3705	3700

Controls:	(1)	(2)	(3)	(4)	(5)	(6)
Population (log)						Y
Taxable Income per capita (log)		Y	Y			Y
Age 0 to 4 / Population				Y		Y
Age 5 to 19 / Population				Y		Y
Age 65 + / Population				Y		Y
Size of District Electorate (log)					Y	Y

PR Representative is a dummy variable equal to one if the municipality has at least one PR representative and zero otherwise;

Standard errors in parentheses are robust to two-way clustering on municipality and on PR block–House term;

Each cell contains an estimate of treatment effect from one regression. Different columns represent specifications with different controls;

Municipal and year fixed effects are included in each regression.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 2.14: Additional Representation and Local Public Expenditure per capita (Alternative Political Controls)

Full Sample

	(1)	(2)	(3)	(4)	(5)	(6)
	LHS: Municipal Public Expenditure per capita (log)					
A PR Representative	0.0089***	0.0086***	0.0087***	0.0087***	0.0088***	0.0089***
	(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0032)
Vote Share of SMD Winner	0.0115			0.0374	0.0231	0.0475
	(0.0207)			(0.0424)	(0.0348)	(0.0427)
Victory Margin of SMD Winner		0.0013		-0.0193		-0.0559
		(0.0115)		(0.0236)		(0.0448)
Narrowness Ratio of SMD Runner-up			-0.0013		0.0066	-0.0223
			(0.0077)		(0.0131)	(0.0246)
# Obs	34906	34906	34906	34906	34906	34906

Quasi-Randomized Sample

	(1)	(2)	(3)	(4)	(5)	(6)
	LHS: Municipal Public Expenditure per capita (log)					
PR Representative	0.0180***	0.0181***	0.0180***	0.0185***	0.0182***	0.0183***
	(0.0067)	(0.0068)	(0.0068)	(0.0067)	(0.0067)	(0.0067)
Vote Share of SMD Winner	-0.0239			-0.0471	-0.0317	-0.0583
	(0.0466)			(0.0761)	(0.0658)	(0.0802)
Victory Margin of SMD Winner		-0.0043		0.0197		0.0917
		(0.0278)		(0.0462)		(0.1079)
Narrowness Ratio of SMD Runner-up			0.0048		-0.0047	0.0446
			(0.0184)		(0.0261)	(0.0601)
# Obs	10208	10208	10208	10208	10208	10208

PR Representative is a dummy variable equal to one if the municipality has at least one PR representative and zero otherwise;
Standard errors in parentheses are robust to two-way clustering on municipality and on PR block–House term;
Municipal and year fixed effects are included.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

2.4.4 Public Works, Welfare Expenditure and Government Payroll

While having an additional *de facto* representative increases total municipal public expenditure by about 1.8%, the extent to which this represents an increase of discretionary spending is unclear. The Ministry of Finance classifies spending into three types: discretionary spending, compulsory spending and other. Discretionary expenditures are mainly on public infrastructure. Compulsory spending consists of debt service, wages and salaries of government employees, and welfare spending. Nation-wide, public works expenditure accounts for about 15% of total municipal expenditure. Welfare spending and government payroll account for 15% and 19%, respectively. Table 2.15 shows the estimated impact of having an additional representative on per-capita municipal expenditure on public works, welfare and payroll, respectively. Estimates from the quasi-randomized sample suggest that an additional representative increases public works spending by as much as 8%, while reducing welfare spending by about 2%. This is consistent with the view that public works in Japan often function as job support programs (Schlesinger, 1999). Municipal governments in Japan have little authority in setting welfare policies. The scope, eligibility criteria and payment standards for welfare are set by the national government in a fairly uniform manner, though with some regional adjustments reflecting variations in the cost of living. Because public works spending provides jobs and economic stimulus in local areas, fewer people would need or be eligible for welfare, which in turn lowers welfare expenditure administrated by the municipal government. Having a PR representative has no significant effect on the

payroll of municipal employees. In unreported results, I do not find any significant effect on the numbers of temporary or permanent government employees either. This result suggests that higher expenditure is not driven by patronage spending through government employment. This result is consistent with the fact that, except in the largest cities like Tokyo or Osaka, most candidates for local government are non-partisan or are affiliated with the Japanese Communist Party, which has little presence in national politics. Therefore, local officials are unlikely to engage in partisan politics by manipulating municipal employment.

Table 2.15: Additional Representation and Expenditures on Public Works, Welfare and Government Payroll

Full Sample

Dependent Variable:	Infrastructure		Welfare		Payroll	
(expenditure on:)	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0251*	0.0244*	-0.0075	-0.0067	0.0014	0.0011
	(0.0140)	(0.0129)	(0.0053)	(0.0051)	(0.0024)	(0.0023)
# Obs.	17368	17149	17368	17149	17368	17149

Qusai-Randomized Sample

Dependent Variable:	Infrastructure		Welfare		Payroll	
(expenditure on:)	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0770**	0.0751**	-0.0219**	-0.0192*	0.0057	0.0053
	(0.0336)	(0.0332)	(0.0105)	(0.0101)	(0.0062)	(0.0054)
# Obs.	5956	5888	5956	5888	5956	5888

Controls:	(1)	(2)	(3)	(4)	(5)	(6)
Population (log)		Y	Y	Y	Y	Y
Taxable Income per capita (log)		Y	Y	Y	Y	Y
Age 0 to 4 / Population		Y	Y	Y	Y	Y
Age 5 to 19 / Population		Y	Y	Y	Y	Y
Age 65 + / Population		Y	Y	Y	Y	Y
Size of District Electorate (log)		Y	Y	Y	Y	Y

PR Representative is a dummy variable equal to one if the municipality has at least one PR representatives and zero otherwise;

Each cell contains an estimate of the treatment effect from one regression;

In columns (1) and (2), the dependent variable is log per capita municipal expenditure on public works;

In columns (3) and (4), the dependent variable is log per capita municipal welfare spending;

In columns (5) and (6), the dependent variable is log per capita municipal expenditure on government payroll;

Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

2.5   Partisan Affiliation and Legislative Bargaining

In the legislative bargaining framework of Baron and Ferejohn (1989), representatives join a minimum winning coalition to gain rents. An agenda setter who proposes how to split a fixed pie is able to extract more rents. Members of the majority party often have a better chance to be recognized as agenda setters and, therefore, receive more rents. Albouy (2013) finds evidence supporting this model. He finds that states with a larger portion of their delegates belonging to the majority party of the United States Congress receive a larger amount of federal grants.

In the presence of party discipline, however, it is less clear whether a typical representative is able to receive a larger amount of rents if he or she is affiliated with the majority party or is a member of the governing coalition. The impact of party affiliation on rents depends on the source of party discipline. Since parties are both legislative institutions and electoral institutions, there are two interconnected but conceptually distinct aspects of party discipline, namely legislative party discipline and electoral party discipline (Myerson, 1997). With legislative party discipline, legislators are expected to vote with their party. With electoral party discipline, legislators rely on their party to be elected. For example, in a proportional representation system where voters vote only for parties and parties have full control over the ranking of candidates on a party list, electoral party discipline is extremely strong, as parties decide the electoral fates of candidates.

Diermeier and Feddersen (1998) provide insight on how legislative party discipline can arise in a parliamentary system, even without electoral party discipline.

A prominent feature of parliamentary systems is the vote of confidence procedure. A governing coalition can attach a vote of confidence to any legislation, so that a failure of passage induces a dissolution of the governing coalition. Since members of the governing coalition have a better chance to be recognized as agenda setters, and therefore to extract more rents, members of the governing coalition have greater continuation value under the current government than non-members do. Thus, they have more incentive to vote with the proposed rent distribution and sustain the current government. Therefore, legislative party discipline arises and, as a consequence, members of the governing coalition are able to extract more rents than in non-parliamentary settings.

On the other hand, if parties have strong control over the electoral fate of representatives, they are able to impose legislative party discipline over their members. In this case, parties or factions may act in unison, and legislative bargaining is likely to happen between leaders of parties or factions. Intra-party or intra-faction bargaining then decides how much a representative receives in rents. It is unclear in this case whether a typical member of the governing coalition would receive more rents. In the extreme case where party leaders retain all rents, having an extra representative may not increase the public spending in a district.

Though some argue that Japanese politics has become more party-centered since the electoral reform in 1994 (e.g., Rosenbluth et al., 2010), Japanese politics has traditionally been personalistic, in that personal characteristics of candidates and personal votes are much more salient than party platforms in elections. However, legislative party discipline has been strict (Hirano et al., 2011). Only in rare

110

occasions is the ruling coalition unable to rely on votes from its members to pass legislation. One example in which party discipline failed was the privatization reform of Japan Post in 2005, after which Prime Minister Junichiro Koizumi expelled rebels from his party and called an early election (Nemoto et al., 2008). Japan has a parliamentary system with a vote of confidence procedure. It also has strict campaign finance laws favoring parties over individual politicians. For example, public funds subsidizing political campaigns are available to qualified parties, but not to individual candidates. Individual politicians cannot legally accept campaign contributions from corporations, labor unions, and other organizations. Therefore, it is unclear to what extent the legislative party discipline in Japan can be attributed to the endogenous bargaining cohesion emphasized in Diermeier and Feddersen (1998), or to the presence of electoral institutions advantaging parties.

To see whether having a representative in the governing coalition increases municipal spending, I extend the baseline specifications by adding two dummy variables. The first equals one if the SMD representative belongs the governing coalition and zero otherwise. The second equals one if a municipality has a PR representative belonging to the governing coalition and zero otherwise. Results using the quasi-randomized sample are reported in Table 2.16. Having an SMD representative in the governing coalition increases per capita municipal expenditure by about 1.5% to 1.9%, which is significant at 10%. Having a PR representative in the governing coalition increases per capita municipal expenditure more than having a non-governing PR representative, by about 0.7% to 1.4%, although the estimates are not always significant at the 10% level. This result is consistent with Albouy's (2013) findings for

the U.S. However, even if the PR representative is not from the governing coalition, having a PR representative still increases per-capita municipal public expenditure by about 1.5%, which suggests that a better chance of having a representative in the governing coalition is not the main driver of my baseline results.

The above results suggest that representatives are able to share some rents obtained by their parties or factions. In this case, the rents obtained by SMD representatives and by PR representatives from the same party but from different districts should be positively correlated. Since the bargaining power of a party could change from year to year even within a parliamentary term, I test the above prediction by comparing the party-year fixed effects of SMD representatives and party-year fixed effects of PR representatives. In particular, I estimate the following specification using the quasi-randomized sample:

$$log(y_{it}) = \alpha + \sum_t \sum_p \delta_{pt}^{SMD} D_{pit}^{SMD} + \sum_t \sum_p \delta_{pt}^{PR} D_{pit}^{PR} + X_{it}'\beta + \mu_i + \pi_t + \epsilon_{it} \quad (2.2)$$

where y_{it} is the public expenditure per capita for municipality i in fiscal year t; D_{pit}^{SMD} is a dummy variable equal to one if municipality i has an SMD representative from party p at time t and zero otherwise; δ_{pt}^{SMD} then is a party-year fixed effect for municipality i with an SMD representative from party p in fiscal year t; similarly, D_{pit}^{PR} is a dummy variable equal to one if municipality i has an PR representative from party p at time t and zero otherwise; then δ_{pt}^{PR} is a party-year fixed effect for municipality i with a PR representative from party p in fiscal year t, which is equal to zero if municipality i does not have a PR representative; X_{it} is a vector

of demographic and economic controls included in column (6) of Table 2.9; μ_i is a municipal fixed effect and π_t is a year fixed effect. The specification is estimated using dummy variables indicating party-year of the SMD representative and the PR representative (if any).

Figure 2.5 plots estimated the party-year fixed effects of PR representatives δ_{pt}^{PR} against the estimated party-year fixed effects of SMD representatives δ_{pt}^{SMD}. In this figure, I limit my attention to the two major parties, the Liberal Democratic Party (LDP) and the Democratic Party of Japan (DPJ), because the other parties have small numbers of SMD representatives and PR representatives in a typical year. The estimated party-year fixed effects δ_{pt}^{PR} and δ_{pt}^{SMD} are positively correlated. This suggests that, even where party discipline prompts legislators to vote along the party line, an extra representative is able to provide greater public expenditure by sharing rents obtained by his or her party.

Table 2.16: Representatives in Governing Coalition and Per-Capita Local Public Expenditure (Quasi-Randomized Sample; FY 1997 - FY 2010)

|	Dependent Variable: Municipal Public Expenditure per capita (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0152**	0.0148**	0.0130*	0.0154**	0.0184***	0.0161***
	(0.0068)	(0.0074)	(0.0067)	(0.0070)	(0.0064)	(0.0063)
SMD Rep. in Governing Coalition	0.0181*	0.0192*	0.0188*	0.0178*	0.0147*	0.0154*
	(0.0103)	(0.0112)	(0.0103)	(0.0107)	(0.0084)	(0.0088)
PR Rep. in Governing Coalition	0.0143*	0.0137*	0.0118	0.0137	0.0116	0.0087
	(0.0081)	(0.0083)	(0.0079)	(0.0085)	(0.0073)	(0.0075)
Population (log)						Y
Taxable Income per capita (log)		Y	Y			Y
Age 0 to 4 / Population				Y		Y
Age 5 to 19 / Population				Y		Y
Age 65+ / Population				Y		Y
Size of District Electorate (log)					Y	Y
# Obs.	10208	10208	10156	10208	10184	10132

PR Representative is a dummy variable equal to one if the municipality has a PR representative and zero otherwise;

Standard errors in parentheses are robust to two-way clustering on municipality and on PR block–House term;

Municipal and year fixed effects are included.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Figure 2.5: Party-Year Fixed Effects of SMD Representatives and PR Representatives on Municipal Expenditure
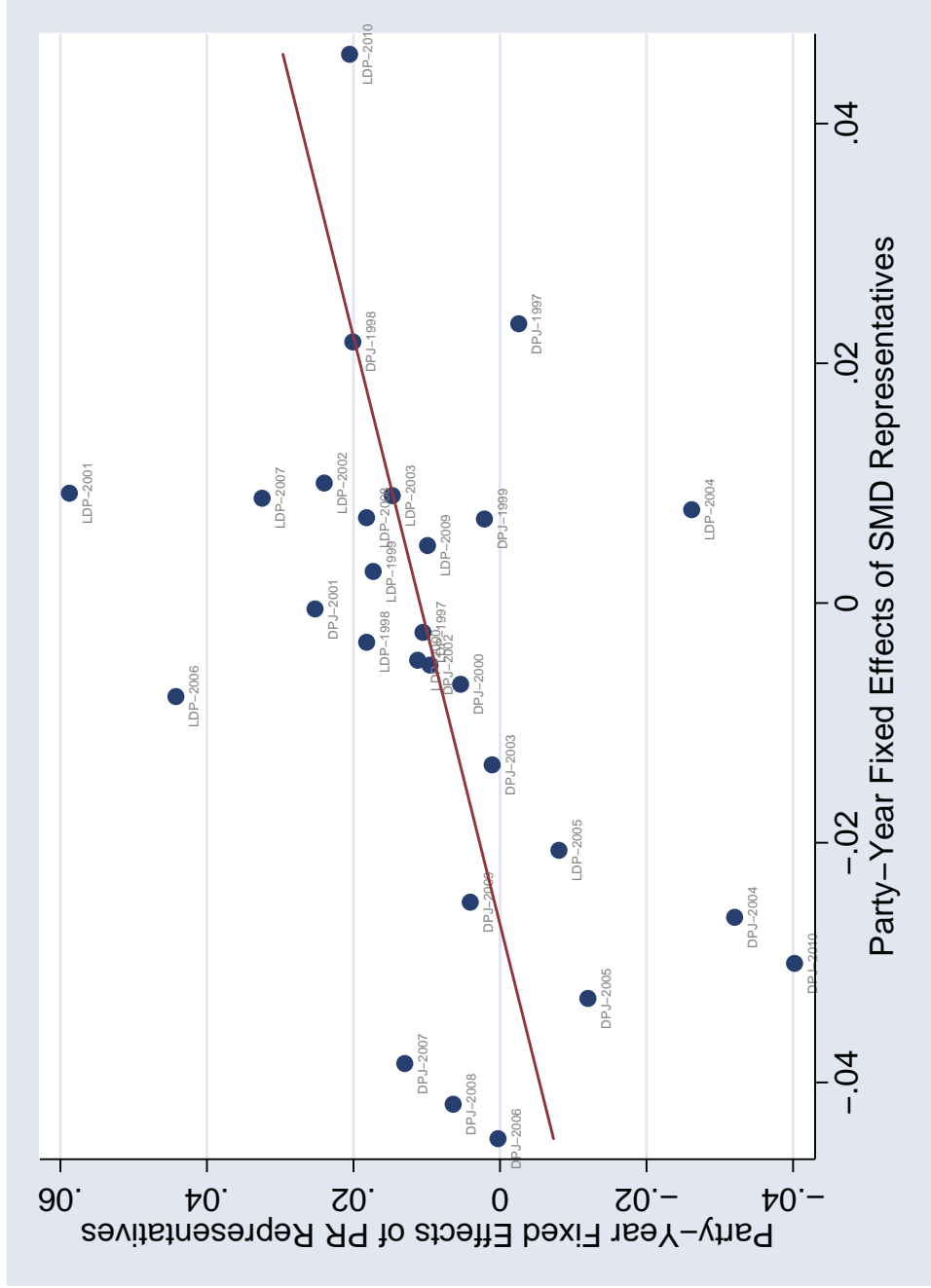
The above graph plots the estimated party-year fixed effects of PR representatives against the estimated party-year fixed effects of SMD representatives. Party-year fixed effects are estimated from the following specification using the quasi-randomized sample described in Section 2.3:

$$log(y_{it}) = \alpha + \sum_t \sum_p \delta_{pt}^{SMD} D_{pit}^{SMD} + \sum_t \sum_p \delta_{pt}^{PR} D_{pit}^{PR} + X_{it}'\beta + \mu_i + \pi_t + \epsilon_{it} \qquad (2)$$

where y_{it} is the public expenditure per capita for municipality i in fiscal year t; δ_{pt}^{SMD} is a party-year fixed effect for municipality i with an SMD representative from party p in fiscal year t; δ_{pt}^{PR} is a party-year fixed effect for municipality i with a PR representative from party p in fiscal year t, which is equal to zero if municipality i does not have a PR representative; X_{it} is a vector of demographic and economic controls included in column (6) of Table 2.9; μ_i is a municipal fixed effect and π_t is a year fixed effect. The specification is estimated using dummy variables indicating party-year of SMD representative and PR representative (if any).

2.6 Within-District Heterogeneity

In the classical Hotelling–Downs paradigm (Hotelling, 1929; Downs, 1957), the platforms of two candidates competing for office converge at the position most preferred by the median voter in a one-dimensional policy space. With a multi-dimensional policy space, however, policy convergence need not occur (Krasa and Polborn, 2012). Empirical observation often suggests non-convergence of policy choices by politicians. Using detailed referendum voting records in Los Angeles County to measure voter preferences, Gerber and Lewis (2004) find that, in more heterogeneous districts, the voting records of legislators are more distant from the positions preferred by the median voters. In other words, electoral competition is a weaker force in heterogeneous districts for driving convergence in policy choices. Lee et al. (2004) find that the electoral strength of members of the U.S. House of Representatives explains little of the variation in their voting records.

These findings suggest that voters affect policies primarily by electing representatives with fixed preferences, rather than by using elections to pressure representatives to adopt their preferred positions. In such a citizen–candidate framework (Osborne and Slivinski, 1996; Besley and Coate, 1997), some segments of voters have preferences that are more aligned with the preference of their representatives than other voters, and hence these voters are better represented. Overall, this literature suggests that within-district heterogeneity affects how a district is represented.

In the natural experiment I study here, if a district has a PR representative, the PR representative would be from a party different from that of the SMD rep-

116

resentative. This is because parties do not nominate more than one candidate to compete for an SMD seat. The losing candidate and winning candidate are necessarily from two different parties.[9] This fact has two implications. First, when the runner-up of an SMD race is elected to a PR seat, voters with preferences closer to the runner-up than to the SMD winner are better represented. The gain in the effective preference representation from having a PR representative is potentially larger for heterogeneous districts.

To estimate whether within-district heterogeneity affects the impact of PR representation on municipal spending, I proxy for within-district heterogeneity using the within-district standard deviations across municipalities of the municipal demographic controls used in the main estimations (i.e., population, income and age profile), as well as the share of local tax revenue in total municipal public expenditure. I then normalize these measures of within-district heterogeneity to have mean zero and standard deviation of one, and interact them with the dummy variable for having a PR representative or not. The use of cross-municipality differences to measure within-district heterogeneity is justified on two grounds. First, it may not be feasible for legislators to target groups within a municipality, while it may be feasible to target municipalities. In this case, within-district cross-municipality heterogeneity is first-order important. Second, in the presence of Tiebout sorting, within-district cross-municipality differences are positively correlated with within-district heterogeneity in preferences.

I find that the effect of having a PR representative on municipal expenditure

---

[9]Candidates may also run as independents for an SMD seat.

is larger in districts that are more heterogeneous among the municipalities they contain. As reported in Table 2.17, measures of within-district heterogeneity, except for per-capita income, have small and insignificant direct effects on per-capita municipal expenditure. However, their interactions with the treatment dummy for PR representation are always positive, and all but the interactions with log income per capita and the share of local tax revenue in expenditure are significant at 1%, where later is significant at 10%. Moreover, the magnitudes of these interactions are large. For example, the treatment effect almost doubles in districts that are one standard deviation higher than the national average in the heterogeneity measure for the share of population aged 65 years or more. In unreported results, when the treatment dummy of having a PR representative is interacted with the levels of these municipal control variables, the interaction terms have small coefficients and are never significant. Thus, these results are not mechanically driven by any heterogeneous treatment effect along these demographic variables.

However, it is unlikely that representatives distribute public spending to their constituents purely according to their own preferences, ignoring their electoral situation. The second implication of the partisan difference between the SMD and PR representatives is that having a PR representative weakens the incumbency advantage of the SMD representative in the following election. Incumbents enjoy electoral advantages over challengers for reasons such as better name recognition among voters and access to pork barrel spending as an electoral instrument. When the challenger to an SMD incumbent is a PR representative, the SMD incumbent no longer has these advantages and hence is subject to greater electoral competition.

Using the quasi-randomized sample and a linear probability model, I estimate the effects of having a PR representative on the electoral performance of both SMD winners and runners-up in the following election. Results are shown in Table 2.18. I find that when a runner-up in an SMD race is elected to a PR seat, she is about 50% more likely to run again in the following election, 70% more likely to be elected to an SMD seat and 50% more likely to be elected to any seat. These effects are significant at 1%. On the other hand, the winner of the SMD race is about 6% less likely to run again in the following election and about 15% less likely to be re-elected to an SMD seat. These effects are marginally significant at 10%. These findings suggest that being a PR representative confer an incumbency advantage on the runner-up, which intensifies the electoral competition between the SMD winner and the runner-up in the next election.

The analysis above suggests that having a PR representative might change the electoral incentives of candidates and might differentially affect municipalities within a district. In the following section, I examine the differential impacts of having a PR representative according to the municipalities' level of electoral support for the two representatives.

Table 2.17: Within SMD Heterogeneity and Representation on Local Public Expenditure Per Capita (Quasi-Randomized Sample; FY 1997 - FY 2010)

	Dependent Variable: Municipal Public Expenditure per capita (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative	0.0188***	0.0231***	0.0197***	0.0224***	0.0210***	0.0200***
	(0.0064)	(0.0068)	(0.0060)	(0.0073)	(0.0064)	(0.0068)
PR Representative × Heterogeneity	0.0140**	0.0061	0.0176***	0.0168**	0.0176***	0.0105
	(0.0055)	(0.0061)	(0.0042)	(0.0071)	(0.0053)	(0.0066)
Within SMD Heterogeneity in:						
Population (log)	-0.0098					
	(0.0133)					
Taxable Income per capita (log)		0.0165**				
		(0.0065)				
Age 0 to 4 / Population			-0.0030			
			(0.0056)			
Age 5 to 19 / Population				-0.0043		
				(0.0072)		
Age 65+ / Population					-0.0120	
					(0.0083)	
Municipal Tax Revenue / Municipal Public Expenditure						-0.0095
						(0.0064)
R-squared	0.9718	0.9719	0.9718	0.9717	0.9718	0.9727
# Obs.	10080	10075	10080	10080	10080	9275

PR Representative is a dummy variable equal to one if the municipality has a PR representative and zero otherwise;

Measures of within SMD heterogeneity are the within SMD standard deviations across municipalities in log population, share of population aged 65+ etc;

Measures of within SMD heterogeneity are normalized to have mean zero and standard deviation of one;

Standard errors in parentheses are robust to two-way clustering on municipality and on PR block–House term;

Municipal and year fixed effects are included.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 2.18: Candidates' Electoral Performance and Outcomes in the Following Election (Quasi-Randomized Sample)

SMD Winners

Binary dependent variable indicating the SMD winner's outcome in the next election:	(1)	(2)	(3)	(4)	(5)	(6)
	Run Again		Be Elected to an SMD Seat		Be Elected to Any Seat	
PR Rep.	-0.0464	-0.0545*	-0.0047	-0.0697*	0.0111	-0.0161
	(0.0300)	(0.0314)	(0.0458)	(0.0363)	(0.0455)	(0.0406)
Vote Share		-0.0858		1.2872***		1.5160***
		(0.1889)		(0.2768)		(0.2818)
$log(1+tenure)$		-0.0502**		-0.0390		-0.0538*
		(0.0236)		(0.0282)		(0.0290)
Constant	0.9142***	1.0098***	0.4645***	-0.0911	0.6154***	-0.0477
	(0.0158)	(0.0879)	(0.0285)	(0.1335)	(0.0277)	(0.1374)
Fixed Effects	-	Party-Election	-	Party-Election	-	Party-Election
# Obs.	512	512	512	512	512	512

SMD Runners-up

Binary dependent variable indicating the runner-up's outcome in the next election:	(1)	(2)	(3)	(4)	(5)	(6)
	Run Again		Be Elected to an SMD Seat		Be Elected to Any Seat	
PR Rep.	0.3441***	0.2583***	0.1562***	0.1804***	0.1901***	0.1923***
	(0.0374)	(0.0444)	(0.0420)	(0.0400)	(0.0468)	(0.0463)
Vote Share		1.3843***		1.3878***		1.4894***
		(0.3885)		(0.3294)		(0.3861)
$log(1+tenure)$		-0.0690**		-0.0216		-0.0533*
		(0.0287)		(0.0262)		(0.0302)
Constant	0.5237***	0.0917	0.2633***	-0.2434**	0.3846***	-0.1282
	(0.0268)	(0.1401)	(0.0245)	(0.1157)	(0.0274)	(0.1376)
Fixed Effects	-	Party-Election	-	Party-Election	-	Party-Election
# Obs.	512	512	512	512	512	512

The upper panel presents results for winners of SMD races. The lower panel presents results for runners-up of SMD races.
In the upper panel, **PR Rep.** is a dummy variable equal to one if the winner's district has a PR representative and zero otherwise.
In the lower panel, **PR Rep.** is a dummy variable equal to one if the runner-up is elected to a PR seat and zero otherwise.
Vote Share is the SMD vote share of the candidate (SMD winners in the upper panel and runner-up in the lower panel).
$log(1+tenure)$ is the natural logarithm of one plus the number of terms the candidate has served in the House of Representatives.
Standard errors in parentheses are robust to clustering on politician. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

2.7 Targeting: Swing versus Core

In empirical studies measuring representation as the ratio between the number of representatives and the size of the electorate, an implicit assumption is that the quantity of representatives is first-order important. However, the results in the last section suggest that the quality of representation is also important. Since parties do not nominate more than one candidate in an SMD race, a PR-elected candidate will be from a party other than that of the SMD winner. Voters who preferred the PR-elected candidate in the SMD race generally have interests different from those who voted for the SMD winner. A candidate losing the SMD race but elected through the party list affords her supporters representation in the legislature. The additional representation brings higher spending to the district, the more so in more heterogeneous districts. In other words, representation matters, but how much it matters may depend on how heterogeneous the district is.

However, voters' interests are likely both economic and ideological. Ideological affinity with a representative does not necessarily imply favorable treatment in the distributive policies pursued by that representative, specially for policies regarding tactical (pork barrel) spending. Theoretical arguments have been made on both sides about whether politicians will allocate tactical spending to swing voters or to their core supporters (e.g., Lindbeck and Weibull, 1993; Cox and McCubbins, 1986). In a general framework, Dixit and Londregan (1996) model how two parties compete for vote shares by promising pork barrel spending to groups with different partisan affinity. When the two parties are symmetric in their ability to deliver pork

spending to different groups, the parties will target groups containing a large share of swing voters (i.e., voters with weak predisposition toward a particular party). However, when parties are more efficient in delivering pork spending to their core supporters, perhaps due to their better understanding of what kind of public goods their core supporters want, spending is tilted toward groups with a large number of core supporters for the respective party. Existing evidence tends to support the notion that spending is targeted toward swing voters. For example, Arulampalam et al. (2009) find for India that swing states aligned with the central government receive more grants. Dahlberg and Johansson (2002) find that the central government of Sweden is more likely to provide temporary grants to municipalities with a large fraction of swing voters.

In order to examine whether having a PR representative results in increased transfers to the core voters or swing voters with in a district, I measure the swingness of a municipality by the vote share difference between the SMD winner and the runner-up in that municipality in the last election. While politicians may want in principle to target swing voters within a municipality overwhelmingly voting for one candidate, the non-partisan nature of local politics in Japan make such targeting difficult to carry out in practice. I will focus on the quasi-randomized sample. In this sample, the PR-elected candidates are almost always the runners-up, making the vote share margins in municipalities comparable between the treatment group and control group. In the eight cases where the PR-elected candidates was not the runners-up, most were closely third. Dropping these observations had little effect on the estimates. I extend the baseline specification to include a quadratic polynomial

123

of this municipal vote share margin and its interaction with the dummy variable for PR representation, as follows:

$$log(y_{it}) = \alpha + \left(\lambda_1 MM_{it} + \lambda_2 MM_{it}^2\right) + PR_{it} \times \left(\delta_0 + \delta_1 MM_{it} + \delta_2 MM_{it}^2\right) + X_{it}'\beta + \mu_i + \pi_t + \epsilon_{it}$$

$$(2.3)$$

where as before y_{it} is public expenditure per capita for municipality i in fiscal year t; PR_{it} is a dummy variable equal to one if municipality i has an SMD-losing but PR-elected representative at time t and zero otherwise; X_{it} is a vector of controls; μ_i is a municipal fixed effect; π_t is a year fixed effect; and MM_{it} is the difference of vote share between the SMD winner and runner-up in the municipality in the last election (hereafter municipal margin). Unlike the victory margin in the whole district, this municipal margin can be positive or negative. A negative municipal margin indicates a stronghold for the runner-up. If spending is targeted to swing voters, I expect $\lambda_2 < 0$ and $\lambda_2 + \delta_2 < 0$. On the other hand, if spending is targeted to core supporters, I expect $\lambda_1 MM_{it} + \lambda_2 MM_{it}^2$ to be monotonically increasing over the theoretical support of MM_{it}, i.e. $[-1, 1]$. Moreover, the quadratic function of MM_{it} when a municipality has a PR representative should have a U-shape, i.e.,

$$\lambda_2 + \delta_2 > 0$$

$$-1 < -\frac{\lambda_1 + \delta_1}{\lambda_2 + \delta_2} < 1$$

In order to make sure that the municipal vote share margin is not capturing a non-linear effect of the district-wise margin of victory for the SMD winner, I include a

124

quadratic polynomial of the district-wide margin in one specification. In another specification, I control for both the vote share of the SMD winner and that of the SMD runner-up, in case the victory margin is inadequate for measuring the electoral safety of the SMD representative. As reported in Table 2.19, none of these controls is significant in predicting municipal expenditures. In the first three columns of Table 2.19, I report results of regressions restricting all coefficients of quadratic terms to zero. In municipalities with no PR representative, the municipal margin has positive but small and insignificant effects on municipal expenditure. Having a PR representative has little impact on the effects of the municipal margin. The last three columns of Table 2.19 add quadratic terms. The results suggest no apparent nonlinear relationship between municipal margin and municipal expenditure when there is no PR representative. However, within districts having a PR representative, there is a significant quadratic relationship between municipal margin and municipal expenditure. The estimates imply that municipalities that vote heavily for either the SMD winner or the runner-up have more spending. In municipalities where the SMD winner and runner-up obtain equal vote shares, having a PR representative increases municipal expenditure by 1%. However, in municipalities where the runner-up outperforms the winner by 10 percentage points, having a PR representative increases expenditure by 2.3%.

In the top-left panel of Figure 2.6, I plot the fitted quadratic relationship between municipal margin and municipal expenditure, for the cases in which the municipality does and does not have a PR representative. Controls and fixed effects are set to zero for this graph. The kernel density of the municipal margin is plotted

in the background. Moreover, in subsequent columns I set the dependent variable to be transfers from the central government or public works expenditure, respectively, both in log per capita terms. The specifications are otherwise the same as in Eq. (2) and column (4) of Table 2.19. Alternative choices of controls as listed in Table 2.19 have little impact on the relationship between municipal margin and the dependent variable. The regression results are plotted in the middle and right graphs on the top row of Figure 2.6. The patterns across these three graphs are similar. Having a PR representative increases spending and transfers in municipalities where the runner-up did especially well. To examine whether this result is due to a misspecification of quadratic polynomial, I replace the quadratic polynomial with a cubic spline with internal knots at the 25th, 50th, and 75th percentiles of the municipal margin. The regression results for municipal expenditure, transfers and public works spending (all in log per capita terms) respectively are plotted in the bottom row of Figure 2.6. The cubic results confirm the bipolar effects of having a PR representative.

Interestingly, having a PR representative increases spending not only in municipalities where the PR representative had strong support, but also in municipalities where the SMD winner had a large lead. In other words, the presence of a PR representative shifts distributive politics toward core targeting. This result suggests that incumbents do not provide pork simply to carry out promises made when they ran for election; rather, they distribute pork in reaction to their electoral situation.

My interpretation is that politicians distribute pork barrel spending to mobilize voters. With the exception of Drazen and Eslava (2012), models of distributive politics tend to abstract from the turnout decisions of voters. Taking voter turnout

Figure 2.6: Municipal Margin of Vote Shares, PR Representation, and Expenditures and Transfers
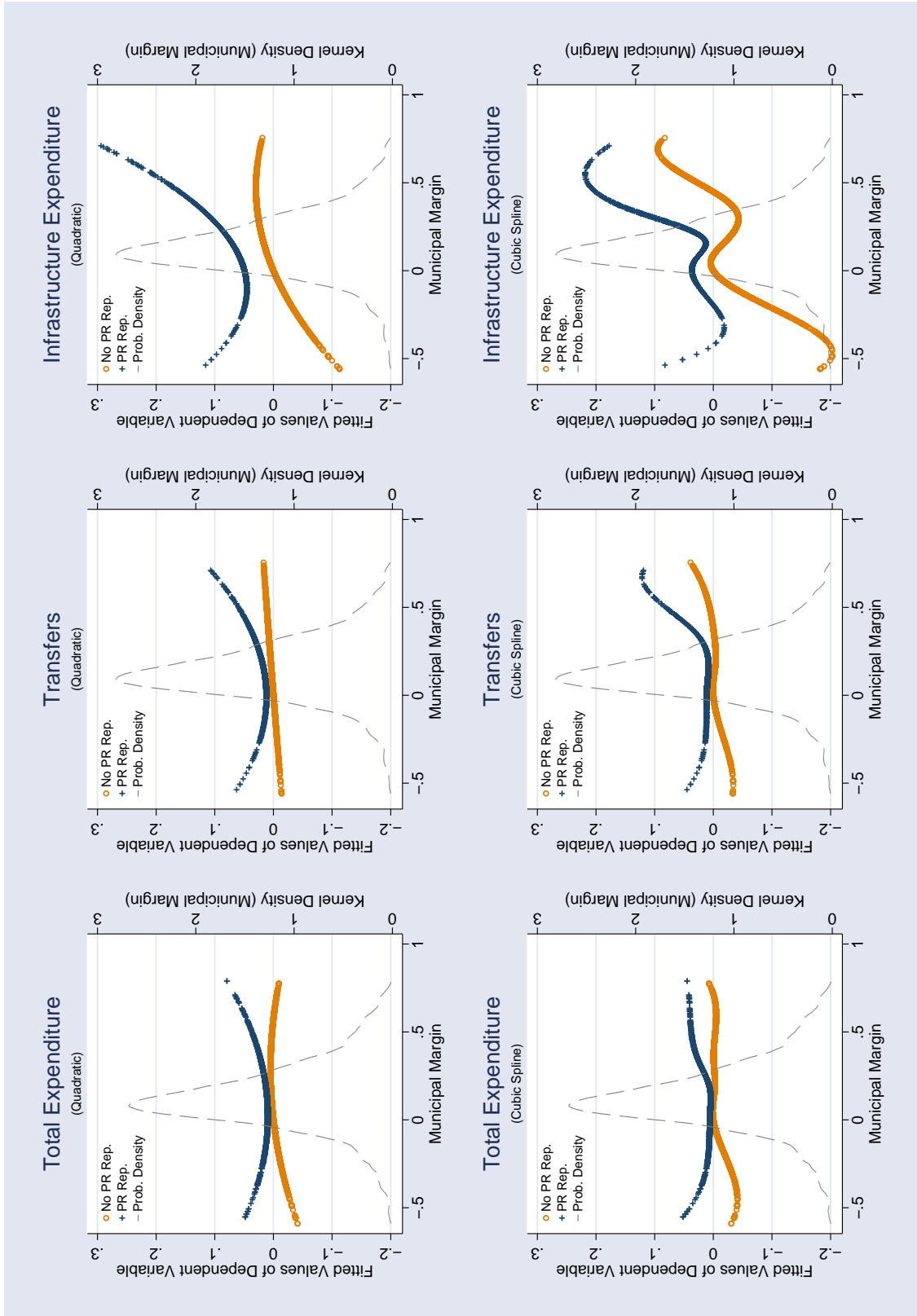
The dependent variables are total municipal expenditure (left column); amount of transfers from the national government (middle column); and municipal expenditure on public works (right column). All are in log per capita terms. The upper row plots the fitted values of the dependent variable against a quadratic polynomial of the municipal margin of vote shares between the SMD winner and runner-up (Municipal Margin). The lower row plots the fitted values of the dependent variables against a cubic spline of Municipal Margin with 3 internal knots at the 25th, 50th, and 75th percentiles. The dashed lines plot the kernel density of Municipal Margin. All regressions use the quasi-randomized sample and include municipality and year fixed effects. Explanatory variables other than the polynomial or spline of Municipal Margin are all set to zero.

as given, politicians distribute pork barrel spending to groups containing a large fraction of swing voters because the spending could switch a large number of votes. If the two candidates are symmetric and able to credibly promise an allocation of spending, this vote-buying incentive favors swing groups in distributive politics (Dixit and Londregan, 1996). However, in reality the allocation of pork barrel spending is determined by incumbents, and the allocation of spending may affect turnout. When there is only one incumbent, the vote-buying incentive would induce him to distribute benefits toward municipalities with a lot of swing voters, while the voter mobilization or turnout-buying incentive would induce him to distribute benefits toward municipalities with a lot of supporters. Combining these effects, a sole incumbent might favor neither swing municipalities nor core municipalities, consistent with the weak correlation found in the data between the incumbent's vote share in a municipality and that municipality's public expenditure in districts with no PR representative.

However, when there are two incumbents who are able to distribute pork, the mobilization incentive appears to dominate in the data. This could happen due to an inference problem for voters in assigning credit to politicians bringing in pork-barrel spending. When there are two incumbents, voters in swing municipalities may not be able to identify the contribution of each incumbent to the increase of public spending. Thus, the electoral return from distributing pork toward core municipalities becomes higher relative to the benefit of distributing toward swing municipalities.

Some additional empirical evidence supports such on interpretation. I estimate

a specification similar to that in equation (2.3), but with the turnout rate in the next election as the dependent variable. The municipal turnout rate is estimated by using a municipality's total number of valid votes cast divided by the voting age population. When there are two incumbents, the turnout rates in the next election are higher, particularly in municipalities that strongly favor either the SMD winner or the runner-up. The quadratic relationship is plotted in Figure 2.7. A cubic spline similar to those used in Figure 2.6 also confirms a bipolar impact of having a PR representative on turnout. However, possibly due to a smaller sample size and measurement errors in the turnout rate, the relationship between turnout rate and a representative's strength of support in a municipality is less precisely estimated compared to the estimated effects on public expenditure.

When there are two incumbents, strongholds of either incumbent benefit from greater local public expenditure. I argue that the intensified electoral competition provides greater incentive for politicians to bring more public spending to their core constituents. However, an alternative explanation is that electoral competition induces the majority party or the governing coalition to distribute more public spending to their core constituents. The governing coalition does so to protect their SMD seats in districts they win or to contest for the SMD seats in districts they lose. Because the candidates from the governing coalition are the SMD winners in some districts and the runner-up in other districts, distributing more public spending to the governing coalition's strongholds may create a bipolar relationship between public expenditure and the margin of vote share between SMD winners and runners-up, as found previously.

129

Figure 2.7: Municipal Margin of Vote Shares, PR Representation and Turnout Rate in the Next Election
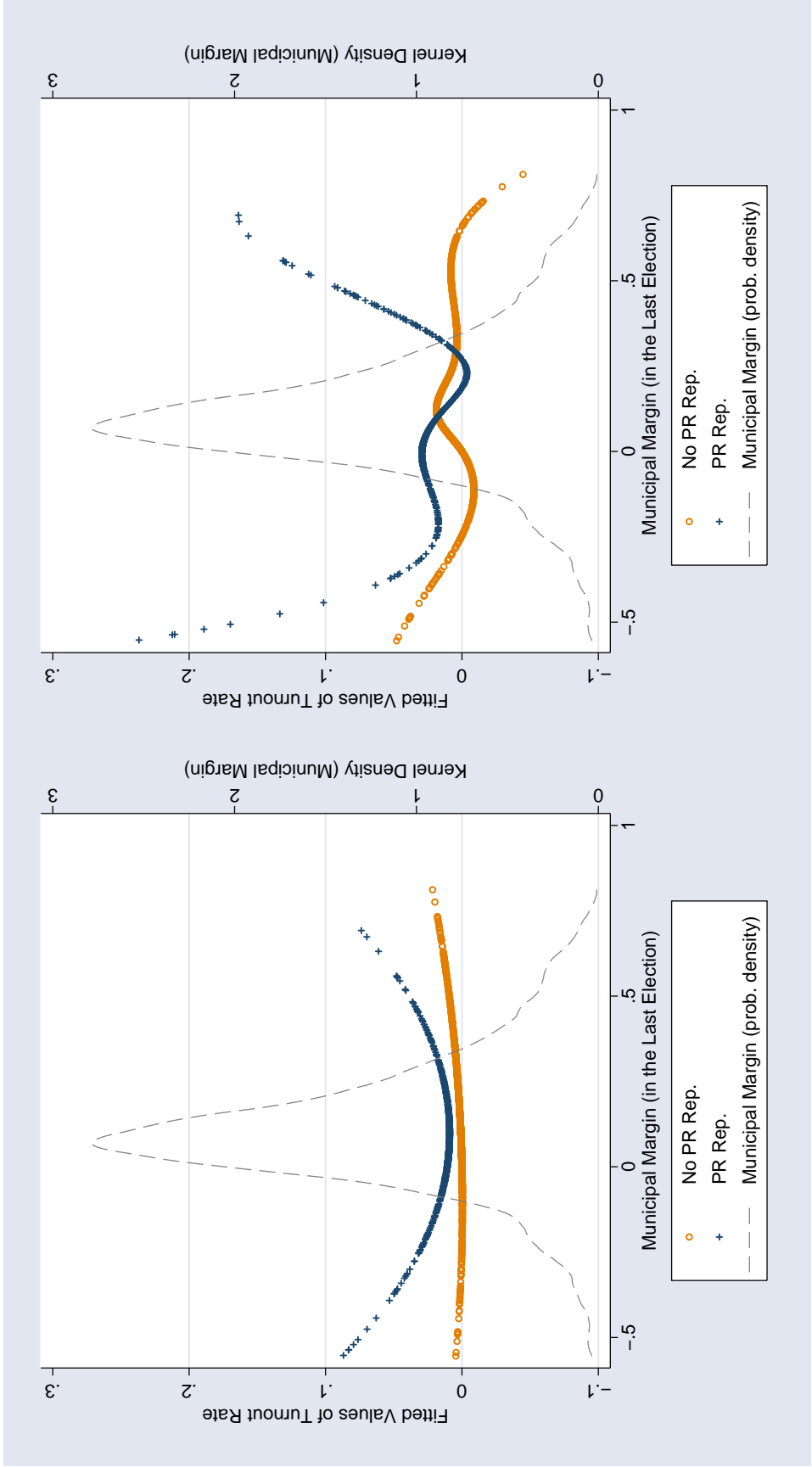
The dependent variable is the turnout rate of the municipality in the next election. The left graph plots the fitted values of the turnout rate in the next election against a quadratic polynomial of the municipal margin of vote shares between the SMD winner and runner-up (Municipal Margin). The right graph plots the fitted values of the turnout rate in the next election against a cubic spline of Municipal Margin with 3 internal knots at the 25th, 50th, and 75th percentiles. The dashed lines plot the kernel density of Municipal Margin. All regressions use the quasi-randomized sample and include municipality and election fixed effects. Explanatory variables other than the polynomial or spline of Municipal Margin are all set to zero.

To assess this possibility, I calculate the municipal margin of vote shares between the candidate from the governing coalition with the highest vote share in the district and the candidate from an opposition party with the highest votes share in the district. I then re-estimate equation (2.3) using this alternative measure of municipal margin. If the bipolar relationship found in Figure 2.6 is driven by the governing coalition, there should not be a bipolar relationship between this new municipal margin and public spending. In particular, having an additional representative should only benefit municipalities where the governing coalition has strong support. Results are plotted in Figure 2.8. As shown in the top left plot, there is still a bipolar relationship between the new municipal margin and total municipal expenditure when there are two incumbents. Both the strongholds of the governing coalition (located on the right side of the plot) and the strongholds of the opposition (located on the right side of the plot) benefit from having an additional representative. Similar relationships are found when the dependent variable is transfers from the central government or infrastructure spending, and hold whether the fitted polynomial is quadratic or cubic spline.

The analysis above supports the idea that electoral competition incentivizes individual politicians in the quasi-randomized sample to bring in more public resources to their core constituents. However, this is not to say parties will target core constituents in all electoral situations. Note that the most competitive SMD races are not likely to be included in the quasi-randomized sample. This is because dual candidates who narrowly lose in SMD races are likely to rank very high on their party lists. A small vote share shock is likely to be insufficient to take away

Figure 2.8: Municipal Vote Share Margin of Governing Party Candidate over Opposition Party Candidate, PR Representation, and Expenditures and Transfers
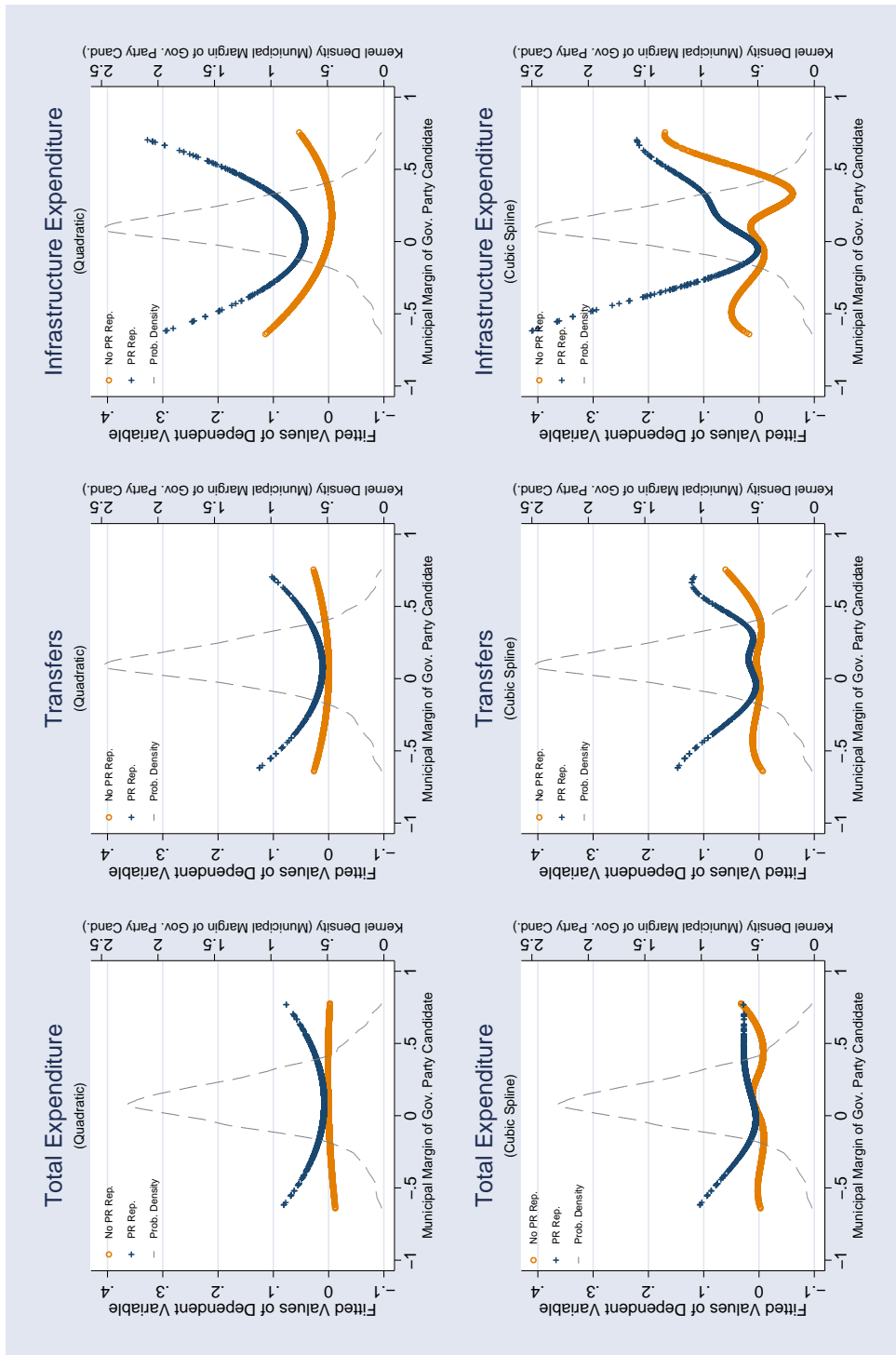
The dependent variables are total municipal expenditure (left column); amount of transfers from the national government (middle column); and municipal expenditure on public works (right column). All are in log per capita terms. The upper row plots the fitted values of the dependent variable against a quadratic polynomial of the municipal vote shares margin between the governing party candidate with the highest vote share in the district and the opposition party candidate with highest vote share in the district (Municipal Margin of Gov. Party Candidate or MMG). The lower row plots the fitted values of the dependent variables against a cubic spline of MMG with 3 internal knots at the 25th, 50th, and 75th percentiles. The dashed lines plot the kernel density of MMG. All regressions use the quasi-randomized sample and include municipality and year fixed effects. Explanatory variables other than the polynomial or spline of MMG are all set to zero.

the PR seat of a losing candidate, or to create an extra PR seat for a district that already has two representatives. Moreover, competition among parties for PR votes in the (larger) PR blocks may not lead to targeting core supporters. As illustrated in Persson and Tabellini (2000) and Milesi-Ferretti et al (2002), geographically targeted spending may be less effective as an instrument for electoral competition when the electoral system is based on the principle of proportional representation rather than winner-take-all.

The analysis in this section adds to the literature of distributive politics by highlighting the important distributional implications of whether the electoral competition is among individual politicians or among parties. As summarized in Golden and Min (2013), existing models are ambiguous about whether swing voters or core voters would be targeted in distributive politics, and empirical evidence is mixed. In the influential works of Lindbeck and Weibull (1987), Cox and McCubbins (1986), and Dixit and Londregan (1996), parties and / or candidates are assumed to be able to make credible commitments about their proposed distribution of spending or transfers, and there is no agency problem between parties / candidates and voters. The analysis in the section suggests that, when the primary actors in the electoral competition are individual incumbents, it may not be appropriate to abstract from the commitment problems and agency problems for the analysis of distributive politics.

Table 2.19: Municipal Vote Share Margin between SMD Winner and Runner-up (Quasi-Randomized Sample)

	Dependent Variable: Municipal Public Expenditure per capita (log)					
	(1)	(2)	(3)	(4)	(5)	(6)
PR Representative (PR)	0.0132*	0.0118	0.0128*	0.0096	0.0098	0.0092
	(0.0072)	(0.0074)	(0.0072)	(0.0074)	(0.0079)	(0.0076)
Municipal Margin (MM)	0.0221	0.0380	0.0384	0.0344	0.0436	0.0449
	(0.0235)	(0.0261)	(0.0263)	(0.0282)	(0.0280)	(0.0285)
MM^2				-0.0597	0.0068	-0.0335
				(0.0574)	(0.0664)	(0.0642)
$PR \times MM$	-0.0018		-0.0072	-0.0392	-0.0435	-0.0449
	(0.0271)		(0.0274)	(0.0319)	(0.0313)	(0.0336)
$PR \times MM^2$				0.1775**	0.1544*	0.1839**
				(0.0870)	(0.0855)	(0.0901)
District-wide Margin (DM)		-0.0524			0.0516	
		(0.0425)			(0.0977)	
DM^2					-0.3248	
					(0.2244)	
Vote Share of SMD Winner (VS_w)			-0.0949			-0.1025
			(0.0589)			(0.0623)
Vote Share of SMD Runner-up (VS_r)			0.0097			0.0045
			(0.0665)			(0.0717)
Fixed Effects	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year	Municipal Fiscal Year
Weighted	No	No	No	No	No	No
R-squared	0.9744	0.9744	0.9745	0.9745	0.9746	0.9745
# Obs.	8137	8137	8137	8137	8125	8137

PR Representative is a dummy variable equal to one if the municipality has a PR representatives and zero otherwise;

Municipal Margin (MM) is the difference of vote share between the SMD winner and the SMD runner-up in the municipality;

District-wise Margin (DM) is the difference of vote share between the SMD winner and the SMD runner-up in the SMD;

Vote Share of SMD Winner (VS_w) is the vote share of the SMD winner in the whole single-member district;

Vote Share of SMD Runner-up (VS_r) is the vote share of the SMD runner-up in the whole single-member district;

Standard errors in parentheses are robust to clustering two-way on municipality and on PR block–House term;

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

2.8 Concluding Remarks

The empirical results in this paper suggest that political representation affects the allocation of public expenditure. Having an additional incumbent legislator with electoral interests in the district increases local public expenditure, in particular discretionary spending on public works. Heterogeneous districts benefit more from this extra representation. Having a second representative elected to the legislature intensifies subsequent electoral competition; nevertheless, this heightened competition does not generate policy convergence, at least not in distributive policies toward local governments. Instead, core supporters of both representatives in the district receive a higher amount of transfers from the central government. Turnout-buying may partially explain why swing voters are not targeted, despite contrary theoretical arguments favoring targeting of swing voters. To obtain votes, politicians can either attract votes from other candidates or they can turn out voters likely to vote for them. The latter motive favors targeting core supporters in tactical spending.

While this paper focuses on how representation affects discretionary spending in the short run, existing work suggest that partisan representation affects programmatic redistributions over the median term. In the U.S., Levitt and Snyder (1995) find that federal outlays are higher in districts with a large number of Democratic voters, especially for programs that were initiated when the Democratic Party had a large majority in Congress 10 to 15 years before the outlays and that are currently administrated based on pre-established formulas. Brender and Drazen (2013) find that replacement of political leaders affects the composition of public expenditures

in the medium term, but not in the short term. This paper adds to the literature by providing evidence that having extra representation could also provide short-term discretionary spending benefit to voters with strong partisan or ideological affinity with the added representative. This result suggests that the heterogeneity of an electoral district is important for distributive policies, which has policy implications for redistricting and the design of electoral systems.

Moreover, this paper documents a subtlety in Japan's mixed-member electoral system that makes representatives elected through party lists responsive to geographically narrow interests. A large literature debates the relative merits of two electoral systems: a Majoritarian system, such as in the U.S., and a Proportional Representation system, as is common in Europe. Recent studies emphasize the positive implications of the electoral system for public finance. Notably, Melesi-Ferretti et al. (2002) argue that, relative to a PR system, a Majoritarian system tends to spend more on goods and services *vis-à-vis* transfers. The rationale is that spending on goods and services is easier to target toward geographic areas, while transfers better target socio-economic groups. A middle ground may seem to be a mixed Majoritarian–PR system, which is often thought to have the best of both worlds and has been adopted by a number of new and existing democracies in the recent decades, such as Taiwan and New Zealand. In this paper, I show that the selection mechanism for PR representatives may compromise the supposedly broad representation provided by PR representatives in a mixed system.

Bibliography

[1] Ackerman, Bruce (2000), "The New Separation of Powers," *Harvard Law Review*, Vol. 113, No. 3 (Jan., 2000), pp. 633-729

[2] Albouy, David (2013), "Partisan Representation in Congress and the Geographic Distribution of Federal Funds," *Review of Economics and Statistics* 95, no. 1: 127-141.

[3] Alesina, Alberto, Reza Baqir and William Easterly (1999), " Public Goods and Ethnic Divisions," *The Quarterly Journal of Economics*, November 1999.

[4] Alesina, Alberto, and Eliana La Ferrara (2000), "Participation in Heterogeneous Communities," *The Quarterly Journal of Economics* 115, no. 3 : 847-904.

[5] Ansolabehere, Stephen, John M. de Figueiredo, and James M. Snyder Jr. (2003), "Why is There so Little Money in U.S. Politics? " *Journal of Economic Perspectives*, 17(1): 105-130.

[6] Ansolabehere, Stephen, James M. Snyder, Jr., and Michiko Ueda (2004), "Did Firms Profit from Soft Money?" *Election Law Journal*, 3(2): 69-84.

[7] Ansolabehere, Stephen A., Alan Gerber and Jim Snyder (2002), "Equal Votes, Equal Money: Court-Ordered Redistricting and Public Expenditures in the American States," *American Political Science Review*, Vol. 96, No. 4 December 2002.

[8] Atlas, Cary M., Thomas W. Gilligan, Robert J. Hendershott, and Mark A. Zupan (1995), "Slicing the Federal Government Net Spending Pie: Who Wins, Who Loses, and Why," *The American Economic Review* 85, no. 3: 624-629.

[9] Arulampalam, Wiji, Sugato Dasgupta, Amrita Dhillon, and Bhaskar Dutta (2009), "Electoral Goals and Center-State Transfers: A Theoretical Model and Empirical Evidence from India," *Journal of Development Economics* 88, no. 1: 103-119.

[10] Austen-Smith, David (1995), "Campaign Contributions and Access," *The American Political Science Review*, 89(3): 566-581.

[11] Baldwin, Richard E. and Frederic Robert-Nicoud (2007), "Entry and Asymmetric Lobbying: Why Governments Pick Losers." *Journal of European Economic Association*, 5(5): 1064-1093.

[12] Baron, David P., and John A. Ferejohn (1989), "Bargaining in Legislatures," *The American Political Science Review* : 1181-1206.

[13] Besley, Timothy, and Robin Burgess (2002), "The Political Economy of Government Responsiveness: Theory and Evidence from India," *The Quarterly Journal of Economics* 117, no. 4: 1415-1451.

[14] Besley, Timothy, and Stephen Coate (1997), "An Economic Model of Representative Democracy," *The Quarterly Journal of Economics* 112, no. 1: 85-114.

[15] Besley, Timothy, and Stephen Coate (2003), "Centralized versus Decentralized Provision of Local Public Goods: a Political Economy Approach," *Journal of Public Economics* 87, no. 12: 2611-2637.

[16] Besley, Timothy (2007), "Principled Agents?: The Political Economy of Good Government," Oxford University Press.

[17] Brender, Adi, and Allan Drazen (2012,)"Elections, Leaders, and the Composition of Government Spending," *Journal of Public Economics*.

[18] Briffault, Richard (2008), "WRTL II: The Sharpest Turn in Campaign Finance's Long and Winding Road," *Albany Government Law Review*, 101-140.

[19] Cameron, A. Colin and Pravin Trivedi (2005), "Microeconometrics: Methods and Applications," *Cambridge University Press*, New York.

[20] Campbell, John Y., Andrew W. Lo and A. Craig MacKinlay (1997), "The Econometrics of Financial Markets," *Princeton University Press*.

[21] Chamon, Marcos and Ethan Kaplan (2013), "The Iceberg Theory of Campaign Contributions: Political Threats and Interest Group Behavior," *American Economic Journal: Economic Policy*, 5(1): 1-31 .

[22] De Figueiredo, John M. and Brian S. Silverman (2006), "Academic Earmarks and The Returns to Lobbying," *Journal of Law and Economics*, 49(2): 597-625.

[23] Cohen, Lauren, Karl B. Diether and Christopher Malloy (2012), "Legislating Stock Prices," *NBER Working Paper No. 18291*, August.

[24] Dahlberg, Matz, and Eva Johansson (2002),"On the Vote-Purchasing Behavior of Incumbent Government," *American Political Science Review* 96, no. 1: 27-40.

[25] DeWit, Andrew (2002), "Dry Rot: The Corruption of General Subsidies in Japan," *Journal of the Asia Pacific Economy* 7, no. 3: 355-378.

[26] Downs, Anthony (1957), "An Economic Theory of Democracy," 260-276.

[27] Drazen, Allan and Marcela Eslava (2012), "Programmatic Targeting," Working paper.

[28] Drazen, Allan, Nuno Limão and Thomas Stratmann (2007), "Political Contribution Caps and Lobby Formation: Theory and Evidence," *Journal of Public Economics*, 91(3-4): 723-754.

[29] Dube, Arindrajit, Suresh Naidu and Ethan Kaplan (2011), "Coups, Corporations, and Classified Information," *The Quarterly Journal of Economics* 126(3): 1375-1409

[30] Epple, Dennis, and Richard E. Romano (1996), "Ends against the middle: Determining Public Service Provision When There Are Private Alternatives," *Journal of Public Economics* 62, no. 3 : 297-325.

[31] Erikson, Robert S. and Thomas R. Palfrey (2000), "Equilibria in Campaign Spending Games: Theory and Data," *American Political Science Review*, 94(3): 595-609.

[32] Epstein, Lee, William M. Landes and Richard A. Posner (2009), "Inferring the Winning Party in the Supreme Court from the Pattern of Questioning at Oral Argument," University of Chicago Law and Economics, Olin Working Paper No. 466.

[33] Facchini, Giovanni, Anna Maria Maydac and Prachi Mishra (2011), "Do Interest Groups Affect US Immigration Policy?" *Journal of International Economics*, 85(1): 114-128.

[34] Fama, Eugene and Kenneth R. French (1993), "Common Risk Factors in the Returns on Stocks and Bonds," *Journal of Financial Economics*, 33(1) 3-56.

[35] Fama, Eugene and Kenneth R. French (1992), "The Cross-Section of Expected Stock Returns," *Journal of Finance* 47(2): 427-465.

[36] Folke, Olle (forthcoming), "Shades of Brown and Green: Party Effects in Proportional Election Systems," *Journal of the European Economic Association*

[37] Friedman, John N., and Richard T. Holden (2008). "Optimal Gerrymandering: Sometimes Pack, but Never Crack," *American Economic Review*, 98(1): 113-44.

[38] Horiuchi, Yusaku and Jun Saito (2003), "Reapportionment and Redistribution: Consequence of Electoral Reform in Japan," *American Journal of Political Science*, Vol. 47, No.4, October 2003, Pp. 669-682.

[39] Hotelling, Harold (1929), "Stability in Competition," *The Economic Journal* 39, no. 153: 41-57.

[40] Gerber, Elisabeth R., and Jeffrey B. Lewis (2004), "Beyond the Median: Voter Preferences, District Heterogeneity, and Political Representation," *Journal of Political Economy* 112, no. 6: 1364-1383.

[41] Groseclose, Tim, and James M. Snyder Jr (1996), "Buying Supermajorities," *American Political Science Review*: 303-315.

[42] Grossman, Gene M. and Elhanan Helpman (1996), "Rent Dissipation, Free Riding, and Trade policy," *European Economic Review*, 40, 795-803.

[43] Grossman, Gene M. and Elhanan Helpman (2001), *Special Interest Politics*, The MIT Press.

[44] Golden, Miriam, and Brian Min (2013), "Distributive Politics Around the World," *Annual Review of Political Science* 16: 73-99.

[45] Hall, Richard L. and Alan V. Deardorff (2006), "Lobbying as Legislative Subsidy," *The American Political Science Review*, 100(1): 69-84.

[46] Iaryczower, Matias and Matthew Shum (2012), "The Value of Information in the Court: Get it Right, Keep it Tight," *American Economic Review*, 102(1): 202-237.

[47] Igan, Deniz, Prachi Mishrand and Thierry Tressel (2011), "A Fistful of Dollars: Lobbying and the Financial Crisis," No. w17076. National Bureau of Economic Research.

[48] Johnson, Timothy R., Ryan C. Black, Jerry Goldman and Sarah Treul (2009) "Inquiring Minds Want to Know: Do Justices Tip Their Hands with Questions at Oral Argument in the U.S. Supreme Court?" *Washington University Journal of Law and Policy*, 29: 241-261.

[49] Krasa, Stefan, and Mattias K. Polborn (2012), "Political Competition Between Differentiated Candidates," *Games and Economic Behavior* 76, no. 1: 249-271.

[50] Lee, David, Enrico Moretti and Matthew J. Butler (2004) "Do Voters Affect or Elect Policies? Evidence from the U.S. House," *Quarterly Journal of Economics*, 119(3), 807-859.

[51] Lee, Frances E. (1998), "Representation and Public Policy: The Consequences of Senate Apportionment for the Geographic Distribution of Federal Funds," *The Journal of Politics*, Volume 60 / Issue 01 / February 1998, pp 34-62.

[52] Levitt, Justin (2010), "Confronting the Impact of Citizens United," *Yale Law and Policy Review*, 29: 217-234.

[53] Levitt, Steven D. (1994), "Using Repeat Challengers to Estimate the Effect of Campaign Spending on Election Outcomes in the U.S. House," *Journal of Political Economy*, 102(4): 777-798.

[54] Levitt, Steven D. and James M. Snyder (1995), "Political Parties and the Distribution of Federal Outlays," *American Journal of Political Science*, 39: 958–980.

[55] Lizzeri, A., and Nicola Persico (2001), "The Provision of Public Goods under Alternative Electoral Incentives," *American Economic Review*, 225-239.

[56] Lockwood, Ben (2002), "Distributive Politics and the Costs of Centralization," *The Review of Economic Studies* 69, no. 2: 313-337.

[57] Matilde, Bombardini and Francesco Trebbi (2011), "Votes or Money? Theory and Evidence from the US Congress," *Journal of Public Economics* 95(7-8): 587-611.

[58] Mckean, Margaret and Ethan Scheiner (2000), "Japan's New Electoral System: la plus ca change ...," *Electoral Studies*, 19 (2000) 447-477.

[59] Milesi-Ferretti, Gian Maria, Roberto Perotti and Massimo Rostagno (2002), "Electoral Systems and Public Spending," *The Quarterly Journal of Economics* (2002) 117 (2): 609-657.

[60] Milyo, Jeffrey, David Primo and Timothy Groseclose, (2000), "Corporate PAC Campaign Contributions in Perspective," *Business and Politics* 2(1): 75-88.

[61] Myerson, Roger B. (1997), "Economic Analysis of Political Institutions: An Introduction," in D. M. Kreps and K. F. Wallis: Advances in Economics and Econometrics: Theory and Applications: Seventh World Congress. Cambridge; New York and Melbourne: Cambridge University Press, 1997, pp. 46-65

[62] Nemoto, Kuniaki, Ellis Krauss, and Robert Pekkanen (2008), "Policy Dissension and Party Discipline: the July 2005 Vote on Postal Privatization in Japan," *British Journal of Political Science* 38, no. 3: 499.

[63] Osborne, Martin J., and Al Slivinski (1996), "A Model of Political Competition with Citizen-Candidates," *The Quarterly Journal of Economics* 111, no. 1: 65-96.

[64] Persily, Nathaniel (2010), "Citizens United: A Preview to a Post-Mortem", Retrieved January 20th, 2012, from `http://balkin.blogspot.com/2010/01/citizens-united-preview-to-post-mortem_21.html`

[65] Pettersson-Lidbom, Per (2008), "Do Parties Matter for Economic Outcomes? A Regression Discontinuity Approach," *Journal of the European Economic Association* 6, no. 5: 1037-1056.

[66] Persson, Torsten, Guido Tabellini, and Francesco Trebbi (2003), "Electoral Rules and Corruption," *Journal of the European Economic Association* 1, no. 4: 958-989.

[67] Persson, Torsten, and Guido Enrico Tabellini (2000) *Political Economics: Explaining Economic Policy*, The MIT Press.

[68] Persson, Torsten, and Guido Enrico Tabellini (2003), *The Economic Effects of Constitutions*, The MIT Press.

[69] Rosenbluth, Frances, Jun Saito, and Kyohei Yamada (2010), "Electoral Adaptation in Japan: Party Strategy after Electoral Rule Change," Department of Political Science, Yale University.

[70] Schlesinger, J. M. (1999), "Shadow Shoguns: The Rise and Fall of Japan's Postwar Political Machine ," Stanford University Press.

[71] Shugart, Matthew, and Martin P. Wattenberg, eds (2001), "Mixed-Member Electoral Systems: The Best of Both Worlds?: The Best of Both Worlds?," Oxford University Press.

[72] Stern, Seth and Stephen Wermiel (2010), "Justice Brennan: Liberal Champion," Houghton Mifflin Harcourt Publishing Company, New York.

[73] Shullman, Sarah Levien (2004), "The Illusion Of Devil's Advocacy: How The Justices Of The Supreme Court Foreshadow Their Decisions During Oral Argument." *Journal of Appellate Practice and Process* 6(2): 271-294.

[74] Taniguchi, Naoko (2008), "Diet Members and Seat Inheritance: Keeping It in the Family," *Democratic Reform in Japan: Assessing the Impact*, edited by Sherry L. Martin and Gill Steel, 2008.

[75] Tiebout, Charles M. (1956), "A Pure Theory of Local Expenditures." The Journal of Political Economy 64, no. 5 : 416-424.

[76] Trebbi, Francesco, Philippe Aghion, and Alberto Alesina (2008), "Electoral rules and minority representation in US cities," *The Quarterly Journal of Economics* 123, no. 1 (2008): 325-357.

[77] Toobin, Jeffrey (2007) "The Nine: Inside the Secret World of the Supreme Court," Doubleday.

[78] Weese, Eric (2012), "Efficiencies of Scale in Local Public Good Provision: Estimation via Coalition Panel Data," Working Paper, Yale University.