IS PARTICIPATORY DEMOCRACY THE ANSWER? EVIDENCE FROM BRAZILIAN MUNICIPALITIES

DISSERTATION PROSPECTUS

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October 2009

Abstract
This dissertation analyzes the effects of Participatory Budgeting on quality of governance, social capital, and welfare using data from Brazilian municipalities. While PB is promoted by international organizations such as the World Bank and UNDP as a wholesale solution for problems ranging from corruption to voter apathy to inequality, there is a lack of rigorous empirical literature to support or challenge this policy prescription. I construct a dataset of all Brazilian municipalities for cross-municipal PB analysis, and a series of datasets for individual municipalities that allow within municipal analysis. I also create two indices to measure variance in PB. These measures in addition to the multi-level analysis represent important contributions to both academic and policy-oriented literature, as they permit a more comprehensive and generalizable picture of the effects of PB.

CONTENTS

1. INTRODUCTION
2. CITIZEN PARTICIPATION AND PARTICIPATORY BUDGETING
3. DATA AND METHODS
4. CHAPTER OUTLINES
5. CONCLUSION
6. TABLES AND FIGURES
7. REFERENCES
1. INTRODUCTION

Proponents of participatory democracy argue that its implementation will produce a host of desirable effects, ranging from a decrease in clientelism, to pro-poor spending, to increased trust between citizens. However, their adversaries argue just the opposite. Existing empirical studies have failed to settle the debate.

The main contributions of this dissertation will be to provide a rigorous empirical analysis of the effects of participatory democracy at both the municipal and sub-municipal levels in Brazil, using a range of quantitative and qualitative measures. Unlike most existing work which focuses on the effects on PB in individual, or very small-n cases, I exploit the large sample provided by the Brazilian case in order to control for confounding variables in a cross-municipal analysis. Additionally, I use sub-municipal data to test for PB effects in different sub-regions of individual municipalities. The measure of PB implementation also represents a novel contribution to the literature. While it is generally measured as a dichotomous variable, I construct indices that account for variation in PB in terms of citizen influence and ease of participation, both of which are generally ignored yet likely have significant implications on the effects of PB.

In this prospectus, I present a brief overview of PB and a review of the existing literature, followed by a discussion of the research questions to be empirically tested, the PB typology, and the dependent variables used. I then discuss the data and methods to be employed, and finally I present chapter outlines and a conclusion.
2. Citizen Participation and Participatory Budgeting

Between 1989 and 2009, approximately 20% of Brazil's 5,564 municipalities implemented participatory budgeting – a specific type of participatory democracy. While the exact configuration and the amount of authority transferred varies across PB municipalities varies, the basic features and stated objectives are the similar.\(^1\) As a response to “unprecedented social mobilization for re-democratization and decentralization,” and a “crisis of government credibility” (World Bank), certain municipalities adopted a process whereby budgetary decisions primarily regarding public works and services (such as roads, housing, sanitation, and land use) that had previously been made by the mayor and City Council with little or no citizen input, would instead be proposed and voted on by citizens in town-hall style meetings.\(^2\) After the decisions are made, the municipal government is responsible for implementing the selected projects, which is overseen by citizen delegations, theoretically creating a more transparent municipal government (for a general example of the PB process, see [Figure 1](#)). Although Brazilians typically associate PB with the Workers’ Party (PT), [Figure 2](#) shows that after the initial period, other parties were just as likely to implement PB when they were in office. The theoretical literature on PB is derived from theories of decentralization and more general theories of participatory democracy. So I begin with that literature before turning to more specific analyses of PB.

According to Subirats, "Citizens’ participation is often spoken of as an answer, without it being clear what the question is" (Subirats 2008). This encapsulates the theoretical literature underlying PB analyses. Attempts to export one-size-fits-all solutions that claim to strengthen democracy and induce development from the United States to the developing world are hardly a new phenomenon. Each of the past two decades has brought a "new" solution that proved too good to be true by the end of that decade: The Washington Consensus marked the 1990s, while decentralization followed in the 2000s. As the limitations of the previous solution are uncovered, a brand new set of enthusiasts jump on the next bandwagon. Participatory democracy is emerging as the latest claimed panacea: policymakers, urban planners, and NGOs, such as the World Bank, UNDP, and UN Habitat Program (International Budget Partnership, IBP), UNCHS (Global Campaign on Good Governance) recommend and often partially fund the adoption of participatory budgeting, citing benefits such as increased trust, equality, accountability, focus on common good, and the incorporation of previously excluded citizens into the political arena (Schugurensky 2004). These overly simplified claims echo those made by decentralization enthusiasts a decade ago: high on theory, and low on solid empirical evidence and attention to contextual differences.

The similarities do not end there. Some of the more specific decentralization assumptions are used by participatory democracy supporters as well: It is assumed that citizen participation will induce an increase in the same ideals of “credibility, trust, transparency, accountability, empowerment of ordinary citizens, solidarity, etc” and a decrease in levels of clientelism (Souza 2001: 181). Furthermore, participatory democracy advocates assume that citizens know their own preferences better than the government and so should be better able to select the best public works projects (Wampler 2000; Mansuri and Rao 2004). This follows from the allocative

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1. By similar “basic features”, I mean that most municipalities follow the same general process shown in [Figure 1](#). However, as I will discuss in greater detail in the Data and Methods section, there are very important distinctions that must be analyzed.

2. An extensive analysis of why PB was implemented by the Worker’s Party will be conducted in Chapter 2.
efficiency assumptions of fiscal federalism made by Hayek (1945); Musgrave (1959), Oates (1972), etc. Additionally, it has been argued that bringing participation opportunities to the local level would significantly decrease the cost of participating, thereby increasing the representation of the poorer sectors of society (Serageldin et al. 2003).

This participation would then result in increased provision of public services to these previously excluded sectors of society.

Those who challenge PB as a universal policy prescription follow in the tradition of the opposing literature in decentralization and participatory democracy literature, which primarily challenges the universality of theoretical assumptions such as voting with your feet. These challenges to theoretical assumptions are particularly prevalent regarding developing countries. In the context of PB, Zamboni (2008) argues that there is a risk of manipulation by the mayor or local elites; Rakodi (2003) points out that PB can deepen existing patterns of social exclusion, and both acknowledge the high potential for participant selection bias (Rakodi 2003; Zamboni 2008). Furthermore, while citizens may know their actual preferences better than politicians, they do not necessarily have the information or expertise necessary to make decisions. This is of course one of the main arguments for representative democracy. In order to test this claim, Khwaja (2004) uses empirical data from Northern Pakistan and finds that citizen participation has positive effects in “non-technical” areas, however “increasing community participation in technical decisions actually leads to worse project outcomes” (427). This finding presents an important challenge to PB and direct democracy in general.

The existing empirical analyses of PB have primarily been single case studies (e.g. Abers 2000), or comparisons between several cases in which all municipalities implemented PB (e.g. Nylen 2003; Serageldin et al. 2003; Avritzer 2000; Wampler 2004; 2007; Teixeira 2002; Schneider and Goldfrank 2002; Souza 2003; Wagle & Shah 2003; Koonings 2004, Wood and Murray 2007, etc.). These studies provide useful detail about the process, they present a troubling selection bias (primarily focusing on “success stories,” i.e. Porto Alegre) and so preclude us from generating testable hypotheses and reaching broadly generalizable conclusions. Failing to analyze the cases where PB was not implemented or was less successful provide useful descriptive accounts, though we cannot interpret them as valid empirical tests of the relevant causal mechanisms in the effects of PB on democracy (Wampler 2002).

Furthermore, most existing studies measure PB implementation as a dichotomous independent variable. While most discuss some contextual differences at least in passing (such as differences in income, pre-existing social structure, and political competition), offering important contributions regarding necessary control variables, the differences in PB itself are largely ignored. The more general theoretical literature on participation cautions against this tendency to measure “participation” as a single entity (Bishop and Davis 2002; Arnstein 1969; 3 Serageldin et al. (2003) find that empirical support for this in their analysis of PB implementation. They compare attendance by females and poorer citizens at the local meetings and regional meetings, and find that there is a significantly higher proportion of both groups at the local level.

4 Following previous literature by Bardhan (2002) and Bardhan and Mookherjee (2006)

5 It should be noted that few existing studies set out to challenge PB empirically. The analyses tend to be either agnostic or pro-PB.

6 The generalizability of the results even within Brazil is questionable, due to the vast regional disparity in wealth and development.

7 According to Wampler, “Too often researchers of PB have focused on the most successful cases and have overlooked the failures. Policy failures or under performing programs can be useful to understand how differing conditions make citizen empowerment, deliberation, or implementation more-or-less difficult to implement” (18).

8 Baiocchi et al. (2005; 2008).
Pateman 1970). Of course narrowing it down from participation in general to participatory budgeting specifically is certainly a step in the right direction. I return to this issue in the Data and Methods section.

There are several noteworthy studies that have made important contributions to our understanding of PB implementation and effects. These studies differ from previous work primarily because they move past the pure descriptive accounts. Two attempt to address the endogeneity issue of PB implementation using matching techniques (Zamboni 2008; Baiocchi et al. 2005), while Boulding and Wampler create a new dataset of the 220 largest Brazilian municipalities in order to analyze the effect of PB on social spending. Interestingly, none of these studies find strong evidence supporting PB’s claims. Boulding and Wampler find slightly higher health and education spending in PB municipalities, however they note that this does not imply a noticeable effect on citizen well-being.

Zamboni uses audits of municipal funds to test the level of government corruption in matched pairs of PB and non-PB municipalities. His findings show somewhat lower levels of corruption in PB municipalities, however his findings also show that PB implementation alone cannot combat entrenched corruption and low quality of governance. In a related study, (Baiocchi et al. 2005) use a similar matching technique to test the effect of political indicators and civil society organization on PB implementation. These studies both have important policy implications: while PB enthusiasts advocate its implementation wherever possible, empirical evidence does not support this recommendation.

The present analysis differs from the existing descriptive literature on PB in terms of case selection, unit of analysis, and measurement of the independent variables. The next section presents my research questions and highlights these differences in greater detail.

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9 The municipalities are matched on voter turnout prior to PB implementation.
10 For a more in depth analysis of civil society organizations and PB, see Lavalle et al. (2005)
3. DATA AND METHODS

As of 2009 PB had been implemented in over 1100 of Brazil’s 5564 municipalities, and in hundreds of municipalities around the world11 as a result of the dissemination of information “through networks of political and civil society activists” on “Brazil's most successful PB experiences” (IBP). The problem is that these policy prescriptions, like those that hastily advocated the Washington Consensus and decentralization in the last two decades, are being made without a clear understanding of if, when, or how PB works because they are largely based on the anecdotal evidence of successful Brazilian cases. This ignores unsuccessful cases of PB and a control group in which PB was never implemented.

The main research questions to be empirically tested are as follows: (1) what is the effect of PB implementation and participation on quality of governance? (2) what is the effect of PB implementation and participation on social capital? And (3a) what is the effect of PB participation on citizen welfare, and (3b) does the effect differ across different subpopulations within a municipality? This section presents the independent and dependent variables to be used to address these questions, as well as a summary of the datasets and data sources.

**Independent variables**

I have primarily discussed it as a dichotomous variable until this point because that is how it has been addressed in the literature. However, there are important variations in PB across municipalities. Therefore, it is problematic that most existing analyses attempt to answer questions about PB’s effects without taking these differences into account.12 One of the goals of this dissertation is to create a typology that allows me to test the relationships between type of PB and outcomes. While the importance of measuring different types and aspects of participation has not received a great deal of attention in the PB specific case, the theoretical basis for constructing this sort of typology is not new. This section will outline the typology I create for PB measurement.

The main independent variable will be divided into two main components: **PB implementation** and **PB participation** (as shown in Table 1). PB implementation is an institutional measure of the municipal government’s effort to make PB accessible and meaningful, or whether it is a symbolic but empty gesture, merely serving to claim a commitment to citizen participation. On the other hand, the PB participation index measures citizen effort in the process. Both parts are imperative to the study of PB, which inherently involves both the institutional structure, and citizen actions within that structure. I first outline the implementation typology, followed by the participation typology.

The institutional measure of government effort (PB implementation) is further divided into two indices: **potential citizen influence index** and **cost of participation index**. Citizen influence measures how much power the government gives the PB process and varies on two dimensions: (1) Share of discretionary municipal funds allocated to PB decision-making; and (2) How “binding” decisions reached by PB processes are.13 In municipalities with high citizen influence, all discretionary funds are allocated to PB decision-making, and decisions reached by PB processes are completely binding. In municipalities with low or medium influence, some, but

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11 Including South Africa, Indonesia, India, Serbia, the UK, France, Portugal, Spain, Argentina, Chile, Ecuador, Guatemala, Mexico, Peru, Venezuela, and Canada.

12 It should be noted that more general theoretical literature on participation does acknowledge the need to disaggregate the measures of “participation” (Bishop and Davis 2002; Arnstein 1969).

13 “Binding” means that the municipal government formally agrees to abide by decisions made by the PB Council. (Baiocchi et al. 2005) mention the importance of “binding” decisions.
not all discretionary municipal funds are allocated to PB decision-making, and the decisions reached by PB processes are not completely binding, meaning that the role of the Council is denoted as “advisory” and the municipal government has not made a formal agreement to abide by the Council’s decisions. This distinction is an important component of measuring citizen participation which Arnstein (1969) refers to as “the critical difference between going through the empty ritual of participation and having the real power needed to affect the outcome of the process” (216).

While it is an important advance in our understanding of PB, the measure of citizen influence only tells part of the story of PB implementation because it assumes that citizens have access to participatory arenas. However, this is an invalid assumption. There is no reason to assume that local governments want to make participation easy for citizens. Furthermore, it is essential to account for this fact for the following reason: if a large portion of municipal funds are allocated through PB, and decisions are binding, but attending the meetings and voting is prohibitively costly (or prohibitively costly to certain parts of society), we cannot expect the same results as a municipality where there is high influence and participation is low cost. The cost of participation index will take into account two factors: (1) distance individuals must travel to attend meetings; and (2) the availability of online participation.

The measures of PB implementation outlined above provide a typology for municipal governments’ effort to create an institution providing equal and meaningful citizen participation. However, this is not the complete picture of the independent variable: this assumes that the institutional factors alone produce PB’s effects, which fails to consider whether or not citizens actually participate and if so, who shows up. Therefore, I will use level of citizen participation and citizen participant demographics to measure citizen effort. The first is a measure of the percentage of eligible citizens who participate in PB meetings (first round regional meeting). Citizen participant demographics measures the subpopulations who attend meetings, specifically focusing on potential disparities between eligible participants and actual participants by income group and gender.

These measures of PB are important contributions to the literature. Rather than measure PB as a dichotomous variable, they permit a wider variance on the independent variables, which helps explain the differing effects of PB both across and within municipalities. Dichotomous measures of PB only permit tests of the difference between PB and non-PB municipalities, which fails to produce robust findings. Table 1 summarizes these measures and Figure 3 provides a visual representation of the typologies, followed by hypothetical examples of how municipalities differ using these measures.

**Dependent Variables:**

The dependent variables (summarized in Table 2) are comprised of common indicators of quality of governance, social capital, and welfare. This is important because my independent variable measures as well as my datasets differ from existing literature, and it is

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14 This follows the logic of voting in the American South after 1965: Blacks were no longer institutionally prohibited from voting after the 1965 Voting Rights Amendment, yet in many cases, voter intimidation made their participation prohibitively costly, thus drastically altering the effects.

15 Using GIS information, I will analyze not just the average distance to PB meetings, but also the variance in distance traveled in order to see if the participation cost is systematically higher in certain regions.

16 Use this meeting because it determines # directed toward that municipality.

17 Existing research on participant demographics includes Serageldin et al. (2003), Nylen (2002), and suggests that both gender and income represent the primary exclusions in traditional Brazilian politics.
necessary to provide a tangible link between the present study and existing studies. Furthermore, it is important to utilize common indicators since the empirical tests require dependent variable measures that can be obtained at regular intervals back to 1988 (see overview of Chapters 3 and 4 for discussion).

One of the major theoretical claims about PB is that it improves the quality of governance in terms of service provision to citizens, and particularly low income citizens. Therefore, my measures will focus on that aspect, including sanitation provision (water and sewage), healthcare access (hospital beds, distance from hospitals), and electricity provision. These are important measures in a country like Brazil, where many citizens lack these basic goods.

Another major theoretical claim about the positive effects of PB is social capital. The basic definition is “features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (Putnam 1995, p. 67). This definition, however, does not lend itself to clear operationalizations. While the literature remains divided on this issue, that debate is beyond the scope of this dissertation and I will use measures of social capital that are common in existing literature. I do not claim that I provide a comprehensive measure of social capital. The indicators I use include: turnout (including valid/invalid/null votes), membership in political parties, confidence in institutions, interpersonal trust, and number of NGOs.

Finally, PB is theorized to produce a positive effect on citizen welfare. This can also be measured in a wide variety of ways, however I will primarily follow the measures that are used in existing literature. This will include per capita income, literacy rates, life expectancy, infant mortality, and inequality. Fieldwork in a subset of municipalities will also allow me to conduct surveys on personal perceptions of welfare, rather than relying exclusively on objective measures.

Datasets:
I will construct 3 datasets in order to test competing hypotheses about the effects of PB. In the literature, the effects of PB on quality of governance, social capital, and welfare are often conflated, leading to contradictory empirical results. It is essential that they be disaggregated because there is no reason to assume that PB will affect them all in the same way. Furthermore, it is important to disaggregate because the tests require different units of analysis. Quality of governance and social capital address differences between municipalities that implemented one configuration of PB versus another. Therefore, I will use municipal-level data for these questions. Welfare, however, is best measured at both the municipal and sub-municipal level in order to evaluate whether or not PB produces different effects on the welfare of different groups of citizens within a single municipality. One of the major theoretical claims to be tested is whether PB improves the welfare of poor citizens. Cross-municipal analysis does not adequately test this hypothesis: PB participation begins in meetings at the sub-municipal level, and the money for the selected projects is allocated at the sub-municipal level. Using municipal-level data to test this hypothesis produces incomplete conclusions. The combination of cross-municipal and within municipality tests constitute novel contributions to the study of participatory democracy in general, and participatory budgeting in Brazil specifically.

Dataset 1: All municipalities (Chapters 3 and 4)
I advance the existing literature with this dataset by including all municipalities, which provides a natural control group (non-PB municipalities). This is essential for all of the usual
methodological reasons; however I argue that it is particularly important in this case. PB was implemented shortly after the return to democracy in addition to the devolution of power from federal to municipal governments. If the set of cases to be compared only contain municipalities that have implemented PB, there is no way of knowing if changes in the dependent variables are correlated with PB itself, or just represent a general trend resulting from democratization and decentralization to municipal governments. Furthermore, as previously discussed, this dataset will also be coded based on the PB typologies outlined.

**Dataset 2: Sub-municipality (Chapter 5)**

I will construct datasets for 26 municipalities where I am able to collect sub-municipal data. This will allow me to test the effect of PB on distinct populations within municipalities, which is essential to analyzing the hypothesized effect of increased pro-poor spending (or decreased inequality) specifically and general welfare indicators as well (Martínez 2009). The municipalities will be selected as follows: (1) One municipality will be selected from each of Brazil’s 26 states; (2) I will eliminate all municipalities with a population under X. This is to guarantee a large enough sample size for analysis; (3) I will then sort the list of municipalities in each state by average GDP/capita between 1988 and 2008 and select the municipality with the median average GDP/capita; (4) I will then check to find out if and when municipality implemented PB; (5) If it did not implement PB between 1993 and 2004 (corresponding to Groups 2, 3, and 4 in Table 3 in Chapters 3 and 4), I will move on to municipality, then municipality if necessary, etc., until I reach a municipality that meets the selection criteria.

**Dataset 3: Sub-municipality (Chapter 5)**

An important part of this dissertation will be fieldwork in Brazil based on the large-n quantitative findings. I plan to visit approximately 5 municipalities where I will attend local PB meetings, and meet with local officials and participants. The PB typologies created for the independent variable will drive my case selection. The point is to select cases that demonstrate variation across those areas so as to evaluate the typologies themselves and the effects on welfare. Figure 3 represents the typologies and offers two examples of how municipalities differ in those areas. This demonstrates why it is important for me to select municipalities for fieldwork after coding the municipality into these categories.

**Data Sources:**

- IGBE (Instituto Brasileiro de Geografia e Estatistica) conducts yearly studies of Brazilian municipalities (most recent is 2008) that include information on the City Statutes requiring citizen participation in several areas of decision-making. I will use this information as a starting point for creating the independent variable indices. This is also the main source of data for the dependent variables in Chapters 3 and 4.
  - IGBE also provides some sub-municipal level data, however they are in the process of updating it. Municipal websites also provide sub-municipal welfare information.
- Most individual municipality websites provide information on:
  - Level of discretionary funds allocated to PB and whether or not the decisions are binding.

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18 I would also like to avoid selecting one of Brazil’s mega cities. I could eliminate those from the sample, but this is unnecessary given that their high GDP/capita precludes them from being the average municipality in any region.

19 The plan is for this to occur during the summer of 2010.
Level of citizen participation

- (Serageldin 2003) provide participation level and participant demographics for certain municipalities.
- A study conducted by the NGO CIDADE also provides statistics in this area.
- While the background work on constructing the sub-municipal dataset can be done in San Diego, some of the data collection will require fieldwork in Brazil, which I propose to do during the summer or fall of 2010. The length of time required for this fieldwork is highly contingent upon the municipalities selected, since some municipalities have existing data that would meet some of my needs, while others have none at all. I have not yet selected the municipalities because I want to make sure they are selected in an unbiased way, so I want to decide on the selection criteria before I see the sorted list of municipalities.
  - This will also give me the opportunity to conduct surveys in those municipalities in order to evaluate both the objective welfare measures of inequality, infant mortality, etc., but also the perceptions of welfare. Martínez (2009) uses GIS mapping to measure sub-municipal level welfare in Rosario, Argentina, which will serve as a useful guide for my data collection.
4. Chapter Outlines

Chapter 1: Introduction
Chapter 1 follows the general outline of the prospectus. It provides an introduction to the following chapters, beginning with an overview of the research question, strategy, and primary contributions. Then the main theoretical arguments for and against participatory budgeting are reviewed, followed by a discussion of the current empirical literature. Finally, my theory, research questions, and research strategy are presented in more detail.

Chapter 2: PB Implementation and Participation
In Chapter 2, I provide a descriptive account of PB, which includes a discussion of the impetus behind its implementation, the spread across municipalities, and the relationship between PB and the Workers’ Party. This chapter does not attempt to provide a comprehensive study of PB in all municipalities, however it will point the reader to existing accounts that do (Andersson and van Laerhoven 2007). The purpose of this chapter is to provide the reader with the context necessary for the empirical chapters that follow.

The independent variable measures of PB implementation (citizen influence and cost of participation indices) and PB participation (rate and demographics) outlined previously will be presented in greater detail. I will use specific examples from municipalities where PB resulted in varying levels of “success” (as described in existing literature) to illustrate why it is essential to use measures that allow for variation on the independent variable.

Chapter 3: PB and Quality of Governance and Chapter 4: PB and Social Capital
Chapters 3 and 4 present the empirical tests of the first two sets of dependent variables: quality of governance and social capital. Both chapters begin with a short literature review of the relationship between PB and quality of governance and social capital, respectively. Table 3 outlines the research design for the empirical tests. In Chapter 3, the “Pre-test” and “Post-test” measure the quality of governance indicators outlined previously. In Chapter 4, they refer to the social capital indicators outlined previously.20

As the research design table shows, the municipalities will be divided into 6 groups based on the time period in which they adopted PB (and Group 6 for the non-PB control). Multiple pre-tests and post-tests for each group permit me to conduct a wider variety of statistical tests than a generic test that only measures before and after. This way I can compare the effects of PB implemented just in one time period, I can compare effects across time periods, and I can do tests that ignore time implemented and just compare before and after. I can divide the groups up further based on the PB implementation and participation measures.

Chapter 5: PB and Welfare
Chapter 5 presents the empirical tests of the final set of dependent variables: welfare. As discussed in the “Data and Methods” section, this chapter uses municipal data to test the effect of PB on welfare across municipalities, and sub-municipal data to evaluate the effect of PB on the welfare of different subpopulations within municipalities.

Chapter 6: Conclusion

20 In the chapters themselves, I will provide a brief summary of the DV measures described in Chapter 1.
5. Conclusion

The primary goal of the dissertation is to analyze the effect of Brazilian PB on quality of governance, social capital, and welfare. While work has been conducted in this area, my approach differs in several important ways that constitute an important contribution to the literature. This includes the typologies used to measure PB as an independent variable, the new dataset including all Brazilian municipalities, as well as the datasets of individual municipalities. This allows me to analyze the effect of various configurations of PB at both the municipal and sub-municipal level. One of the main strengths of this dissertation is that positive, negative, or null findings would have important implications for academic and policy-oriented literature due to the unsettled debates over PB’s effects.

The primary challenge is to minimize the endogeneity problem. Each municipality chose to adopt PB or not, so finding a method to isolate the effects of PB itself have proven difficult in the past. One of the ways I hope to address this challenge is by using a matching technique at the municipal level. The other method is using sub-municipal data, which can take PB as given, and then look at the effects on different subpopulations.
### 6. Tables and Figures

#### Table 1: Independent variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GOVERNMENT EFFORT:</strong> PB implementation index</td>
<td>Share municipal funds allocated to PB citizens influence How “binding” PB decisions are distance from meetings attendance is a prerequisite for voting online participation²¹</td>
</tr>
<tr>
<td><strong>CITIZEN EFFORT:</strong> PB participation</td>
<td>level of citizen participation citizen participant demographics percentage of eligible citizens who participate in PB meetings subpopulations who attend meetings</td>
</tr>
</tbody>
</table>

#### Table 2: Dependent variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Measurement</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUALITY OF GOVERNANCE</strong></td>
<td>Sanitation provision</td>
<td>-sewage -water</td>
</tr>
<tr>
<td></td>
<td>Healthcare access</td>
<td>-hospital beds/capita -distance from hospital</td>
</tr>
<tr>
<td></td>
<td>Electricity provision</td>
<td></td>
</tr>
<tr>
<td><strong>SOCIAL CAPITAL</strong></td>
<td>Turnout²³</td>
<td>Municipal/state/nation elections -turnout -valid/invalid/null votes</td>
</tr>
<tr>
<td></td>
<td>Membership in political parties</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confidence in institutions</td>
<td>survey</td>
</tr>
<tr>
<td></td>
<td>Interpersonal trust</td>
<td>survey</td>
</tr>
<tr>
<td></td>
<td>Number of NGOs</td>
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<tr>
<td><strong>WELFARE</strong></td>
<td>Per capita income</td>
<td></td>
</tr>
</tbody>
</table>


²² Used in Min (2008) for global measures and Amaral et al. (2009) for study of Amazon region.

²³ [Putnam (2000)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1272157/)
<table>
<thead>
<tr>
<th></th>
<th>Pre-test / Treatment / Post-test</th>
<th>mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Groups of municipalities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 1</td>
<td>Pre-test</td>
<td>PB introduced</td>
</tr>
<tr>
<td>Group 2</td>
<td>Pre-test</td>
<td>Pre-test</td>
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<tr>
<td>Group 3</td>
<td>Pre-test</td>
<td>Pre-test</td>
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<td>Group 4</td>
<td>Pre-test</td>
<td>Pre-test</td>
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<tr>
<td>Group 5</td>
<td>Pre-test</td>
<td>Pre-test</td>
</tr>
<tr>
<td>Group 6</td>
<td>Control</td>
<td>Control</td>
</tr>
</tbody>
</table>

Pre-test = quality of governance (Chapter 3) and social capital (Chapter 4)

PB introduced = PB implementation and participation measures

Post-test = quality of governance (Chapter 3) and social capital (Chapter 4)

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24 Includes all Brazilian municipalities with PB (approximately 1112 of 5564 total municipalities). Non-PB municipalities are the control group.
Figure 1

**HOW PB WORKS**

*Start*

<table>
<thead>
<tr>
<th>Regional Meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mayor reports on status of previous year’s projects</td>
</tr>
<tr>
<td>2. Discussion of previous year’s projects</td>
</tr>
<tr>
<td>3. Discussion of priorities for coming year</td>
</tr>
<tr>
<td>4. Delegates elected for intermediary meetings; Delegates elected to PB Council</td>
</tr>
</tbody>
</table>

*Intermediary Meetings: delegates elected in Regional Meetings*

*PB Council: create budget proposal based on priorities and rankings for intermediary meeting*

*End*

Figure 2: PB Implementation by Political Party

**Adoption of Participatory Budgeting, 1989-2004**

Municipalities with more than 100,000 residents

- Number of PB cases
- Number of PT governed cases

Wampler (2009)
**Hypothetical examples using the typologies:**

A municipality located in the upper left quadrant in all three cases (Municipality\(_{1A}\)) would be characterized as follows:

- It would have a high percentage of funds allocated to PB decision-making, however those decisions would not be binding.
- Citizens would have easy access to participation because their distance from meetings would be low, and the availability of online participation would be high.
- There would be a low rate of participation in general, and those who did participate would not be a representative sample of the eligible population in terms of income and gender.

Conversely, a municipality located in the lower right quadrant in all three cases (Municipality\(_{4D}\)) would be characterized as follows:

- A low percentage of funds would be allocated to PB decision-making, but decisions made by PB Councils on those funds would be binding.
- Access to participation would be limited due to the large distance between most citizens and meetings, and the lack of online participation options.
- A high proportion of eligible citizens would attend meetings, and those participants would constitute a representative sample of the eligible population at large in terms of income and gender.
7. References


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