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A Marginal Returns Theory of Politics

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A Marginal Returns Theory of Politics

by

Carlos Costa

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ABSTRACT OF THE DISSERTATION

A Marginal Returns Theory of Politics

by

Carlos Costa

Doctor of Philosophy in Political Science

Washington University in St. Louis, 2011

Itai Sened, Chair

A great deal of contemporary social science rests on a basic, "primitive", principle that rational agents are motivated by a quest for marginal returns to investment of time, money, and other resources. In this manuscript we argue that an analogue fundamental principle guides much of modern political science, but has remained largely implicit in the literature.

This manuscript sets out to unearth, reshape and polish this principle into what we term *a marginal return theory of politics.* We then apply this theory to the study of electioneering in Latin America, focusing on two main elements of vote seeking: the returns of specific votes and the returns of specific voters.

We provide evidence that political parties are keenly aware of how differences in the returns of specific votes and specific voters affect their future plans to hold on top power. As such, these parties go out of their way to ensure that party exchanges prioritize the right votes being cast by the right voters.

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Part I

Marginal Return Theory of Politics

Chapter 1

Introduction

On the 10th of May, 2011, approximately 2300 hundred Brazilian mayors landed in Brasilia, Brazil's capital, for a three day march. The march, called the National Mayoral March, is in its 14th edition. During these 3 days, mayors from all over Brazil sit down with top members of the federal government in order to discuss the advancement of regional development. Recently elected president Rousseff, Brazil's first female president, personally welcomes the mayors. In the latest edition of the march, president Rousseff actually kicked off the event by giving an opening speech.

While mayors have been warmly welcomed in Brasilia for the past five or six editions of the march, this friendly reception has not always been the case. The first mayoral march took place in May of 1998, when approximately one thousand mayors came to Brasilia to demand greater attention from the federal government. At that time the group of mayors was received by the federal military police's shock squad, which had been called to observe the march by then president and former political scientist Fernando Henrique Cardoso.

To what can we attribute such a drastic change? In 14 years, mayors have

gone from being treated as rioters to having the red carpet rolled out them by the federal government. While many explanations can be proffered, we believe that this change has been a product of a change in the importance of mayors as political allies in Brazilian politics. Twenty years ago, Brazil had just emerged from ten years of economic instability and was just beginning to solidify its inchoate democracy. Voters were confused and did not know who to trust or turn to. Today the economy is stable and political parties are much stronger.

Earning a vote has become a complex business in Brazil. As parties become stable and develop national platforms, managing the political machine becomes significantly more difficult. Mayors, who stand at the tip of a political party's tentacles, have become an important tool for parties to send their messages, interact with voters and expand their political base. 20 years ago, mayors were one of many venues through which political parties could secure votes. Many of the other options were more attractive. Today, with most of these other venues already exhausted, mayors have emerged as attractive allies and are being treated accordingly. While this is the last we will hear of Brazil's National Mayoral March in this manuscript, the march is a great example of how changes in a political scenario makes certain groups attractive in the eyes of political agents. Without these attractive characteristics, groups are otherwise ignored.

In this manuscript, we set out to introduce a theory that attempts to capture this very dynamic: what is it about certain political exchanges that make them attractive. What is it about them that make political agents turn their backs to certain exchanges in favor of others?. The answer to that question is the essence of our theory.

When political agents invest their resources in exchanges, they do so with an eye on what they will get back for their investments. Exchanges require resources

and agents want to get the most out their resources. This principle, while simple, underscores this entire manuscript.

1.1 The Argument: Marginal Returns to Investments

Since its introduction in Political Science, the Rational Choice framework has become a dominant paradigm in the study of political exchanges. Large bodies of research on a wide gamut of topics have leveraged the powerful tenets of Rational Choice in order to make piercing contributions to the discipline. Coalition building, ideological placement, party formation, democratization, conflict resolution are just a few of the many topics that have profited from the adoption of a Rational Choice design.

In this manuscript, we continue within the tradition of Rational Choice. Our goal is to contribute to the overall paradigm with a general theory of politics that, not unlike the Rational Choice framework, is fluid enough to allow for insights in many topics of our discipline. We name this theory the *marginal return theory of politics*. In its broadest, the theory states that political agents invest their resources with an eye on their returns. Agents favor exchanges where the marginal returns are highest, often in detriment of exchanges whose returns are lower and despite normative expectations about which exchanges should be prioritized. Part of our motivation for pursuing this theory comes from a desire to identify underlining tones that connect broad topics within our discipline even when topics being covered appear impossibly distant. As we will demonstrate, this connecting undertone can be found in some of the most influential works of the past half a century, even if hidden in the background. In this

manuscript, we take concerted efforts towards unearthing this concept, discussing and polishing it to the point where our theory can almost organically sprout out.

A driving force pushing this manuscript forward is our effort is to unearth a theory that is powerful enough to elucidate even the most complex of political issues, yet broad enough to be applicable to wide variety of topics. Here we focus our efforts on the puzzle of vote seeking. Our choice to focus on this puzzle is based on both the complexity and diversity of the subject. Votes can be thought of as the currency of democracy. It is through votes that political parties navigate the political system. Votes grant parties access to political institutions and allow them to become members of legislative and executive bodies; votes also bestow parties with legitimacy. Securing votes is a key activity of any political party, for without votes parties are rendered pretty much breathless. Votes are also the voice of voters; they are the universal language spoken by constituencies. The way political parties go about securing those votes can be as diverse as the nature of political parties themselves. As to the complexity of vote seeking, we believe it is highly complex. When competing for votes, political parties must juggle the desires of their constituencies, the goals of competing parties, the conflicting interests of back-bench members, the coattails of charismatic leaders, just to name a few. As such, we believe that vote seeking emerges as a great topic to test our theory. By leveraging the theory's tenets to the benefit of such a diverse and complex topic, we feel that the manuscript sets off the theory well on its way.

Because our goal is unearth a theory that is broadly applicable, we feel it is important to introduce this theory detached from any particular topic. To accomplish this, we divide the manuscript into three main parts. Part I is devoted to introducing and developing the theoretical framework that powers the entire manuscript. This is accomplished through a discussion of several influential works of our discipline. As

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we will show, the driving concept behind out theory is present, even if implicitly, in most of these influential works. Our focus on vote seeking is not introduced until part II, when we take our theory, previously introduced in its broadest form and almost *topic free* and apply it the scope of vote seeking. We purposely separate these two parts in order to explicitly demonstrate how to take the theory in its broadest form and shape it to fit a topic a choice. While our topic of choice might not be of interest to everyone, by distinctively separating the theory from the topic, we hope that those disinterested in the topic can still leverage the power of the theory in other topics that they find interesting or suitable. Part III repeats the process, taking the theory in part I and shaping it to address a distinct angle of vote seeking. The topic of choice in parts II and III is vote seeking, but it is addressed from different perspectives and therefore belongs in separate parts.

As to our choice to separate our approach to vote seeking in two distinct parts, we do so because we feel that two main dimensions addressed here are often conflated together. These two dimensions relate to voter characteristics and actual vote characteristics. Votes have to be casted by voters and we recognize that these two dimensions are inherently inextricable. We show that examining them separately is extremely insightful even if a little counterintuitive at first. To ensure that we can separate these two dimensions well, we give each dimension its own part within the manuscript.

In part II, we show that certain votes have specific qualities that speak to their ability to deliver actual seats. These qualities, which are particular to certain votes, are often non-transferable. By that we mean that political parties cannot turn their backs to these specific votes and simply attempt to seek other ones to replace them. These qualities make these votes very attractive and they do not necessarily relate to the voter who happens to be casting it. We are able to leverage our marginal return

theory of politics to conceptualize these qualities. We then design a test and provide ample evidence that political parties recognize and go out of their way to secure these particular types of votes.

In part III the manuscript tackles the other dimension of vote seeking: the actual voter. As we did in part II with reference to votes, in part III we highlight that voters themselves have specific qualities that make them very attractive. In the case of the voter, these qualities relate to persuasion. Voters that demand ample resources in order to be persuaded to deliver their support are less attractive than those who require a great deal less. In the same vein as in part II, part III leverages the marginal return theory of politics introduced in part I to conceptualize these qualities. We provide evidence that political parties also recognize these qualities and systematically chase after voters espousing them.

1.2   The Structure: Looking Ahead

The main goal of this initial chapter is to introduce the manuscript. It highlights this author's goal of developing a general theory that can not only power this manuscript, but also be applied to other topics. We also discussed the overall three part structure of the manuscript. Part I's overall goal is to develop the theory, while parts II and III apply the theory to different dimensions of vote seeking.

Chapter 2 begins to introduce our marginal return theory of politics. It does so by reviewing several influential works in the discipline, starting from Downs's *Economic Theory of Democracy*. In that chapter, our goal is to show that the principle that anchors our theory has been an underlining force in many works of the discipline. While authors have not given the concept the degree of attention that we do in this manuscript, by discussing the findings and implications of these works, the chapter

clearly shows that the concept itself is present.

It is only in chapter 3 that the theory is fully introduced. While chapter 2 highlights the presence of the concept, it is in chapter 3 that the theory takes shape. The chapter discusses the theory's main foundational concept, with concerted efforts to ensure that the theory remains in its most abstract and broad form. The chapter concludes part I of the manuscript.

Chapter 4 introduces part II of the manuscript. The chapter's main goal is to introduce the topic of vote seeking. It is only at this point that we begin to discuss the manuscript's substantive topic. An important part of the chapter is to walk the reader through the process of taking the theory in its broad and general form and leverage it within the context of vote seeking. Once the theory is adapted to fit our topic, we introduce a mathematical algorithm that allows us to translate the conceptual framework into an observable proxy. At that point, we are able to search for measures that speak to these concepts and an empirical test begins to take shape.

Chapter 5 introduces the cases that make up the empirical test for part II. It discusses the adoption of poverty alleviation and development programs as an appropriate test. Beyond the discussion of why we should use these programs, the chapter also introduces the eight programs that we use. Each program is introduced, with special attention to program goals, types of resources delivered and pressure points that are particularly susceptible to political manipulation.

Chapter 6 concludes part II of the manuscript with a discussion of the operationalization of the data and the results of the statistical estimators. Results are discussed with an eye on how they support our hypotheses as well as how the strategies that parties adopt impact the redistribution of resources on the ground.

Chapter 7 introduces part III, the final part of this manuscript. This chapter is similar to chapter 4 in that its main goal is to leverage our marginal return theory

of politics within the realm of vote seeking. The main difference is that there the focus moves away from the vote itself and is concentrated on the specific qualities that are displayed by certain voters. After addressing the importance of separating voter qualities from vote qualities, the chapter introduces a typology of voters that is based on how they respond to a party's attempt to persuade them.

Chapter 8 introduces the case we use for the empirical test. This chapter introduces the single case that is going to be used: The distribution of FONCODES resources in mayoral races in Peru. The chapter discusses why we believe this is an appropriate test given the many challenges that political parties in Peru have faced since the falling of Fujimori's rule.

Chapter 9 addresses the challenges behind the empirical test for part III. After discussing the operationalization of variables and their expected relationships, the chapter introduces the statistical estimator and discusses the results. Once again, attention is given not only to how results provide evidence to our hypotheses, but also how the distribution of FONCODES is affected by the strategies that are pursued by political parties.

Chapter 10 concludes this manuscript with a discussion of some of the pitfalls we have encountered, as well as challenges that future research will face.

Chapter 2

Influential Works

The goal of this manuscript is to introduce a broadly applicable theory. It does so by leveraging insight from spatial modeling works within the Rational Choice approach, a framework that has been dominant in Political Science. The insight we draw from spatial models is of two orders. The first order is the direct and more obvious one, which is the framework itself, its main findings and assumptions. The second order insight is not as direct, relating to the underlining motivations that are ascribed to the political actors of these spatial models. In this chapter, we focus our attention on revising the some of the most influential works that precede the efforts made here. In the next chapter, we will turn our focus to the second order insights, which are developed into the overarching theoretical motivation that powers the entire manuscript. In its substantive chapters, introduced in parts II and III, the manuscript speaks to the literature on vote seeking electoral strategies.

To place the manuscript within its corresponding body of work, this chapter reviews the literature on electoral strategies, starting with Downs (1957); arguably modern Political Science's most prominent study of electoral strategies. After discussing the Downsian model, its assumptions and main predictions, I review the works

that addressed the model in attempts to elucidate, test and or expand it.

2.1   The Quintessential Downsian Model

The study of electoral strategies to maximize votes is by no means new to Political Science. Spatial modeling, the leading research paradigm in the study of electoral and legislative politics, is mainly concerned with identifying strategies that deliver high utility vote shares to political actors. High utility vote shares being those that deliver seats. Political actors can be at the aggregate level of the party or at the individual level of the candidate.

Arguably no Political Science theory has gotten as much mileage as the median voter theorem, which is well depicted by Downs (1957). Downs' quintessential model consists of two parties running for a single seat in a race where all voters must vote for the candidate they believe will best represent their interests. An overly simplistic reduction of Downs' perhaps most famous prediction is that two candidates running for a single seat in will converge to the median of the policy spectrum. This prediction is of tremendous importance to politics, for it suggests the emergence of what Grofman (2004) later termed the *"tweedledum & tweedledee"* of politics, which are parties that are practically indiscernible from one another in the eyes of the voter. In order to appear attractive to the largest possible audience, parties will strip themselves of characteristics that can make it discernible from its competitors. When parties running from office are exactly the same, the whole concept of choice is lost as voters are forced to pick between identical parties. A choice between identical options is no choice at all.

Downs' (1957) model finds its origin in Hotelling's 1929 theory of stable points

of competition. Downs adapts Hotelling's original model, following a suggestion made by Hotelling himself that the model could be used to explain political phenomena.

> In politics it [the model] is strikingly exemplified. The competition for votes between the Republican and Democratic parties does not lead to a clear drawing of issues, an adoption of two strongly contrasted positions between which the voter may choose. Instead, each party strives to make its platform as much like the others as possible. Any radical departure would lose many votes, even though it might lead to stronger commendation of the party by some who would vote for it anyhow. Each candidate *pussyfoots*, replies ambiguously to questions, refuses to take a definite stand in any controversy for fear of losing votes. Real differences, if they ever exist, fade gradually with time though the issues may be as important as ever. (Hotelling, 1929-54).

The original model depicts buyers of a commodity uniformly distributed along a street, which Hotelling calls Main Street. Buyers with an inelastic demand for a product are indifferent between sellers and care only for price and transportation costs. Results of the model suggest that businesses will place themselves next to one another, on the center of the street and with identical prices. By doing so, they will minimize buyer's distance-related costs to all buyers and consequently increase their chances of securing their largest possible market share.

Downs' model basically consists of translating Hotelling's to the political realm. He achieves this by perceiving of political agents (be them parties or candidates) as the sellers, and buyers as the voters. Hotelling's Main Street becomes the political ideology spectrum. Voters are distributed along the political spectrum much like buyers are distributed along Main Street. Hotelling's buyers that live in the *"hinter-*

land" become Downs' extreme voters. The costs of transportation become the costs of compromise. Much like the stores that have to place themselves somewhere along Main Street, political agents will have to place themselves somewhere in the political spectrum. Voters will incur the costs of voting for candidates that are far from their ideal points just like buyers are forced to incur the transportation costs that come from shopping in stores that are far from their homes. Larger distances between buyer and store mean larger transportation costs just like larger distances between voter and candidate mean larger compromise costs. Candidates behave just like stores in that they want to secure the largest possible share of sales, which in their case are votes.

Once this translation is complete, the same results suggested by Hotteling's (1929) original model hold. Political agents will place themselves in the middle of the political spectrum (converge on location) and spouse the same issues (converge on price). This oversimplified depiction of (*both*) models, while worthwhile for illustrative purposes, does not address the many necessary conditions that need to hold for this convergence outcome to materialize.

Stokes (1963) identifies the axioms of unidimensionality, fixed structure, ordered dimensions and common reference as the four key points that sustain convergence and the sole Nash equilibrium. Stokes (1963) exposes the fragility of the model by arguing that these axioms, which are fine for Hotelling's market competition purposes, cannot be so easily translated into the political realm. Grofman (2004) later meticulously articulates these axioms to comprise of what he perceives as twelve necessary assumptions. Clearly articulated or otherwise, interpretations of these twelve assumptions have spawned countless papers addressing the robustness of convergence as a stable equilibrium.

It is worth noting that Black (1958) arrives at results that are very similar to

Downs, only with a greater emphasis on legislative committees. The main assumptions, such as unidimensionality and single peaked preferences are also essential to Black's findings. For reasons we suspect related to publication date, Downs is credited as the quintessential spatial model in Political Science. See Plott (1967) and Hinich (1972 and 1973) for reviews of Black's (1958) model.

2.1.1 Applicability of Spatial Modeling

Several works have addressed Downs' model, some with a pure focus on the assumptions that it requires. Davis *et al* 1970 addresses unidimensionality and the problems that arise when models attempt to deal with the problem of social choices spanning from individual preferences, as articulated by Arrow (1963). The authors reject Downs's (1957) and his brand of spatial modeling as inadequate on the grounds of real life application. "If we assume that parties and candidates waltz annually before a blind audience,[...] than spatial analysis is not a requisite for understanding this waltz" (Davis *et al* 1970-429). This rejection reflects what the authors perceive to be an overly simplistic evaluation of the electoral process. Nothing is gained by examining the political process in a spatial way if the model does not allow voters to observe movements in said space.

Calvert (1985) takes a more welcoming approach to spatial modeling, relaxing the core assumptions of information uncertainty and office seeking. Calvert argues that convergence to the median still occurs even if the office seeking assumption is retracted in favor of policy seeking parties. Converge also occurs when candidates are uncertain about how voters will respond to their bids for votes. Convergence only fails when both of these core assumptions fail to hold. Spatial modeling and the search

for equilibrium, argue Calvert, are still a worthwhile way to pursue an understanding of the electoral competition process.

These papers mainly focus on the applicability of spatial modeling as a viable alternative to the study of electoral competition. A great deal of efforts is spent attacking or justifying the models and their ability to teach us something about real life politics. Regardless of what the model can or cannot teach us, one of the model's indelible contributions is to solidify spatial modeling as a potent tool for understanding electoral and legislative processes. Even when authors reject a pure Downsian model by adding parameters to it, the fact that they continue to operate within the spatial paradigm attests to the strength of this paradigm.

In their critiques and additions to the model, authors recognize that electoral processes are inherently complex. However, there is little discussion of how varied they are in their nature. The Downsian model mainly deals with two party races for a single seat. While a lot of discussion addresses whether or not the Downsian model variations and their assumptions are capable of explaining these races, no discussion so far has addresses whether or not these races are the only type or even the most frequent type of races we observe. Even if spatial modeling is the most appropriate paradigm to study electoral processes, significantly less attention has been paid to which types of electoral processes we should be interested in.

2.1.2   Uncertainty, Office vs. Policy Seeking

Some of the harshest criticisms faced by the Downsian model relate to two of its important assumptions: that agents are purely office seeking and that voters can easily place candidates within the policy spectrum.

Enelow and Hinich (1984) concerns mirror Davis *et al* 1970. Spatial modeling, they argue, must allow for variation in the goals of political agents (i.e. office versus policy seeking) as well as incorporate the characteristics of the political agents that are used by the voters when making their decisions. The concern with allowing for variation in the goals of political agents is also echoed by Wittman (1983), who introduces what he terms a synthesis model. This model accounts for a synthesis of candidate goals, which can be office seeking, policy seeking or a synthesis of both. Convergence to the median is only an equilibrium when policy seeking candidates spouse policy preferences that are central. In other words, candidates will converge to the center if the center is their ideal point, but will not do so if they spouse non-centrist preferences.

Placing candidates along the policy spectrum relates to information gathering costs, or in other words: uncertainty. Downs (1957) assumes that voters can readily place candidates within the spectrum and therefore make the necessary party differential calculations. Building on the concept of lotteries introduced by Zeckhauser (1969), Shepsle (1972) tests convergence while endogenizing uncertainty into the model. The idea of a lottery is that voters vote based on an expectation of the party's position. Parties can take advantage of the way voters build this expectation by taking a range of positions within a single issue, so long as their expected position coincides with the median voter. Results suggest that convergence is still a dominant strategy, but convergence to the expected median is preferred to convergence to the actual median.

Page (1976) adds to lottery-based equilibria by introducing what he terms emphasis-allocation strategies. Equilibrium for this model, which operates in multidimensional issues, consists of two actions. When it comes to their positions, candidates take solid stances on single peaked (non-controversial) issues and only take lottery

positions in controversial (bimodal) issues. Emphasis is placed on non-controversial issues, while controversial issues are deemphasized.

Enelow and Hinich (1981) address uncertainty by adding an additional parameter to the candidate positioning. Their model accounts for candidate positioning by ways of two parameters: a position parameter and a variance parameter. Candidates that are difficult to place have larger variance parameters, capturing the concept of uncertainty and the costs involved with collecting and processing candidate related information. Voting decisions are made based on these two parameters and results show that voters will favor non-central candidates over central ones so long as non-central candidates have small variances. Results suggest that convergence becomes a dominant strategy only if it can be pursued credibly.

Weisberg and Fiorina (1980) accuse spatial modeling research that followed Downs to be deceptively organized. The Downsian impetus to focus on parsimony pushed research to incorporate uncertainty into its models without carefully examining what uncertainty really entails. The authors reject simple parameters that can account for uncertainty in models, such as position lotteries. At a minimum, they argue, politicians produce uncertainty by ways of equivocation or vagueness. Equivocation, which consists of candidates taking different positions over the same issue, results in voters misplacing the candidate conditional on what they have heard. Vagueness, which consists of candidates not taking any position over issues, results in voters placing candidates within a range of possible positions. These types of uncertainty are inherently different and voters behave differently depending on what kind of uncertainty they believe to be dealing with. To tackle this, Weisberg and Fiorina suggest that politicians need to know not only what kind of uncertainty they wish to produce, but also how they are being perceived by their voters.

These works advanced the applicability of the Downsian model and as a con-

sequence solidified spatial modeling as the leading research paradigm in Political Science. While efforts to increase the breath and applicability of the models are undeniable, all of the aforementioned research has limited itself to single seat two party races. Based on these works, we learn little about incentives and strategies across districts and between multiple competitors.

2.1.3 Multi Constituency Races

Another criticism of Downs is that it trivially reduces races to a single constituency, defining it as a single constituency model (henceforth SCM). Even if the focus is on a single race, i.e. the race for the national executive elected by the popular vote, the single constituency reduction is artificial because races truly start with primaries or candidate selection rounds. These previous stages are likely to have smaller electorates with narrower and non-centrist ideologies.

Aranson and Ordeshook (1972) characterize this difference in electorates as a dilemma that candidates have to face. They argue that candidates are forced to choose between converging to the median of the (s)electorate in the candidate selection stage or to converge to the median of the entire electorate. By converging to the median of the (s)electorate at the candidate selection stage, a candidate maximizes its chances of earning the nomination, which is a prerequisite for winning the actual election. However, this hurts its chances at the election because it precludes convergence to the median of the entire electorate. On the other hand, by converging to the median of the entire electorate, the candidate increases its chances of winning the overall election but risks losing the nomination to the candidate that converges to the median of the primary. Aranson and Ordeshook (1972) reject convergence to

the median voter for a strategy that places candidates somewhere in between the electorate's median voter and the primary's median. It is important to highlight that while convergence to the median voter is rejected, it is rejected on account of other possible convergence points.

Aldrich (1983) rejects convergence as the Nash equilibrium adopting a similar premise to Aranson and Ordeshook (1972) and endogenizing the costs incurred by party activists. In the model the activists' support is a function of the activists' costs and benefits. Benefits decrease as the party/candidate's ideology moves away from the activist's ideal point. Results show that when the electorate's median is too far from the median activist, the activist's costs outweigh their benefit and they will simply withhold support. Convergence to the electorate median ceases to be Nash because it ultimately erodes the party's support base.

Robertson (1976) highlights that the Downsian model is inappropriate to elucidate the behavior of a party looking to secure a majority of seats in an assembly type of body, such as the Labor and Conservative parties in Britain or the Republican and Democratic parties in the United States. The Downsian model can be seen as appropriate by way of being separately applied to each individual constituency, as suggested by Aranson and Ordeshook (1972); when candidates converge to their temporal median. Robertson rejects this *juxtaposed Downsian model* because he argues it would invite uncertainty issues that would eventually hurt the party's chances, especially if the temporal aspect is concurrent[1]. Uncertainty would manifest itself as each individual candidate would converge to its local median, leading the party to be ideologically spread across the spectrum and therefore risk being perceived as unable

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[1]In Aranson and Ordeshook (1972), the races are not concurrent and candidates could potentially converge to the primary median, only to converge to the national median once the nomination was secured. With multiple concurrent races, as examined by Robertson (1976), this move becomes impossible

to enact one specific policy.

Austen-Smith (1981 introduces a model that addresses some of Robertson's (1976) concerns. When it comes to the candidate's freedom to converge to its local median, the model is the opposite of the *juxtaposed Downsian model* in that candidates in each district are committed to their party's national ideology and therefore cannot simply converge to their local median unless such move were beneficial to their party's overall performance. Results suggest that equilibria exist when two parties are attempting to maximize their winning seats. This existence, argues Austen-Smith, is mostly mathematical and it is unlikely to be observed in real political settings. In an alternative model where candidates are given some flexibility over their ideological position vis-a-vis their party's, Austen-Smith (1984) finds that two parties running in multiple districts will converge to the national median voter, while candidate policies will converge to some compromise between the national and its respective local median. See Austen-Smith (1996) for a review of the challenges that multi-constituency models must address.

These papers add further knowledge to our understanding of electoral races by accounting for incentives that arise when parties need to contemplate multiple positions, a common aspect of electoral strategies for legislative seats. Their contribution is undeniable but however still limited, as these models are restricted to two party races and teach us little about multi party competition.

2.1.4   Multi Party Races

Concerned with the limitations that the two-party assumption placed on the Downsian model, researchers set out to test equilibria once this assumption was re-

laxed. Research on multi party races expressed itself in two veins. The first vein addresses multi candidate entries in single seat races.

Eaton and Lipsey (1975) are interested in the understanding if convergence to the median is still a Nash equilibrium when multiple agents are present in the model. Their proposed multi agent model (there are four versions) does not account for the origin or strength of the agents in the game, simply checking for whether a system that has 2, 3, 4, 5 or 6 exogenously determined agents creates incentives for agents to downplay their differences. Their findings suggest that other equilibria exist in addition to the median point. Agents faced with multiple competitors have incentives to cater to segments of the electorate. There is still an incentive to appear indiscernible from competition that is searching for equal segments of the consumers. The principal of minimum differentiation (*which states that there will be no difference between the products offered in a single market*) itself is not entirely discarded, it simply becomes localized. While this paper is directed to Hotelling (1929) more than to Downs (1957), it impacts Political Science spatial modeling by suggesting that convergence as a Nash equilibrium, and its resulting shrinking of options, is a point constructed on fragile assumptions. Once more agents are introduced, convergence fails.

Palfrey (1984) also rejects the Downsian two party restriction as unrealistic. While the author accepts that two party systems exist, he is interested in understanding why are the two parties that populate the model so dominant over all other parties. In other words, if any party that places itself close the median voter has a chance at the seat, why don't third parties enter races? Palfrey (1984) models third party entrance conditional on the placement of two existing dominant parties. Findings indicate that convergence to the median invites the entrance of otherwise uncompetitive third parties and, on that account, is not a Nash equilibrium. Weber

(1992) characterizes Palfrey's (1984) findings as a special case of a more complex model that is able to deal with a larger class of single peak voter distributions.

Feddersen, Sened and Wright (1990) models candidate entry when voters are allowed to vote strategically and maximize utility over policy outcome (strategic voting) as opposed to candidate ideological proximity (sincere voting). Their findings indicate that third parties that choose to enter the race will do so by placing themselves over the median voter. Voters that vote sincerely irrespective of the chances that their candidates will win a seat create incentives for third parties not to enter, as there is no position in the ideological spectrum that can give this entering third party a chance at winning the seat (Brams and Straffin, 1982).

These papers have addressed the issue of multiple candidates but retain the single winner aspect of the electoral race. They contribute to our understanding of multi party races but fall short of contemplating an important issue of multi party races, which is that multiple parties are unlikely to emerge in a single member district (henceforth SMD). The second vein of multi party research tackles the issue of multi candidate entry in models with more than one seat winner. Shepsle and Cohen (1990-31) point out that some multi candidate races, such as those in proportional representation, don't necessarily punish candidates that receive fewer votes than the plurality vote getter. When that is the case, securing a costly plurality of the votes is no longer the only game in town.

Greenberg and Weber (1985) model candidate entry strategies given the electoral rules that regulate races. Given a fixed standard method, where all candidates that earn a minimum quota of votes are awarded a seat, results suggest that there exists an equilibrium where all candidates currently in the race will place themselves in specific (*different*) points of the policy spectrum. In this equilibrium, candidates secure a chance at a seat as well as create an incentive for no other agent that is not

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currently in the race to enter.

Greenberg and Shepsle (1987) introduce a model that also changes the goals of the candidates, with a focus on a fixed-number method type of legislature, which is basically one with a fixed number of seats[2] Their results show that given this type of electoral rewards, there is no equilibrium that will incentivize agents to stay away from the electoral races, despite the position of the dominant parties already in the race. Without such equilibrium, argue the authors, entry becomes open to whoever is willing to bear the costs.

In a series of papers, Cox (1984, 1984c, 1985, 1987) investigates multi candidate centrist strategies in different types of electoral rules that yield multiple winners. Cox (1984) finds that two seat three candidate races create a strong incentive for voters to behave strategically. As for the candidate's strategies in these systems, Cox (1984c) finds that centrist strategies are Nash when three candidates are running, and actual convergence to the median is Nash if a fourth candidate enters the race. Centrist strategies are also found for candidates running in approval-voting systems (Cox, 1985). Cox (1987) shows that in general terms, multi candidate models with multiple office seeking winners create incentives to converge to the median, or at least to adopt centrist strategies, in all but plurality rule methods.

The expansion of spatial models in attempts to include multi candidate races has produced important findings. It tackles an important issue that is essential if we wish to understand the type of legislative elections that go on across Latin America, Continental Europe and parts of the democratized Asia and Africa. However, it suffers from two limitations. This first limitation has already been discussed: single

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[2]Unlike the standard quota type of legislature, which awards as many seats as candidates who manage to secure the quota of seats. An example of such type of unlikely legislature is the German Reichstag during the Weimar period.
For a discussion see Hoag and Hallett (1926).

constituency models. While researchers did take the first step into multi candidate races, they remained within the realm of the single constituency model(SCM). The choice to remain within SCM is warranted for it is important to develop a good understanding of what strategies look like in a single district before we can begin to study them across districts. That being said, the move to a multi constituency model (henceforth MCM) is inevitably necessary if researchers wish to understand multi party competition in applicable terms. A concerted effort to develop this understanding is introduced in part II of this manuscript.

The second limitation relates to how interchangeable parties and candidates can be when it comes to assuming the role of a model's political agent. To a great extent, the political agent in the overwhelming majority of the models reviewed here can go from being the party to being the individual candidate quite freely. In other words, the models perform equally well to predict either the party's or the individual candidate's behavior. This is owed to the restriction that political agents are limited to earning a single seat. Even in models with multiple winners, each winner is limited to a single seat.

While this distinction may appear trivial, it actually impacts strategies at the party level. Consider, for example, one of three candidates running for two seats. When candidates are limited to a single seat, candidates should be indifferent between outcomes where they rank first and outcomes where they rank second. This is because they are concerned with earning a single seat and either outcome will deliver that. However, if we lift the one seat per contender restriction and allow parties to win multiple seats in a single district, then parties would not have the same indifferences. An entirely new preference profile would have to be drawn, where a party would prefer ranking first and second to anything else (it would secure both seats), being only indifferent between first and third and second and third (it would secure

a single seat in both cases).

2.2 Conclusion: The Downsian Heritage of Electoral Competition

As we have shown above, the Downsian model spawned hundreds of works that speak to its assumptions, its limitations, its applications and its results. Despite the controversy behind the model, the fact that so much energy was put towards the dissection of its components is in itself a testament to the importance of the model. Ultimately, the heritage that comes out of this research agenda is that electoral competition creates a plethora of incentives. These incentives either tell parties to switch positions or to stay put, to enter or not to enter a race, to favor a small or a large group, to take stands on certain issues while avoiding others. All of these are predictors that should be taken into account when devising optimal strategies.

Much of the criticism that has befallen Downs relates to the models failure to incorporate all of this elements. We join the bandwagon of criticism when we say that not enough focus has been placed towards understanding these incentives in multi seat races. We recognize that in putting a concerted effort towards advancing knowledge in that direction, we fall prey to the same criticism. In our efforts put forth in this manuscript, we too fail to incorporate all of these incentives into our study. By examining multi seat races, a new set of incentives emerges and it would be practically impossible to address them while still accounting for a multitude of contenting incentives that come attached to the model. Our choice to leave these incentives out of the framework is merely due to a concern with keeping this project

within executable goals and by no means suggests that be believe the incentives left out do not play a role here.

In this chapter, we have surveyed one of modern Political Science's most influential works. This model set the standards for the study of electoral competition for decades and it continues to influence current work as we speak. What we can notice right away is that a brief perusal of the model unearths several complicated issues that speak directly to the relevance and results of the model. What is not so obvious is the common ground that unites the overwhelming majority of the criticism that follows the model. This common ground, which speaks to the return to efforts invested in the race, becomes the steam that powers this entire manuscript and is addressed in the following chapter.

Chapter 3

A Marginal Returns Theory of Politics

3.1 Putting the Pieces Together

As argued in the previous chapter, very few political science theories have gotten as much mileage in our discipline as the median voter theorem [MVT]. The MVT was criticized for the assumptions needed to secure the result, but was later found to be robust to relaxations of many of these assumptions. While criticism towards the MVT came from multiple angles, they shared the concept of returns to investment, a concept that we leverage in this manuscript.

Page (1976) criticizes the MVT for assuming a single issue dimension. After introducing multiple dimensions to the MVT, he finds that political agents will emphasize non-controversial issues over controversial ones. This emphasis on non-controversial issues is due to low returns coming from multi modal distributions: while taking a position at one of the modes is likely to secure votes from voters close to that mode, it is likely to alienate voters closer to other modes. In other words,

multi modal (controversial) issues have lower returns to position taking than do uni-modal (non-controversial) ones.

Aranson and Ordeshook (1972) criticized the MVT for failing to account for the multiple stages of an election cycle, from primary to actual election. While returns are highest at the median, political agents must first earn support from primary election voters, whose median might differ from the election median. A similar criticism is voiced by Robertson (1976), who argues that the makeup of a national legislative body is often a product of multiple district elections. In this case, each district can have its own median, which may or may not be the same as the national median. The underlining theme behind the two pieces of criticism is that returns from placing oneself at the median are unduly perceived as the highest. In fact, returns from placing oneself either at the median of the district or at the median of the primary voter pool are higher in the sense that they guarantee entrance to the next round.

Aldrich's (1983) criticism, not unlike Aranson and Ordeshook (1972), also attacks the MVT for not accounting for the negative returns attached to placing oneself on the median. More specifically, Aldrich argues that while sitting at the median might earn an upcoming election, the dilution of party ideological positions compromises the party's core support coming from activists. Austen-Smith's (1981) criticism, which accounts for costs to party label, embodies similar concerns. Both of these pieces of criticism can be worded as a cautionary reminder that long term returns from placing oneself in the median are not nearly as large as suggested by the MVT. When costs are accounted for, returns become drastically less attractive.

While the criticism towards the MVT was not limited to multiple races, criticism stemming from other concerns also showed a similar skepticism of the median's supposedly high returns. Palfrey (1984) was an early critic of the MVT's 2 party narrow focus. He argues that by rushing to the median, parties become indistin-

guishable and therefore invite the entrance of other equally indistinguishable parties. These new parties, argue Palfrey, can place themselves in the median and become equally competitive right away. His argument highlights that additional entry into the race lowers the returns from placing oneself in the median.

Greenberg and Weber (1985) and later Greenberg and Shepsle (1987) criticize the MVT for not accounting for multi seat races. They argued that quota systems create incentives for positioning beyond the median because quotas award seats to more parties, often with smaller voter shares. In other words, these systems increase the returns of smaller vote shares.

General Marginal Return Theory: Beyond MVT

The trend we hope to have highlighted is that political agents are incredibly sensitive to the returns to their political investments. While political action is incredibly trivialized in MVT type models, in reality we should recognize that there are significant costs associated with all of the aforementioned issues, from entering races to creating and maintaining a party label to moving from one ideological point to another all the while maintaining activist support. We recognize that endogenizing every plausible cost can quickly bring a research agenda to halt and it is not what we suggest here. We merely intend to highlight that as illustrated by the critics of MVT, political actors are incredibly sensitive to the returns to their political choices and once we account for these returns more carefully, we see that they are not so quick to run to the median of the spectrum. They might instead choose to sit out a race, cater to less central voters or local voters and so on. It is based on this insight that we argue that a general marginal return theory of politics begins to emerge. This theory, whose elegance stems directly from its simplicity, states that political actors

will invest their resources based on the returns to their political investment.

It is also worth highlighting that this insight is not limited to MVT and its critics. Down's influential work was closely followed by Riker's (1962) equally influential *"Political Theory of Coalitions"*. Riker argued that coalitions are formed with an eye on the payoffs that coalition members reap from being in power. Given the constant sum nature of the game, more members mean fewer benefits for each member. Riker's celebrated "size principle" states that coalitions will be just big enough to reach a majority: any smaller and they are vulnerable, any bigger and they will be dividing the pie inefficiently. Three decades later, Sened (1996) showed that coalitions could be stable enough even if they enjoy the support of less than a majority, when considerable ideological differences keep other parties from challenging these coalitions.

Here, our incipient marginal return theory rears its head again, and explains the phenomenon of minority coalitions. The formator may stop well short of securing majority support to her coalition when a minority government is expected to be stable due to ideological disagreements among opposition parties that may seek to overturn it(Strom, 1990). Under these conditions, the marginal returns of sharing government perks with additional partners quickly diminish. Returns drop because the opposition's marginal costs from coming together rise proportionally to their levels of disagreement. In the case of minority coalitions, the theory becomes strikingly powerful. Costs from building a coalition with certain opposition members are so prohibitive that they swamp any possible returns that would come from actually taking government, which then essentially becomes up for grabs by minority coalitions.

Baron and Ferejohn (1989) develop a model of coalition building in systems where party loyalty is not strong enough to deliver block votes. When parties cannot keep party members from deviating off the party line, it is reasonable to assume

that a coalition will have to be built by securing one vote at a time. They use a non-cooperative framework to analyze these events, where each legislator is only concerned with selfish benefits. Despite the contrast to Riker's cooperative framework and the individual legislator's heightened power in this model, Baron and Ferejohn (1989) remain true to the premise that coalition bargaining is done always with one concern: building a coalition that is big enough to pass bills and no bigger. Since ideology does not play a role in their model, the proposer of a bill will secure up to and never more than the strictly smallest possible majority of legislators. In light of the framework introduced here, any legislator beyond this narrow majority will not get any payments for supporting the bill because marginal returns to securing an additional legislator have diminished to zero.

Schofield and Sened (2006) examine coalition formation in proportional representation electoral systems at a very high theoretical and empirical resolution. The work affords the reader insight on strategies pursued in the multiple stages of coalition formation, from vote seeking to portfolio negotiation. Building on findings from a five decade long literature, one of the main findings of Schofield and Sened (2006) is that parties move about the ideological space not simply with an eye on how many votes they can get, but also how many votes they might leave behind when they move. As parties move around to become closer to certain voters, they become vulnerable to other parties by neglecting the voters from whom they move away. This suggests a *ballet* of party movements that are carefully rehearsed to ensure that the benefit of moving is actually positive. Parties graciously move around this space until they reach a point where no party can gain any additional votes by moving in any direction, given the positions of all the other parties to the dance. The parties may want to invest further resources to gain more votes but the marginal benefit of these investments has diminished to zero. This is analogue to a producer who is willing

to produce more but has no buyers to sell his product to given the competition. At that equilibrium point the marginal returns have diminished to zero as changing the parameters of the political product by changing the political message is no longer going to increase the market or vote share.

Cox and McCubbins (1986) developed a theory of party strategies that precedes our theoretical aspirations here. Theorem one (Cox and McCubbins, 1986: 375) explicitly recognizes that a party will redistribute scarce resources with an eye on the returns to delivered resources, moving from one group to another once a group's rate of return falls below that of the other groups. The choice to favor swing, support or opposition groups is a function of the risk involved with attempting to reach each of these groups. Ultimately, by accounting for a party's level of risk averseness and each group's response to delivered goods, a party can estimate the overall return of each group and redistribute accordingly.

3.2 Conclusion

For more than half a century, political science tip-toed around this marginal return theory of politics without ever concluding the general application of the theory to the study of politics. This may be due to a focus limited to understanding single member district dynamics, or bargaining in legislatures with weak parties or any other specific political phenomenon, or the unwarranted focus on the disagreement over whether the cooperative or the non-cooperative framework best serves the rigorous, analytical, approach to the study of politics. Whatever the case may be, all these influential works shared a single unifying general theory of politics: *political agents labor to increase political support to the party or coalition they build until the marginal return to their effort diminishes. A general political equilibrium occurs when*

all relevant players have reached the diminishing return point.

Whether the works discussed here dealt with the value of an additional vote (Downs, 1957; Black 1958; Schofield and Sened, 2006), the value of an additional coalition partner (Riker, 1962; Sened, 1995, 1996), the value of the support from an additional legislator (Baron and Ferejohn, 1989), or the return for an additional unit of resource delivered to a group (Cox and McCubbins, 1986), this additional unit was only pursued to the extent that it had a marginal benefit that exceeds the marginal cost of getting this unit. If the vote from an additional legislator does not increase the probability that a bill will pass, this additional legislator will not be courted. The same is true for an additional vote in a proportional rule electoral campaign, an additional party in a coalition building effort or an additional group in a redistribution scheme. The claim that political maneuvering, generally speaking, is guided by the marginal return that this maneuvering may bring about is the overall insight that unifies most of the literature we surveyed above and guides our contribution in this manuscript.

We recognize that while we have surveyed a limited part of a very broad literature, we nonetheless make a claim that political actors, in general, operate according to the returns to their actions. We recognize that some might receive this claim as so broad that it can ultimately be disregarded. While that may be, we do feel that the despite its breadth, it is a uniting theme behind some of the most influential work in electoral politics, if not in all Political Science for the past 60 years. From Downs to Riker, Baron and Ferejohn to Strom, these works cover essential topics in modern political science and all of which can be easily interpreted through the lens of this simple, broad yet powerful theory.

The introduction of this theory, which states that *political agents labor to increase political gain until the marginal return to their effort diminishes.*, concludes

part I of this manuscript. We do so recognizing that while powerful, the concept is broad and has to be carefully narrowed when it comes to empirical testing of particular cases. When narrowing it, we should pay particular attention to the clear identification of what is meant by efforts, or investments, as well as what is meant by returns. Parts II and III of this manuscript set out to do just that.

In Part II, we continue with the study of electoral politics, a theme we first identified on the literature review. Part II is particularly concerned with elucidating political investments in multiple, multi-member districts. The focus on multi-member races comes from the wealth of criticism directed to the MVT on its failure to deal with such type of races. The focus on such types of districts is warranted by the fact that these systems are actually the most common types of systems we observe today. SMD races, about which we know the most, are roughly 28% of the world's current electoral systems. Single district multi-member systems, sometimes referred to as pure PR systems (such as Israel) are actually one of the rarest systems in terms of adoption, only representing about 7% of the world's current systems. Multiple multi-member district systems comprise 65% of the world's current electoral systems. Considering how little we know about these systems and how often we observe them, they become the focus of part II of this manuscript.

As to the narrowing of investment, part II begins to take shape from a very simple departure point: votes. Votes are the currency of a democratic political system. Parties in search of power must first secure votes in order to later exchange them for a share of power. Interestingly enough, votes themselves don't directly translate into power, for they have to be exchanged into seats. It is towards this simple exchange of votes for seats that we direct our first test of our marginal return theory of politics.

In Part III, we continue to study how party investments are translated into

votes. We shift gears and focus on the returns displayed by voters. We continue to test how political parties invest their resources in an attempt to collect votes, but we switch the focus away from trying to understand which votes have highest returns, and turn it towards trying to understand which voters have the highest returns, given what they do with the resources directed at them.

The choice to focus on these two aspects is driven by a desire to identify the most efficient use of a political agent's resources. Part II focuses on the votes with the highest returns. In a sense, if a party is able to collect only high return votes, it should be able to collect either the largest number of seats for the same amount of votes as its competitors, or the same number of seats for way less votes than its competitors. Part III focuses on what it takes for voters to deliver their support. If certain voters deliver their support for less resources, than certain parties can get either get way more support for the same amount of resources as their competitors, or they can get the same levels of support with much fewer resources. If we combine these two behaviors, we can envision what an ultra-efficient party would behave like, delivering resources to high return voters in exchange for high return votes. While we are not able to test this behavior in this manuscript, these two behaviors are outlined with great resolution in the two empirical tests that follow.

Part II

Vote Returns

Chapter 4

Votes and Their Marginal Returns

4.1 Introduction

We concluded the previous chapter by stating the expectations for our broad theory of politics, which we named a marginal return theory of politics. This theory states that political agents direct their resources at the highest marginal returns that these resources may get them and refrain from spending their scarce political resources where marginal returns are diminishing. While we lauded the theory for its broad applicability in Political Science, we also suggested that leveraging the theory's foundational principle requires that we pay careful attention to what we perceive investments and returns to be. It is only by carefully narrowing down the theory's broad foundations that we can test it empirically.

In this chapter, we heed our own suggestion and take the steps necessary to narrow the theory and draw testable hypotheses from it. We do so by pointing the theory to the scope of vote seeking, more precisely electoral competition across multi-member districts [MuMD]. Our theory's foundational principle, that of marginal returns, shows itself in the return of votes, which is the currency of electoral compe-

tition.

The next section of this chapter is a discussion of why we choose to focus on competition across multi-member districts. The section that follows narrows the concept of marginal returns to votes, a distinction that is hindered by the common perspective that all votes are equal. We choose to introduce the discussion of vote marginal returns within the realm of single member district systems [SMD] in order to ensure that the concept is introduced with most clarity. After the concept is introduced in its clearest and simplest form; within SMD, we then expand it to its more complex form, which happens in MuMDs. We conclude the chapter with a discussion of the set of expectations that emerges from the narrowing of our marginal return theory of politics.

4.2   Why Multi-Member Districts

The choice to focus this test on MuMDs is the result of three concerns: purposely avoiding SMDs, putting the theory through a harsh test and, finally, using the theory to shed light on an area of that has been mostly neglected. We purposely avoid any empirical tests that rely on SMDs due to the sheer attention that these types of districts have received in the past half century. The overwhelming majority of findings and extensions to Downs' MVT adopt these systems to build their claims and support their findings. We fear that framing our contribution in the confines of this system would ultimately turn our test into one of the countless tests that these systems have been put through and unduly subtract from the test's value.

One of the reasons why researchers often turn to SMDs to test their theories has to do with the remarkable stability that these systems produce. They often lead

to two party races and they often end up lavishing the median voter with an inordinate amount of power. These are often strong and non-controversial characteristics of SMDs that reduce the number of political agents to a minimum, consequently reducing political exchanges to their simplest form. This simplicity makes it easy for researchers to derive expectations without having to account for all possible *odd ball* scenarios that would quickly arise from introducing multiple agents.

While we don't reject simplicity as an attractive feature of an empirical test, we introduced a very broad theory and we wish to put it through a harsh test. If a theory is indeed applicable to various branches of politics, then it should perform not just in the simplest and most stable systems, but also in the more complex ones. MuMDs often introduce multiple agents, making it possible that different agents engage on multiple issue dimensions and making the quest for votes even more complicated. If we are able to find evidence for our theory in MuMDs, we will feel more confidence in the theory's applicability to even the most complex of political exchanges.

Last but not least, it is also worth noting that while SMDs have been the overwhelming system of choice when it comes to electoral politics, this system is hardly the most common. If we simply separate electoral systems into single district PR[1], single member districts and multi-member districts, then only about 28% of lower houses are in fact elected through single member districts. Given that about 65% of the world's legislative *(lower)* houses are elected through MuMDs, we feel that making this system the focus of our study allows us to make another contribution to the discipline, which is to pay more attention to this system, which is widely adopted but not as widely studied.

In short, we feel that MuMDs provide us with a strong test to our theory. We

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[1]By single district PR, we are referring to pure PR systems where the entire legislative body is elected from a single, nationwide district. Israel is such a case.

also feel that this stronger test is appropriate given our expectations of how broadly applicable our theory is. Finally, we feel that MuMDs are understudied and this is an opportunity to give these systems academic attention that is more proportional to the frequency we observe them in the real world.

4.3   Conceptualizing Different Marginal Returns for Different Votes

While democracies entail granting every citizen a vote, after factoring the electoral rules and the goals of political agents, we learn that not all votes are worth the same. Standing between a vote and an elected official is an electoral formula (Taagepera and Shugart, 1989). This formula assigns values to votes and then uses these values to allocate seats. Different values may or may not deliver seats. A hierarchy of votes emerges as a function of the values they hold and their consequential ability to translate vote shares into seat shares.

Understanding this hierarchy is not a simple task. By itself, every vote is worth the same, so it becomes difficult to make sense of it otherwise. To better grasp this idea, we remind the reader that thinking of votes individually can be a deceiving exercise. The concept of voting itself only makes sense in the context of multiple votes. Votes are used to turn individual preferences into a collective and therefore are inextricably related to a collective environment, otherwise there would be no need for voting in the first place. In other words, any study of a single vote must be accompanied by a pool of votes against which this single vote can be referenced. It is exactly this process of relating one vote to another, encapsulated by the electoral rules, that

assigns different values to different votes. To that we add the fact that votes are cast in favor of political agents who have goals of their own and the vote value issue becomes even more significant. It is by always thinking about votes with reference to other votes and by contemplating the goals of political agents that the idea of marginal returns to votes begins to take shape. As a consequence of this framing, we are able to leverage our marginal return theory of politics.

Consider, for example, two parties running for a single seat that is awarded through plurality rule. For intuition's sake, this can be easily pictured as an American race for a legislative seat, between the Republican and Democratic parties. The example basically boils down to the seat being awarded to the first party that secures one vote beyond the 50% mark.

If we assume that the chief concern of the two parties above is to secure the seat, they will value votes to the extent that these votes will help them secure the seat. As voters cast their votes to a party, these initial votes are worth something to the party in the sense that they put it closer to its desired seat. The value of each casted vote in this initial count is low because the party getting this vote is still far from the 50% mark. As votes are added, the party gets closer to its goal and the value of each additional individual vote increases. Once the party reaches a critical point of 50%, the value of a single additional vote peaks. That is because this one additional vote will put the party beyond the 50% threshold and secure that party its desired seat. After this point, the value of each additional vote flattens to its lowest possible value of zero, reflecting the fact that a party only concerned with securing a seat places no value in votes that cannot help it secure its goals. To the extent that the party has already secured its seat, additional votes are virtually useless.

Figure 4.1 illustrates the above example by graphing vote's latent return (y axis) against their position along the vote share spectrum (x axis). We interpret

vote return in terms of latent returns because true returns in the realm of voting are dichotomous. Ultimately parties are looking for seats and considering that parties either get or do not get seats, they look for votes that either deliver or do not deliver seats. In a SMD, that would imply that the vote immediately after the 50% mark has a return of 1 (1 seat) and all other votes have a return of zero (zero seats). Considering that this 50%+1 vote is the only vote with a positive return, it follows that a party would care about securing this vote alone. While this interpretation is mathematically trivial, it is virtually impossible for a party to secure the +1 vote without securing the 50% vote share that precedes it. This impossibility highlights that the 50% of the votes that precede the coveted +1 vote might have some latent return, which is their ability to move the party closer and closer to the vote that has the actual *seat return* that the party is looking for. The figure illustrates this increase in returns, starting at zero where the party is furthest away from the +1 vote. As votes move rightward on the x axis, their returns increase, eventually being maximized at the +1 point.

By framing the discussion of vote value in terms of vote marginal return, we gain traction when it comes to electoral strategies. Seat seeking parties are concerned with earning seats and we expect them to chase after votes that are likely to deliver seats. As figure 4.1 illustrates, the votes that are most likely to deliver seats are those that have the highest marginal returns.

Acquiring votes is a resource intensive process. To gain votes, parties need to build and maintain an image, cater to constituencies through community service and policy building, just to name a few. The actual apparatus that comes with performing these duties is large and expensive. Open Secrets, an American watchdog, estimates that during Barrack Obama's bid for the presidency, the Democratic party spent
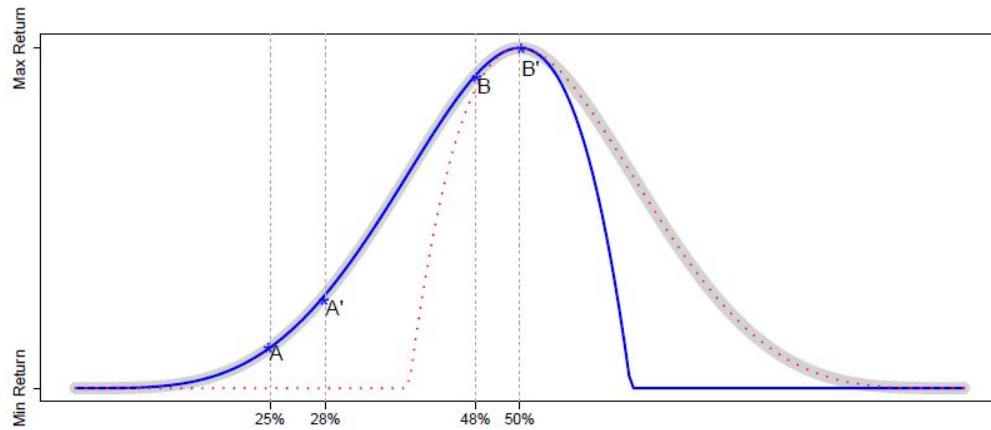
Figure 4.1: When we follow the returns plotted by the dark solid line, we see that returns quickly drop to zero almost immediately after peaking. This drastic drop captures the fact that beyond the peak point votes have no seat returns (they cannot deliver new seats). They do have some latent returns, on account of added security. The dotted line is the mirror image of the solid line, but it captures returns from the perspective of losses. Votes lost above the 50%+1 mark have latent returns in that each vote lost puts the party closer to the vote that will cost the party its seat. Just like in the perspective of gains, the return of votes lost drastically drops to zero immediately after the 50%+1 vote is lost. Because parties don't precisely know whether they will gain or lose votes, there is uncertainty as to which of the two curves they are travelling. The third line (thick solid) represents the overall return of any vote given this uncertainty.

The vote return curves follow a beta distribution with skewness parameters α and β (α and $\beta > 1$). The choice to use a beta distribution comes from the need to adopt a distribution curve that can accommodate an exponential type of growth followed by a quick drop in growth right after the inflexion point. This shape is achieved through the manipulation of the α and β parameters, with the mode equal to the 50%+1 vote. Under the perspective of gains, the curve is calculated with α greater than β, producing a right skewness. Under the perspective of losses, β is larger than α, resulting in a skewness to the left.

roughly 175 U\$ million on administrative costs alone[2]. Brazil's PT presidential bid for October 2010 elections is estimated at R\$187 million[3]. When we account for the amount of resources that go into securing votes and the obvious fact that resources are finite and costly to obtain, it is almost natural to expect that parties would use their resources strategically. This strategy consists of seeking votes with a focus on securing seats. Once enough votes are secured to clench the seat, the party will stop the resource intensive process of vote seeking and save itself the resources. Continuing to seek votes once enough votes to secure a seat have been secured becomes wasteful because a party would have no actual use for these votes.

The expectation that a party will stop chasing after votes once it crosses a certain threshold, however, is hardly observed. Parties often chase after votes until they are legally forbidden from doing so, i.e. in election days when campaigning is prohibited by law. The expectation is the result of a stylized example that it is limited to a single race for a single seat. Here, our goal is to expand this argument to multiple races (multiple constituencies) and for multiple seats within each race. While understanding multiple seats within each race is complex, the translation of the aforementioned model into multiple races (constituencies) is relatively trivial.

Let us expand on the previous example, where two parties competed for a seat. This time the two parties are running for two seats, each being elected by a different district. In essence, the two parties are facing each other in two distinct races. In the first district, A, we assume that the first party expects a non-zero vote share.[4]

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[2]See http://www.opensecrets.org/pres08/expend.php?cycle=2008&cid=n00009638

[3]Estimate was submitted by the party to the Superior electoral courts, TSE. See http://agencia.tse.gov.br/sadAdmAgencia/noticiaSearch.do?acao=get&id=1313491

[4]For the sake of completeness, we assume that this party expects a non-zero vote share that is between zero and 50%.

In the second district, B, this same party expects a smaller vote share than the one from A. The party has a limited amount of resources and therefore can only secure a limited amount of votes. Vote for vote, a new vote that is secured from district A has a higher marginal value than a new vote secured from B. New votes secured from district A will have a higher marginal value because they have a higher starting point. As stated previously, we can only grasp the value of a vote in relation to its reference pool of votes. In the case of new votes secured from district A, their reference pool grants them a higher marginal value than the reference pool from district B. Marginal votes have a greater likelihood of securing seats and therefore it makes more sense to spend resources on these types of votes. Based on this likelihood, when contesting for seats in multiple simultaneous races the party will put its limited resources on the district where it expects newly secured votes to have higher marginal returns.

As we move to multiple simultaneous races, the prediction that a party will halt its expenditures once it crosses certain thresholds becomes much more palpable. While it is true that parties don't stop campaigning until the very last minute, they do focus their efforts on the districts where they are closest to winning. Both the Republican and Democratic parties in the U.S. often battle for seats in Ohio and Florida, where both parties are really close to securing seats. Because both parties are close to victory, any additional vote they can get has a high marginal return, which is why they are focusing on those races in the first place. Both parties end up putting resources on these races and neglecting districts where they have either too many votes beyond the necessary (zero marginal return) or too few to begin with (low marginal return).

The notion that a party will stop chasing after votes once it crosses some threshold makes theoretical sense in the context of a single race, yet we hardly observe a halting in vote seeking in real life. However, when there are multiple simultaneous

races, although the party does not necessarily stop spending resources, the objective behind withholding expenditures is still reached. When faced with multiple races, the party favors districts where resources will secure marginal votes and therefore avoids the waste associated with securing non-marginal votes, which is why a party in the stylized single race example would cease expenditures in the first place. While spending in multiple races does not necessarily stop, the goal of avoiding the exchange of resources for non-marginal votes is still reached. This suggests that the stylized prediction, although naive, is intuitively correct.

In its broadest state, our marginal return theory of politics states that political agents direct their resources at the highest marginal returns that these resources may get them and refrain from spending their scarce political resources where marginal returns are diminishing. Once we narrow this theory down to explain electoral races for legislative seats, we expect that a party will put its resources towards districts that can deliver marginal votes, while ignoring districts that cannot deliver such types of votes. While this puts us much closer to an empirical test, our ultimate goal is to test these expectations within the realm of MuMDs. The next section takes the final step in making this test possible. It does so by examining how to translate the concept of vote marginal return within MuMDs.

4.4   Marginal Votes in Multi Member Districts

The previous sections addressed how to perceive of marginal vote seeking across multiple districts. While that certainly puts us closer to our goal of narrowing our theory, we are ultimately interested in conducting our test in MuMDs. This section addresses the challenge that these systems introduce, particularly as they relate

to grasping vote marginal returns. We start by acknowledging that districts that elect multiple seats often adopt proportion representation (henceforth PR) allocation formulas.

The fact that PR formulas utilize the same vote share repeated times creates some confusion when it comes to sorting out electoral strategies because this repetition muddies the incentives that agents face. To build some intuition, we start from a simple single constituency model [SCM]. In general terms, PR allocation formulas entail calculating some sort of *yardstick* against which party vote shares are measured throughout multiple rounds of seat allocation. There are as many *yardsticks* as there are seats to be assigned, which means even if a party's vote share fails to produce seats against an initially long *yardstick*, it might still produce seats at later allocation rounds, when the *yardstick* has shrunk.[5]

As discussed, in a single seat model (SMD-SCM) a party can discard votes that fall beyond a certain threshold. In multi member districts, because votes that are too many in initial rounds might become just enough in mid rounds, and eventually become too few in final rounds, intuition suggests that the idea that votes can be discarded should be rejected. We recognize that PR allocation formulas do not create the same type of incentives as those coming from plurality SMDs. However, we reject the idea that because PR incentives are not clear, parties should blindly maximize their vote shares in hopes of securing seats in most rounds of the allocation process. Although the incentives created by PR are not as straight forward as those coming from winner-take-all SMDs, here we show that multi member districts that use PR

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[5]We consciously chose to use the yardstick over quota because although quota might better represent the measure that vote shares are weighted against, the term quota also speaks to an entirely separate literature on quota electoral systems and their incentives. By using the term *yardstick* we avoid any mixing of terms that might result. For a detailed description of the allocation process, see Gallagher (1992)

do create incentives that are richer and more complex than simply maximizing vote shares.

To understand what MuMD incentives look like, we must analyze the elements that go into the seat allocation formulas. PR allocates seats by processing vote shares as a function of the three elements. The first is the number of seats that are being allocated, which generally but not necessarily corresponds to the district magnitude[6]. The second is the number of competing political parties and the third is the specific seat allocation formula.[7]

The number of seats being allocated roughly dictates how many rounds of allocation are going to take place and, consequently, how many times vote shares will be reutilized to secure seats. Intuition suggests that parties wishing that their vote shares deliver seats in every round should strive to secure the largest possible vote share. As a consequence, this intuition conflicts with the notion that a party can divest itself from certain types of votes.

On the surface the idea of maximizing shares is a natural intuition to develop. However, it is actually the product of an incomplete assessment of the allocation process. It is incomplete because it has failed to account for the number of competing parties. This number plays a crucial role in the process because it allows for the crowding of the race in ways that create disincentives to increase vote shares.

Consider as an example three parties, A, B and C. These parties are running for two seats allocated through the D'Hondt method. D'Hondt allocates seats to the highest averages, which are calculated by dividing each vote share by a vector of divi-

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[6]Certain countries, such as Argentina, stagger elections so that congress is renewed half a body at a time. As a consequence, a district of magnitude 20 would only elect 10 seats at a time.

[7]These could be D'Hondt, Saint Lague, Modified Saint Lague, Droop quota, Imperiali, O'Hare, just to name a few. See Gallagher (1992) for a thorough list and discussion.

sors starting from one all the way to the number of seats being allocated (M). Party
A secures 50% of the vote share, B secures 30% and C secures the remaining 20%.
By dividing each party's vote share by the divisors 1 and 2 (1 through M, M=2), we
can obtain all party averages. These are shown on table 4.1. Once all party averages
are calculated, they are sorted from largest to smallest and the top M averages are
awarded seats. Sorted averages are also shown at the bottom of table 4.1. Given this
combination of vote shares and number of competing parties, parties A and B each
secure one seat.

Table 4.1: Party Averages for parties A, B and C

divisor	A(50%)	B(30%)	C(20%)
1	$50(\frac{50}{1})$	$30(\frac{30}{1})$	$20(\frac{20}{1})$
2	$25(\frac{50}{2})$	$15(\frac{30}{2})$	$10(\frac{20}{2})$

Sorted Averages: **50_A**, **30_B**, 25_A, 20_C, 15_B, 10_C
The averages in bold indicate seat winners (2). Average's subscript identifies the party.

Table 4.2: Party Averages for parties A, B, C and D

divisor	A(50%)	B(17%)	C(17%)	D(16%)
1	$50(\frac{50}{1})$	$17(\frac{17}{1})$	$17(\frac{17}{1})$	$16(\frac{16}{1})$
2	$25(\frac{50}{2})$	$8.5(\frac{17}{2})$	$8.5(\frac{17}{2})$	$8(\frac{16}{2})$

Sorted Averages: $\mathbf{50_A}$, $\mathbf{25_A}$, 17_B, 17_C, 16_D, 8.5_B, 8.5_C, 8_D

Consider now that a fourth party, D, enters the race. D is able to secure a 16% vote share at the expense of B and C, which are now only able to secure 17% of the votes each. A's vote share of 50% remains intact. Table 4.2 displays the averages. As we can see from the sorted vector on table 4.2, A ends up with the top two highest averages and is able to secure both seats.

This example illustrates that depending on how many parties run for seats, similar vote shares can become more (or less) efficient in their ability to deliver seats. This ability counters the intuition that parties hoping to increase seat shares should blindly maximize their vote share. To put it within the framework of marginal returns, while party D's performance does not impact A's vote share, it does impact the marginal returns of A's votes. Upon D's entrance, A's votes become more marginal, going from being able to deliver a single seat in a race between three parties to delivering two seats in a race between four.

Because the marginal impact of votes allocated in MuMDs is a function of multiple moving parts, identifying a process to systematically measure their marginality is an important challenge faced by this test. To meet this challenge, we take advantage of two mathematical algorithms introduced by Palomares and Ramirez (2003).

Table 4.3: Marginal Vote Algorithm

Min Function	$\min$ $\sum_{i=2}^{h} h_i = H - h$	$\dfrac{d(h-1)}{d(h-1) + \sum_{i=2}^{n}(h_i)}$
Max Function	$\max$ $\sum_{i=2}^{h} h_i = H - h$	$\dfrac{d(h)}{d(h) + \sum_{i=2}^{n}(h_i - 1)}$

The input is fed to the algorithm through a rounding function $d(h)$. h is a vector containing the m, n and a γ parameter. This γ relates to the seat allocation method, ranging from 0 to 1.

The algorithms, which are shown in table 4.3, evaluate and consolidate a series of formulas that have been introduced in by researchers focusing on a separate set of questions.[8] This algorithm superimposes a structure onto the vote share spectrum that allows us to derive the marginal impact of votes in districts that allocate using PR formulas. This structure is a function of the three discussed elements that impact seat allocation in PR: number of seats to be allocated, number of parties running for seats and specific allocation formula.

For every seat share in a district, the algorithm outputs two numbers. The lower of the two numbers, which we name seat loss threshold (henceforth SLT) represents the minimum vote share necessary for a party to have a non-zero probability of securing that seat share. Any vote share below the SLT is unable to be translated into that SLT's respective seat share. If a party drops below the SLT for the seats it currently holds, seat loss will inevitably occur. The larger of the two numbers, which we name seat gain threshold (henceforth SGT), represents the maximum vote share that is sufficient to secure that seat share. By crossing the SGT for x many seats, a

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[8]Table 4.4 introduces the separate formulas for individual seat allocation rules

Table 4.4: Allocation Formula Specific Functions

	d'Hondt	Saint Lague	Mod. Saint Lague	Largest Rem.
Max Function				
if $n-1 \geq m-s$	$\frac{s+1}{m+1}$	$\frac{2s+1}{m+s+1}$	$\frac{2s+1}{1.4m+.6s+1}$	$\frac{s}{m} + \frac{1-s/m}{m-s+1}$
if $\frac{m-s}{2} < n-1 < m-s$	$\frac{s+1}{m+1}$	$\frac{2s+1}{2m-n+2}$	$\frac{2s+1}{1.6m-.2n+.4s+1.2}$	$\frac{s}{m} + \frac{n-1}{mn}$
if $n-1 \leq \frac{m-s}{2}$	$\frac{s+1}{m+1}$	$\frac{2s+1}{2m-n+2}$	$\frac{2s+1}{2m-n+2}$	$\frac{s}{m} + \frac{n-1}{mn}$
Min Function				
	$\frac{s}{m+n-1}$	$\frac{2s-1}{2m+n-2}$	$\frac{2s-1}{2m+1.4n-2.8}$	$\frac{s}{m} - \frac{n-1}{mn}$

The above functions are a byproduct of the literature on thresholds to representation. The first functions were identified by Rae *et al* (1967). In their original version, they contained a few mistakes, which were later corrected Lijphart and Gibberd (1977).

party effectively secures those x many seats with 100% probability. Votes that fall within the SLT and the SGT have an unknown non-zero probability of securing that respective seat share.

For a district with magnitude four, the algorithm will compute a total of eight thresholds. Two thresholds related to securing one out of four seats, two related to securing two out of four, two related to securing three out of four, and finally, two related to securing all four seats. The algorithm basically starts with an even distribution of vote shares for all competing parties, then proceeds to alter the vote distribution by a vote. For every possible vote distribution, the algorithm sorts out the vote shares where the one vote change results in changes in seats. Once these are identified, the algorithm proceeds to sort out vote share changes that result in seat change every time from those that only result in seat changes some times. It repeats this process until it identifies critical vote shares for securing anywhere from one to M seats. The vote shares that result in seat change every time are the algorithm's final output.

The initial discussion of vote marginality started with electoral races in SMDs

Figure 4.2: Graphical Representation of Algorithm Output
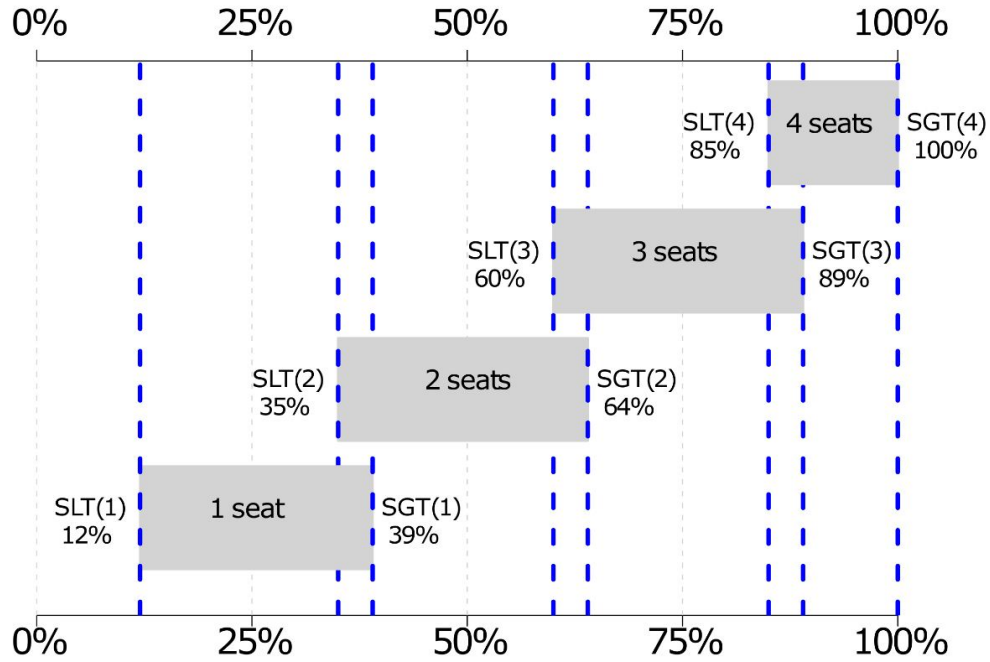
because these races produce a clear threshold that indicates when vote shares can or cannot deliver seats. This ability is muddied in MuMDs because of the difficulties that arise from understanding the repeated use of the same vote shares that PR formulas necessitate. By taking advantage of the structure that the algorithm allows us to superimpose onto the vote share spectrum, we can once again turn to thresholds when it comes to understanding what vote shares can deliver. As a consequence, perceiving of a vote's marginal impact becomes possible also in MuMDs. Figure 4.2 is a graphical representation of the algorithms output. Figure 4.3 is an attempt to adapt figure 4.1 to MuMDs using the algorithms output, it illustrates what we believe return curves would look in MuMD according to some smoothing assumptions.

It is worth noting that in a two party SMD race the 50%+1 mark consolidates a great deal of information. In this type of race, a party that holds a seat must enjoy
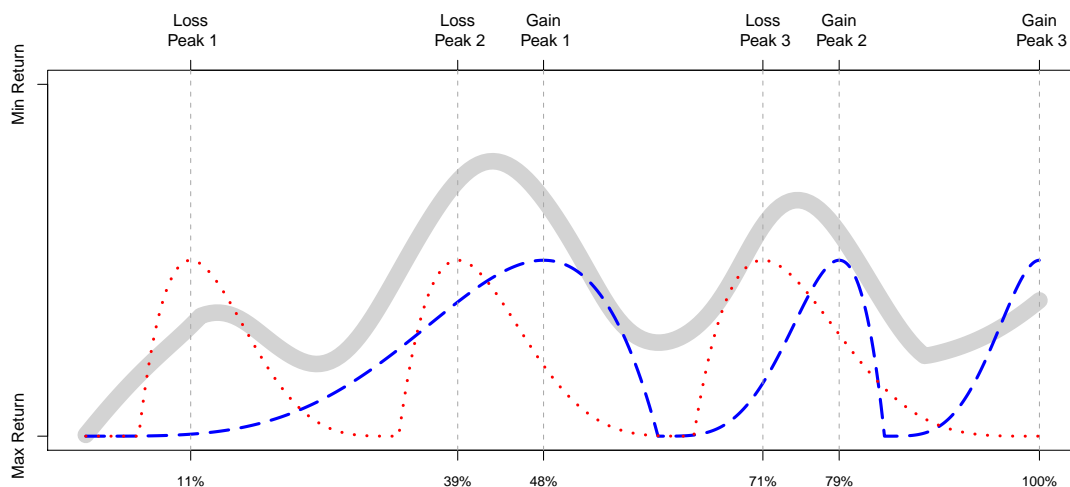
Figure 4.3: Just as in figure 4.1, the y axis represents vote returns and the x axis is the vote spectrum. The dashed line captures vote returns from the perspective of gains and the dotted line captures vote returns from the perspective of losses. The thick solid line captures an overall return (smoothed via lowess). Notice that unlike in the SMD case, the peak point of loss does not coincide with the peak point of gain and therefore the maximum utility for the overall return curve does not coincide with either peak, which we consider to be yet another important insight gained from our analysis. We decided against using these curves as a way to operationalize our variables because we have to make additional assumptions in order to generate them. These assumptions relate to how parties weigh seat gain against losses, which is information that is beyond the scope of this manuscript. We felt that introducing additional assumptions in this early stage of the research would subtract from our efforts.

the support of at least 50%+1 voters in the district. If its support drops below this point, this party will lose its seat. As it crosses the threshold once again, this party will regain a seat. These gains and losses not only are certain to happen but are all centered around the 50%+1 mark.[9] To assess the marginal impact of the vote, this pivotal point is the only point that requires attention. In MuMDs, the threshold that leads to certain seat loss is not the same as the one that leads to certain gains. As a consequence of this spreading of thresholds, understanding the vote's marginal impact requires that we address seat gains and seat losses separately.

In MuMDs, the two thresholds that relate to seat gain and seat losses are the SLT and the SGT. In the realm of seat losses, the SLT is similar to SMD's 50%+1 mark in that if a party's vote share dips below the SLT, seat loss will inevitably occur. A vote lost will have the highest marginal impact when this vote will put a party below the SLT for the number of seats this party currently holds (henceforth SLT status-quo, or SLT_{sq}) and consequently leads to a loss of seat. As vote shares get increasingly closer to this point, the marginal impact of votes lost increases.

In the realm of seat gains, both the SLT and the SGT apply. The SGT is similar to the SMD threshold in that if a party crosses the SGT, it is assured a seat share. As a consequence of this property, closer proximity to the SGT for one seat beyond the status-quo (henceforth SGT status-quo plus one, or SGT_{sq+}) increases the marginal return of a gained vote.

However, unlike in SMDs, a party does not necessarily have to cross the SGT_{sq+} to secure a new seat. Consider a party with a vote share that is below the SLT_{sq+}. This means this vote share cannot secure its party a new seat and therefore

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[9]When we say that a party that drops below the mark will lose a seat, that is short for dropping below the mark at election time. When we refer to crossing the threshold, we speak of securing over 50%+1 in the next election. Also, when we say 50%+1, we are speaking of valid votes.

has a negligible marginal return. So long as votes gained are still below the SLT_{sq+}, vote shares cannot be converted into a new seat and will continue to have a negligible marginal return. When a new vote puts the party beyond the SLT_{sq+}, the party gains a non-zero probability of securing a new seat, which is a significant improvement from its previous situation. While votes below the SLT_{sq+} have no impact on the party's ability to secure a new seat, this new vote puts the party in a new situation where it now has a chance of securing a new seat. This property gives the vote a higher marginal return than the votes that came before it.

When we began to narrow our marginal return theory of politics to the realm of marginal voter seeking, our crudest expectation was that a party's main goal was to secure the greatest amount of seats while spending the fewest possible resources. In other words to *efficiently secure the largest possible amount of seats.* One way to reach this outcome is to hold on to current seats and to secure new ones. Because the action around securing new or holding on to current seats in SMDs all takes place around the 50% vote share threshold, the electoral strategy for these types of districts is basically reduced into a single behavior: to cater to districts where a party's vote share hovers around this threshold.[10]

In MuMDs, the thresholds do not all neatly fall on a single threshold, which means that the electoral strategy for MuMDs does not neatly reduce into a single uniform behavior like in the SMD case. However, the concepts behind the strategy remain unchanged. Just as in SMDs, the electoral strategy aims to direct a party towards delivering resources to districts that will allow it to hold on to its current seats and to secure new ones in a way that most efficiently takes advantage of resources. In other words to *efficiently secure the largest possible amount of seats.*

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[10]The simplicity of this expectation borders the obvious, which is part of the reason we felt it was not an appropriate test to our theory.

In MuMDs we expect a specific behavior for parties securing new seats and another behavior from parties protecting their current seats. Altogether, we expect that a party that is attempting to efficiently use its resources to secure seats will behave in two possible ways. These are as follows.

Holding on to current seats speaks of seat losses and should point us directly to the SLT_{sq}. A party that is expecting an equal vote share loss from two districts that are identical in everything, only differing on the vote share the party expects to secure prior to the loss, should focus its resources on the district where the expected vote share is just above its SLT_{sq}. By doing so, the party can fight vote share loss where it matters while neglecting vote loss in the district where this loss is more likely to be inconsequential. Expanding this argument beyond two districts, we should expect that a party will favor districts where its vote share is barely above the SLT_{sq} and neglect those where it is far from this point. In terms of marginal returns, this means the party will be putting its resources in districts where the votes secured from the delivery of these resources are likely to have a large marginal impact. The following is a more formal expression of this expectation:

A party protecting its seats should focus its resources on districts where its expected vote share is barely above its SLT_{sq}.

Securing new seats speaks of seat gain and highlights two possible threshold points: the SLT_{sq+} and the SGT_{sq+}.[11] A party that is very close to securing a seat but has been unable to do so will focus on the SGT_{sq+}. By crossing this point, the party

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[11]Here, we disregard this threshold as an attractive investment because crossing this threshold does not secure the party a seat, it merely gives the party a non-zero probability of securing seats, which is hardly an attractive investment. While we recognize that a non-zero probability is more attractive than a zero probability, it is likely that there will be other districts where a party is either closer to losing a seat or very close to securing one and these districts are likely to take priority.

is ensured a new seat and therefore has efficiently used its resources to accomplish its goal. In this case, a party whose delivery of resources returns an equal vote share gain from two districts that are identical in everything but the initial expected vote share should focus its resources on the district where the expected vote share before the delivery of resources is closest to the SGT_{sq+}. To expand this argument beyond two districts, we should expect that a party will favor districts where its vote share is barely bellow the SGT_{sq+} and neglect those where it is far from this point. This behavior ensures that new votes secured all have high marginal impact. The more formal expression of this expectation is:

A party looking to secure new seats should focus its resources on districts where its expected vote share is slightly below the SGT_{sq+}.

Chapter 5

Poverty Alleviation and

Development Programs

5.1 Introduction

In the previous chapter we continued to discuss our marginal return theory of politics, taking steps towards a narrower perception of the theory that would make an empirical test possible. We focused on the incentives that parties face to seek marginal votes and we set our sights on systems that employ multi member districts. We concluded the chapter by introducing two general expectations of how a party might manipulate its resources in MuMDs.

In this chapter, we continue to take steps towards the designing of an empirical test to our theory. While the previous chapter focused on how to leverage the theory to explain the impact of MuMDs on the returns of vote shares, here we focus on how to perceive of party resources. Thus far, we have been successful in narrowing the broad theory into expectations about votes within a specific type of voting system. Upon the conclusion of this chapter, we will have narrowed the broad concept of party

resources into a smaller and more manageable concept. The following chapter will conclude part II of this manuscript by discussing the data, variable operationalization and findings of the test.

5.2 Party Resources: Poverty Alleviation and Development Programs

To continue to narrow our theory towards a plausible empirical test, we highlight that our theory relies on two essential assumptions. The first is that seat seeking parties have a finite amount of resources. The second is that once these resources are doled out, voters return their delivery with votes. The actual theory allows us to rank the best use of these resources and derive expectations as to which districts these resources will be delivered. However, before any analysis can be made, it is important that these basic assumptions hold.

The assumption that resources are finite should not present any difficulty or face any skepticism. The assumption that resources delivered prompt voters to deliver votes in return, however, is not as straight forward. Several things must happen between the time resources are delivered and votes are casted so that we can comfortably assume that resources delivered are translated into support in the voting booth. Voters must be able to identify the sources of those resources (*i.e. he or she must recognize that those resources are coming from a certain party*) in order to be able to reciprocate with support. These resources must meet some pronounced need that voters have, otherwise voters will not notice these resources in the first place. Resources delivered by one party must not be challenged by resources delivered by

another party, at least not to the extent that a voter becomes incapable of deciding who to support.

If a voter cannot identify who is delivering resources, if the resources delivered do not interest her or if she receives an equal amount of resources from every contending party, this voter will ultimately be unable to translate those resources into a voting preference. In part II of the manuscript, we will not further discuss the challenge of delivering resources that match the interests of voters because this is the central topic of party III of this manuscript. For the empirical test we conduct here, in part II, we will focus on the need for resources delivered not to be met with other resources coming from other parties.

Whatever type of resources we chose to use for this test, it is important that these are not met with other resources coming from contending parties. If resources delivered by one party can be countered with other resources, then their returns would quickly drop and they would cease to be an attractive investment. This represents an important challenge to our empirical test because parties are free to court whomever they like and no party can restrain societal groups from being targeted by other parties.

To counter this challenge, we decide to focus on the delivery of Poverty Alleviation and Development programs (henceforth PADs). By focusing on PADs we get around the problem of parties countering each others resource allocation strategies because only parties in power control these programs and can deliver those resources. Other parties might have resources to deliver but these are unlikely to match the magnitude of government sponsored programs. These programs enable the party in charge to deliver resources without having to strategize over whether or not these resources will have their impact mitigated by a resource delivery war between competing parties. By focusing on PADs, we also get around the problem of identifiability. Par-

ties in charge of government hold a significant comparative advantage when it comes to credit claiming. Even if parties in charge of programs cannot literally attach the party label to the actual program, they enjoy greater control over the rhetoric behind the program, as well as the dissemination of information about the program, allowing them to better match the program's language alongside with party principals or slogans. They can take advantage of incumbency to leverage the timing in the delivery of resources, ensuring that party operatives or representatives are present to take credit for the delivery. Last but not least, the narrowed version of the theory we introduced in the previous chapter attempts to explain how a party will manage resources across districts, suggesting that a party needs to be able to deliver resources to many, if not all districts. This ability requires a large political machine of party operatives that is capable of reaching across the entire nation. PADs are an attractive choice for the test because they are often national programs, which mean they are likely to come attached with a machine that will facilitate this required broad in reach. In the unlikely case that PADs do not have such a machine, one will inevitably have to be built and the party in charge of the program will enjoy a comparative advantage in the development of this machine.

5.2.1 Poverty Alleviation and Development

Poverty Alleviation and Development programs, as the name implies, are government programs specifically designed to alleviate poverty and foster development. These programs are currently present in several developing nations, from Latin America to Africa, Europe and the Indian subcontinent. In general terms, these programs deliver resources to those that would be unlikely to secure them otherwise. These

programs operate under the premise that by boosting the poor's living conditions, the government can create some developmental momentum. Because these programs are tailored to tackle nation specific problems, the way they go about reaching their goals varies. The Chilean FOSIS (Solidarity and Social Investment Fund) attempted to alleviate poverty by creating temporary jobs. Peru's IDESI (Institute for Development of the Informal Sector) focused on strengthening informal sector jobs so these could successfully transition into the formal economy. Bolivia's FES (Social Emergency Fund) tackled poverty by creating school feeding programs (see Graham 1991, 1991B and 1992, respectively). The Bangladeshi VPP program addressed poverty by increasing connectivity between rural villages, installing village pay phones (VPPs). Development in this case is reached by improved law enforcement and stronger kinship support (Bayes, 1999).

A fundamental part of the theory is that resources are delivered in exchange of votes. We are comfortable with the notion that the delivery of PAD benefits can be reciprocated with votes because of two reasons: the marginal impact of these resources and the non-clientelistic process in which resources are delivered.

Research on vote buying has highlighted that the poor are likely targeted as recipients of party resources because their precarious living conditions mean that their immediate well-being can be drastically improved with relatively small amounts of resources. Calvo & Murillo (2004) argue that while a low skill public sector job only pays an average of 130 Argentinean pesos more than a private sector job, when the average salary is only 370 pesos, the additional 130 pesos represent an approximate 35% income premium. This premium becomes negligible for higher income brackets and is dismissed by high skill laborers. As a result low wage workers become likely receivers of public jobs (that are bestowed as political patronage) on account of this income premium that the job represents. In return for the income premium, low

skill workers deliver political support. This is an excellent example of how the same resource, in this case a 130 peso premium, is much more appreciated by a specific segment of the population.

Brazil's Bolsa Familia, a cash transfer (henceforth CT), gives a R$200 monthly benefit to a family with five children and a monthly income of up to R$70. This transfer basically quadruples the family income and eases otherwise subhuman living standards. The tremendous impact that these resources can have create an incentive for benefiters to go through great lengths to secure them.

It is based on this strong incentive that we believe that PAD resource recipients are willing to return political support in exchange for the continuity of these programs. In a survey of 1920 respondents conducted in Argentina, 24% of respondents who received a handout from a political candidate or party operative said that having received this good impacted their voting behavior (Brusco *et al* 2004). In a survey of 2400 respondents, De La O (2007) finds evidence suggesting that being a recipients of Mexico's PROGRESA positively impacts one's likelihood of supporting the PRI, which was the party in charge of the program. De La O (2007) estimates that being a male PROGRESA recipient raises the probability of supporting the PRI from 17% to 30%, suggesting that resource delivery practically doubles the chances that recipients will reciprocate with political support. In the case of female PROGRESA recipients, the probability goes from 24% to 40%. Escobar (2002) argues that an increased likelihood of support is the result of a precarious economic condition that forces recipients to value immediate tangible benefits over long term abstract benefits, such as policy. Because recipients need the immediate benefits to keep from falling deeper into poverty, they support the current situation in hopes that their status-quo can be, at a minimum, maintained. When the alternative to the status-quo is an even more precarious situation, political support that can be translated into the mainte-

nance of the status-quo becomes an obvious choice.

FONCODES, a Peruvian PAD, was widely accused of having been manip-
ulated by Fujimori as an electoral tool (Schady, 2000). Roberts and Arce (1998)
argue that Fujimori manipulated the FONCODES as a way to continue to enjoy sup-
port despite the harsh conditions that neo-liberal reforms imposed on the poor. The
authors argue that the short term conditions that immediately follow reforms were
likely to hurt Fujimori's ability to continue enacting reforms. Because these reforms
were a priority, Fujimori chose to continue with reforms while boosting FONCODES
resources to his supporters. This delivery is argued to have helped Fujimori ensure
the support necessary to finalize reforms (see also Graham and Kane, 1998 and Kay,
1996). Graham (1992) argues that Bolivia's FES was a fundamental tool for the
maintenance of political stability during Bolivia's structural reforms.

In Mexico, Kaufman and Trejo (1997) argue that Salinas attempted to strengthen
his political support by allowing local level officials in charge of the Programa Na-
cional de Solidariedad (ProNaSol) to engage in grass roots mobilization. Differences
in the amounts of resources available to local level officials drastically impacted the
amount of support that Salinas was able to draw (see also Bruhn, 1996). After earn-
ing a reputation for being heavily politicized and eventually being credited as one of
the contributors to PRI's comfortable 1991 victory (see Dresser, 1991; Heredia, 1994;
Molinar, 1994; Gershberg, 1994), ProNaSol was replaced by PROGRESA. Menocal
(2001) argues that this new program was better than its predecessor when it comes
to alleviating poverty, but was not devoid of a support-engineering component.

While this brief review of the literature on the manipulation of PADs suggests
that these practices are restricted to Latin America, this suggestion is merely the
result of this author's interest in the region. Evidence that public resources meant
to bring development are manipulated for political gain have been produced for Al-

bania (Case, 2001), Finland, Norway, Sweden, Denmark (Tavits, 2009; Dahlberg and Johansson, 2002) and Indonesia (Ravallion, 1993).

The final yet crucial point that must be present in the test is manipulability. The theory states that a party will strategically deliver resources to attractive districts. We have argued that the government networks make the delivery logistics possible, but that only means that resources can reach their final destination. The ability to deliver and the ability to manipulate where to deliver are independent and should be treated separately.

The reviewed literature on the manipulation of PADs suggests that these programs can and indeed often are manipulated by political parties in charge of them. However, this claim is mostly backed by evidence that resources are concentrated in pockets of political support without necessarily heeding the actual mechanisms behind the program that would facilitate such manipulation. Claims that incumbents are in charge of budgets make sense but are less than satisfying.

Glaessner *et al* (1995) argues that Latin American PADs are marked by a great degree of administrative autonomy. This autonomy is purposely introduced by design and is justified by the drastic conditions that these programs are trying to alleviate. Because the situation is so dire, it is important that these programs are designed in a way that allows them to identify recipients and deliver resources as fast and efficiently as possible. Different potential beneficiaries face particular challenges and flexibility becomes crucial for the program to adapt to these particularities. By being autonomous, these programs can change their methods according to the situation without going through the morass of bureaucracy or drafting of amendments.

Glaessner *et al* (1995) also points out that poverty alleviation requires a multi-pronged approach that has institutional implications. Poverty alleviation and consequential development are less likely to be achieved if simply addressed in a single

front, such education, health or nutrition alone. All these issues must be accounted for, which means that PADs that do address them often end up encompassing dimensions that fall under the scope of multiple ministries. The Chilean Plan de Alimentacion Escolar (PAE) attempts to boost development by maintaining school enrollment, which impacts the ministry of education. The program does so in part by offering meals to qualifying students, action which impacts the ministry of health. Colombia's Vivienda Program boosts development by facilitating home ownership, which impacts the ministry of vivienda (housing) and the ministry of medio ambiente (ministry of the environment). Multiple ministries translate into multiple bureaucracies that can ultimately reduce the programs autonomy and reaction capacity. Glaessner *et al* (1995) observes that to avoid this risk, programs end up falling under the responsibility of para-ministerial institutions that bypass the multiple ministries. The institutions are often created to manage particular programs, with directors that are appointed by and answer directly to the executive.

While autonomy and speed are important to the eradication of poverty, they drastically increase susceptibility to manipulation. Lose rules that allow a program to quickly change allocation patterns means that changes are not difficult to enact and will not raise suspicion. Para-ministerial status allows for the bypassing of bureaucratic procedures that can leave unwanted paper trails.

Program directors are often partisans of the executive, to which they owe allegiance. In Argentina, the director of the BNLBF (Banco Nacional de la Buena Fe) program is President Kirchner's sister. This link between director and executive does not mean that PAD resources automatically become party resources, but it does provide a strong and direct link between the interests of the program director and the interests of the executive. Considering that it is in the interest of the executive to have legislative support, we believe that PAD resources can be manipulated to

for this purpose. In addition, program directors often have political aspirations of their own and are likely to need the backing of their political party when it comes time to fulfill them. The director of the Chilean PAE eventually stepped down to pursue a senatorial bid. In Colombia, the director of the Vivienda program stepped down to run for a local executive position. Using PAD resources to strengthen one's party while currying favor with it is way to secure party backing for future bids, thus providing another link between PAD resources and party interests.

Due to these characteristics, we identify PADs as a good fit to the empirical tests. These programs strike a good balance between observability and capacity to reach multiple districts, their resources can be manipulated to favor incumbent party and they also address the challenge of avoiding a resource war between parties. These characteristics address important underlining assumptions that are crucial to our theory and add validity to our empirical test.

5.3   Case Selection

Poverty alleviation and development programs have become common in the developing world. The Indian subcontinent is a region of the world that has turned to these programs as a way to tackle their poverty challenges. In India and in Bangladesh, these programs have been adopted with success (Keefer and Khemani, 2009; Bayes, 1999; Wahid, 1993). Both of these countries adopt SMD electoral systems, which disqualifies them as appropriate tests to this study. In Latin America, these programs have been deployed as far North as Mexico, as far south as Argentina and almost everywhere in between. This widespread adoption of PADs directed us to search for data in as many of these countries as possible. Our concern is to produce

a dataset that has large breadth and securing data from different programs addresses this issue.

Mexico, Bolivia and Ecuador were discarded as sources of data because the majority of their seats are allocated through SMD[1] With the exclusion of these three countries, our search extended to all remaining thirteen Latin American countries. The final dataset contains data from eight PADs from six different countries. We collected data from Argentina, Brazil, Chile, Colombia, Guatemala and Uruguay. The following is a description of each of the programs.

5.3.1 Banco Popular de la Buena Fe

The Banco Popular de la Buena Fe (Popular Bank of Good Faith, henceforth BPBF) is an Argentinean PAD that facilitates micro credit by giving out small loans. The program's main goal is to improve the quality of life of low income Argentineans through employment, more specifically self-employment. The program's main pillars are development through endemic employment and support, meaning the generation of employment and support must be fostered from within the community. By facilitating access to micro credit, the program expects to generate employment that is niche based, which forces applicants to contemplate demand. As a consequence, the program expects that demand focused employment has greats sustainability odds. The program has a built-in incentive to create and cultivate local networks of sup-

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[1]300 out of Mexico's 500 seats are allocated through SMD, with the remaining 200 allocated through a nationwide (*at large*) superimposed district. Ecuador allocates 103 of its 124 seats through SMD and the remaining 21 are for foreigners or special seats. Bolivia allocates 70 of its 130 seats through SMD and the remaining 50 through superimposed MuMDs that overlap the SMD. Please visit each country's respective webpage at `http://www.ipu.org/parline/parlinesear.asp` for a summary of their electoral systems.

port. By offering workshops about tried and proven business practices, the program puts beneficiaries in contact with one another and stimulates the sharing of solutions to local level problems.

The banks themselves are local and their reach is mostly at the municipal level. These banks are funded by the program's commission, which operates under the ministry of social development but enjoys a great deal of autonomy from this parent ministry. The commission's main role is to allocate the program's budget to local banks and maintain the equipo promotor (promoter team). This team of approximate 90 individuals gathers the best practices and success stories from beneficiaries and disseminates them across the country. The actual lending is done by the local banks, which are autonomous on their decisions regarding to whom they extend loans. Loans are small, not to exceed the value of 50 canastas basicas (basic baskets). They are given at an annual interest rate not higher than 6%[2] and must be paid back in 25 weekly payments. Beneficiaries are eligible to reapply to new loans once the current loans are fully paid.

The program was promulgated into law by the Senate on July 17, 2006. Law 23.117[3] created both the program itself and a new commission (CoNaMi: National Microcredit Council) within the ministry of social development that is meant to manage the program's funds (article 5, paragraph 4). The head of the CoNaMi is to be appointed directly by the executive independent of the minister of social development (article 6). Article 18 grants the CoNaMi the right to monitor the use of program's resources, especially with reference to how effective these resources are in furthering

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[2]According to the CIA's World Factbook, Argentina's 2008 commercial bank interest rates averages a whopping 28% a year, the 6th highest in the world. This 22% premium represents an important gap between what the program can offer and the alternative, making the program extremely attractive in the eyes of benefiters.

[3]http://www.infoleg.gov.ar/infolegInternet/anexos/115000-119999/118062/norma.htm

the program's goals. The article states that if the CoNaMi deems it appropriate, it can alter the allocation of previously allotted funds so that new allocations will better reach the program's goals. The program's budget can be augmented directly the by executive if need be (article 15).

It is important to point out that behind a veneer of local autonomy there is a great deal of power that is institutionally placed directly on the executive. While the program falls under the scope of the ministry of social development, the program's director is appointed by the executive, which allows it to exert influence over the program even should the ministry fall under the control of coalition parties. This is not the case for the date used here (2007), when the president's sister in law (Alicia Kirchner, sister of the former president and then current first gentleman Ernesto Kirchner) was the minister and shared a bond with the executive that went beyond co-partisanship. The fact that the executive can supplement the program's budget directly is another way that the executive can take advantage of the program as an electoral tool. Without this ability, the executive would have to supplement the ministry of social development and hope that those funds would trickle down to the program, which would risk having the ministry's own interests play a role in the way funds are allocated. With a direct line to the program, this risk can be avoided altogether and funds can swiftly be delivered to potential supporters. This ability to increment and alter allocation patterns consists of a pressure point where the program can be politically manipulated. The council has the authority to alter allocation patterns and it responds directly to the executive.

5.3.2 Programa Bolsa Familia

Programa Bolsa Familia (Family stipend program, henceforth PBF) is Brazil's most successful and talked about program, having earned praise beyond Brazil and Latin America. World Bank's Kethy Lindert says leaders from all over the world are looking the PBF as a template for poverty alleviation (The Economist, 02-09-2008). The program consists of delivering a monthly stipend to beneficiaries who meet the eligibility requirements and continue to meet the program's on-going obligations. These obligations consists of ensuring all school age household children attend and perform well in school and are vaccinated according to the national vaccine schedule. Heads of household are expected to go through regular checkups, attend night school or job training.

The program's goal is address poverty both on the short and long terms. The short term aspect is addressed through the monthly stipend, which operates as a sort of bait that ensures the long term aspect. This long term aspect is ensured through school enrollment and scheduled health visits. The program's main pillar is the conditionality between short and long term benefits. By conditioning short term benefits (monthly cash stipends) on the fulfillment of activities that will alleviate poverty on the long term (job training, school enrollment and health checkups), the program aims to become a transitioning tool out of poverty, instead of simply becoming a set of crutches to those in poverty without ever offering a way out of it.

The monthly stipend depends on the household's average income. A family of three children and two teenagers (five total dependents) that makes less than R$70 a month (approximately U$35 or a dollar a day) gets a R$200 monthly stipend. This same family would get R$132 if their household income is between R$70 and R$140 a month. The actual delivery of the monthly stipend is made through an ATM like

debit card, but recipients must constantly visit PBF facilities to show proof of continued fulfillment of their obligations to the program. Beneficiaries that fail to fulfill conditions are discontinued from the program after a warning. To become a beneficiary, applicants must enroll on the programs database. The main requirements for eligibility are per capita household income related. If they meet all of the requirements, they automatically become eligible and move to a wait list. The move from wait list to actual beneficiary is conditional on budgeting.

A World Bank report on Bolsa Familia highlights that the program's registration and monitoring process are its main pressure points for political manipulation. While eligibility is transparent and uniform, a potential recipient must enroll on her own. This allows the central government to proselytize recipients by developing a biased and uneven registration network. The monitoring of the conditions that must be met is open to political manipulation because lack of clear directives as to what and how to look for violations has allowed the central government's monitoring unit (Controladoria Central da Uniao) to conduct audits on a case by case basis, resulting in arbitrary disqualification of beneficiaries (Lindert *et al* 2007).

As of 2009, the program has reached approximately 50 million people (12 million families). Since its inception in 2003, the program has claimed to have reduced extreme poverty from 12% to 4.8% in just five years.

The PBF is an appropriate program to the empirical test because it has a large impact on the welfare of beneficiaries. The program has been accused as a sharp vote buying tool. PT's association with the program is pronounced: it was claimed that the program played an important role in Lula's 2006 reelection (Washington Post, October 29th 2006). In 2006, the program saw its eligibility requirements loosened so to include more beneficiaries shortly after a national newspaper's pre-election survey showed that 48% of program recipients intended to vote for Lula, while only 32% of

the poor who were ineligible to the program intended to do so (Veja Online). In 2009, after benefits had been adjusted twice, the program's average benefit was increased yet a third time. This was met with criticism that the increase was a sign that the PT was gearing up for the 2010 elections (Veja Online, 08-01-2009). Rousseff, PT's 2010 presidential candidate, claims responsibility for the PBF because the program is clearly PT's brainchild[4]

5.3.3   Programa de Alimentacion Escolar

Chile's Programa de Alimentacion Escolar (Program for School Meals, henceforth PAE) fights poverty through education. The program's main goal is to boost student classroom performance and lower drop-out rates by providing meals to public school students of all levels, from kindergarten to college. It operates by delivering one daily meal (either breakfast or lunch, depending on the needs of the student) to the student in school. The meals cover almost 50% of preschoolers' daily nutritional needs and approximately 35% of older students.

One of the programs main concerns is to ensure that it reaches the students who will benefit the most from the meals. To accomplish this goal, the program allocates its resources according to a scale that ranks schools based on their vulnerability (IVE, indice de vulnerabilidad del establecimiento). This measure is made up of a school level and an individual level components. The school level measure comes from yearly surveys that rank schools according to the conditions of the facilities and the average performance of the student body. The individual level component concerns itself with each student's attributes as they relate to the student beyond the school.

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[4]Interview given to Jo Soares on 05-26-2008

This individual level measure reaches approximately three million of the students enrolled in Chile's public schools[5] Likely PAE beneficiaries consists of students that score high on their individual IVE measure and attend schools with high school level vulnerability scores. This double selections process allows the program to prioritize the neediest students of the most precarious schools, increasing the marginal impact of the program.

The PAE is part of JuNAEB (Junta Nacional de Auxilio y Becas, National Council for Aid and Scholarships), a standalone government institution created to manage student social vulnerability. JuNAEB's main goal is to ensure students enroll in and graduate from Chile's public educational system. The JuNAEB doubled its budget from early to late 1990s. While the JUANEB funds and oversees the PAE, actual delivery of meals is done by private local organizations. These caterers must be certified prior to starting. The certification of potential provides is a major pressure point of political manipulation. Qualification is done by local authorities, which are staffed by the JuNAEB. Districts rely on local authorities to register providers and in the absence of qualified providers these local authorities must carry the onus of identifying, developing and eventually qualifying new ones[6]. By controlling the staffing at the local level, the JuNAEB can ultimately impact the delivery of services.

The program's large database on personal student IVE makes the PAE an incredibly attractive electoral tool. While the overwhelming majority of actual benefiters do not vote on account of their age, it is important to highlight that the program allows parents to ensure that their children are attended to while they are at work.

[5]It is worth noting that Chile's population is approximately 17 million, which means that the program contains data on roughly 20% of the population.

[6]This process can be in itself a political largess, as caterers who are qualified gain access to a large, year round market that is financially backed by the government. The caterers, along with the children, become beneficiaries of the program.

This not only eases the financial burden of the parents but also frees them to seek gainful employment. Between the program's ability to target receivers and the program's impact on the parent's livelihoods, the delivery of PAE has the potential to transform the resources it delivers into electoral support for those that deliver it.

While it is true that the selection of recipients is done according to the IVEs, the composite of these indexes is regulated by the central government and has changed twice single 2005 (2005 and 2007). For the empirical test, we use data on total PAE expenditures for 2007.

5.3.4 Programa Universidade Para Todos

Brazil's Programa Universidade Para Todos (University for All program, henceforth ProUni) is a PAD that delivers college scholarships to low income public school graduates. Its main goal is to facilitate college enrollment to those who would otherwise be unable to attend college because of financial limitations. Brazil's best ranked universities are federally funded. Admission to a federal university is accompanied by free tuition (and often free room and board) for the entire span of the program regardless of performance. Because all enrolled students attend for free, there are literally no fees assessed. The combination of top education and zero costs makes these universities highly competitive. As a consequence, these universities are populated by high income students who can afford the best secondary schools and college entrance preparation courses. Low income students are drastically under-represented in these institutions.

Students who cannot attend these universities are forced to attend private colleges, which are less competitive and very expensive. High tuition costs can consequently preclude low income students from attending college altogether. The ProUni

targets these exact low income students who attended public schools and were only able to secure admission to a private college. To be eligible for a full scholarship the beneficiary's per capita household income cannot exceed one minimum wage per month (R$510 as of July of 2010). It is worth nothing that the average tuition costs for Brazilian private universities is just above one minimum wage per month (Folha de Sao Paulo, July 12th 2010[7]), suggesting that there is little chance that a program beneficiaries would be able to attend college without the aid.

Brazil's federal government first created the ProUni in 2004, putting it in full effect in 2005. Since its inception the program has awarded approximately 600 thousand scholarships, 70% of which were full time. The awarding of scholarships is an impersonal process that ranks recipients by combining the applicant's college admission exam scores and its respective colleges of choice. ProUni has a similar political manipulation pressure point as Chile's PAE, which is on the qualifying of colleges that can participate in the program. Universities must petition to become eligible to receive scholarship awardees and receive a tax break in place of the actual tuition amount. The annual tax breaks that participating colleges receive are negotiated by the program's centralized agency on a case by case basis (article 14, decree 11.096-2005). The ability to assess each case based on its own conditions gives the central agency a great deal of leeway on how many scholarships are ultimately delivered to each district.

The programs potential for electorally helping the party in charge is large, as recipients are unlikely to able to attend college otherwise. Benefiters and their parents are drastically impacted by the program and have an incentive to support the

[7]Study done by the Union of Private College Instructors of the state of Sao Paulo, published on the Folha de Sao Paulo newspaper, see online version `http://www1.folha.uol.com.br/fsp/cotidian/ff2106201001.htm`

party that developed it, which is the laborer's party (PT). While the federal government cannot target recipients, its ability to impact the geographic distribution of the scholarships allows it to direct resources to electorally attractive districts and meets the requirements of the test.

5.3.5   Sistema Nacional de Comedores

The Sistema Nacional de Comedores is part of Uruguay's Instituto Nacional de Alimentacion (National Institute for Nutricion, henceforth INDA). The INDA was created to redress Uruguay's growing nutritional gaps and to directly attend to the population that finds itself in nutritional vulnerability[8]. The Sistema Nacional de Comedores (National Eatery Network, henceforth SNC) is one of INDA's five main programs. It consists of public eateries that deliver daily meals to recipients. The SNC was created in 2001 and targets citizens that are in greatest nutritional, and consequentially social danger. Women, particularly pregnant, and children are prioritized.

Meals are cooked and delivered daily through a network of public restaurants that are operated by local municipalities but maintained by the federal government. These restaurants serve a standard single meal that can be purchased by anyone but is free for those who are registered beneficiaries of the program. Eligibility is granted by a social worker who reviews the applicant's file to determine if the applicant will truly benefit from the program. Beyond a preference for women and children, criteria mainly revolve around employment status. Once beneficiary status is granted, an

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[8]Translated by the author from: Los programas INDA " son la herramienta que permite alcanzar el objetivo principal del Instituto, es decir: atender a la poblacion del pais que se encuentra en situacion de vulnerabilidad alimentaria"

identification card is issued and must be shown at the eatery in exchange for a meal.

In general beneficiaries must renew their id cards every year, with a few exceptions. Pregnant women and their children, pre-schoolers and public school students must renew every six months but renewal is practically automatic. For the unemployed, the option to renew is available but they must go through a social worker who will reassess their situation since the applicant's last enrollment.

The program's political manipulation pressure point is at the allocation of social workers, who meet and evaluate potential beneficiaries prior to granting their eligibility. Social workers canvass the country at the discretion of the ministry of development. They have been criticized for having preconceived biases about what local necessities are, only to be plucked away after they have begun to develop a more clear intuition of what local needs truly are[9]. By controlling where and how many social workers are distributed, the program can be manipulated to favor some districts over others.

Daily operation of the actual restaurants is up to the local municipalities. Funds and foodstuffs come directly from the INDA in different schedules. Foodstuffs are delivered every two weeks and funds to cover operational costs are delivered every two months. Access to financial and foodstuff resources is vital to the functioning of the program and given that these resources are controlled by the INDA (a federally funded centralized organ), the link between the federal government and the local level operation exists. Uberfil Monzon, INDA's director for 2008 (the year used in the test) was appointed directly by Uruguayan president Tabare Vazquez. Although not a party member, Monzon is a self proclaimed "die hard" Frente Amplio supporter.

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[9]Sociedad Uruguaya, 08-31-06 `http://www.sociedaduruguaya.org/2009/08/treinta-y-tres-reclaman-al-mides-el-retorno-de-una-licenciada-en-trabajo-social.html`

The INDA, whose previous director is under indictment for using INDA's funds for political gains(La Republica, 06-22-2006), was recognized as a fundamental tool for national development by Frente Amplio 2010 presidential hopeful Marcos Carambula. The candidate suggested that INDA should be placed under the ministry of development so to better play the role that the executive expects out of this institution (La Republica, 05-28-2009). While Carambula did not win the presidential seat, INDA's transfer to the ministry of development was eventually carried out.

As for the program's actual impact, it should be noted that this program alone reaches 18 thousand people (Uruguay's population is an estimated 3.5 million). The program is one of INDA's five main programs, suggesting that the institute has a reach beyond the 18 thousand served. The meals cover approximately half of the necessary daily calories of an adult. For the unemployed, this meal can be the only guaranteed meal they have. Another way to interpret what these meals amount to is to look at them in terms of their dollar value. The meals sell for UP$30 (approximately U$1.5) and are served Monday through Saturday, amounting to around U$36 a month per recipient. Considering that school age and pre-schoolers practically qualify automatically, the benefit to the family can add up to over U$100 for a mother and two children.

Overall, the program is appropriate to the empirical test because it delivers a resource that drastically impacts the well-being of its recipients, delivering with it an incentive to reciprocate its consumption with electoral support. The organ in charge of the program is directly linked to the executive and has a history of manipulating the distribution of the social workers that qualify recipients.

5.3.6 Subsidio Familiar de Vivienda

The Subsidio Familiar de Vivienda (Family housing subsidy, henceforth SFV) is a Colombian PAD meant to alleviate poverty by facilitating home ownership. It does so by delivering a one-time lump sum loan that is to be used for the down payment of a home or lot, or alternatively to be used to buy materials to build a home in case of applicants who already own their plots of land.

Loans must be repaid so the program is not to be thought of as free money. Its main benefit is the repayment terms, which make the program extremely attractive when compared to alternative ways to secure housing. According to ley Marco de Financioacion de Vivienda (Ley 546, 1999), SFV loans are interest free and inflation free, as the central government is committed to paying whatever inflation related loan adjustments that have to be made, virtually ensuring that benefiters only pay back the actual figure they borrowed. The program targets the population that is in greatest need. To ensure efficient targeting, eligibility requirements keep loan amounts low (maximum of 25 monthly minimum wages, or approximately U$6600). There are also limits on the prices of the property that can be bought with the loans (135 monthly minimum wages maximum, or approximately U$35000). These figures basically mean that SFV facilitates a 20% down payment on a low income home, interest free for five years.

Because housing is such a broad issue, the program falls under the scope of multiple ministries[10]. The program is actually headed by a para-ministerial organization, the Consejo Superior de Vivienda (CoSuVi: Housing Supreme Council). This council oversees all program operations and responds directly to the executive. Arti-

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[10]The Environment, Planning, Agriculture, Social Development and Finance Ministries all play a role in the program in various different capacities.

cle first of decree 418/2000 states that the CoSuVi should actively zeal in favor of the national government's housing policy, monitoring and intervening in the allocation of resources to ensure the program's long term goals[11]. The CoSuVi is the program's pressure point for political manipulation. It is a centralized council with control over the national budget and directly responsive to the national executive.

In summary, the program facilitates access to resources to segments of the population that would otherwise find it significantly more difficult to secure housing. The marginal impact of the program is large and likely to impact voting preferences. These resources can be linked to the interests of the executive and his party and therefore qualify as appropriate to the empirical tests carried here.

5.3.7 Becas Para La Paz

Becas Para La Paz (scholarships for peace, henceforth BLP) is one of two Guatemalan programs that attempt to alleviate poverty through investments in education. The overarching long term goals of the two programs is to break with intergenerational transmission of poverty and build human capital.

In the particular case of the BLP, this goal is achieved on the short run by putting resources towards ensuring that public schools become an environment where the vicious cycle of poverty transmission can be broken (Edubecas, Ministry of Education). The BLP's direct beneficiaries are the actual schools, as resources are channeled directly to them. They come in the shape of books, schools supplies, student uniforms, teacher training sessions and funds to support adult night classes. The BLP

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[11]Article 1, paragraphs 6 and 7.
http://www.superfinanciera.gov.co/Normativa/PublicacionesJuridicas/viviendauno/
dec418-009.html

aims to make schools an attractive environment to students and parents and therefore create an incentive for attendance.

School attendance has been a challenge for Guatemala. The United Nations ranks Guatemala 122 out 177 in human capital (Development Programm Report, 2009). A 2000 study of the conditions of life in Guatemala estimated that only two in ten Guatemaltecos would enroll in secondary school. Dropout rates in urban Guatemala are as high as 38%, hitting an astonishingly high 71% in rural areas. The study also indicated that education costs are the number one reason behind the choice to drop out. (Encovi, 2000. INE).

By stimulating school attendance, the program impacts the students and also their parents. With children in school full time both parents are able to earn income. This assurance is even more vital in single parent households, where the only stream of income is compromised when the parent must juggle job and care taking obligations.

The fact that the program facilitates not only the lives of students on the long run, but also the lives of parents on the short run gives the program an electoral dimension. Parents of students attending benefited schools are directly benefited and therefore have an incentive to reciprocate with electoral support. To achieve its goals from a logistics perspective, the program is managed by La Unidad de Becas, which is a branch of the ministry of education that is solely focused on the successful implementation of programs. The Unidad delivers resources directly to school boards. This branch enjoys " una alianza estratgica con la Secretara de Programacin y Planificacin de la Presidencia" (a strategic alliance with the executive's secretary of planning). Despite this strategic alliance, we were unable to secure any type of guidelines that directly speak to the way in which resources should be allocated. After reading the program's brief and vague memorandum, the only clear message we were

left with is that a great deal of discretion has to be exercised in carrying this program.

5.3.8   Becas Para La Nina

Becas Para la Nina (scholarship for girls, henceforth BLN) is the second of the two Guatemalan educational programs. While the BLP attempts to stimulate school attendance, the BLG is concerned with stimulating student performance. It does so by directly targeting girls that perform well in school and rewarding their parents with a cash transfer. The funds are delivered twice a year, in July and November. The July delivery is conditional of attendance while the November delivery is also conditional on the girl not having been held back at the end of the year. In 2005, the BPLN reached roughly 50 thousand girls.

In the case of the BLN, the incentive to reciprocate with electoral support is even stronger than with BNP. Cash transfers are given directly to parents twice a year. The BLN is also managed by la Unidad de Becas and can be expected to be under the same executive influence.

Not unlike the Becas para la Paz, we were also unable to secure any type of directives that regulated the awarding of these resources. Previous research argues that the way the Becas para La Nina program selects recipients, which basically asks parents to nominate potential awardees, has reduced the program to a tool of political largess at the hands of the ministry of education (Gallio, 2002). We argue that an overall lack of clear guidelines is in itself a pressure point of political manipulation. Without clear guidelines, the discretion of those in charge, in this case the ministry of education, becomes the rule.

Chapter 6

Data and Results

This chapter discusses the variables that go into the empirical test of theory laid out in chapter 4. After all variables are introduced, we hypothesize their relationships and discuss the statistical estimator. We conclude this chapter with a discussion of the results, as they pertain to our theory as well as what they mean to politics on the ground.

6.1   Variable Operationalization

The theoretical framework we developed in chapter 4 suggests that a party will favor districts that are more likely to deliver critical marginal votes. *Favoring* is our dependent variable and is operationalized as the percentage of the program's budget that is spent on a given district. Districts that are favored are expected to receive larger proportions of the budget, ceteris paribus.

Districts are favored as a function of their likelihood of delivering marginal votes, making this likelihood our independent variable of interest. The likelihood of

delivering marginal is in itself a function of two possibilities: seat gain and seat loss. Seat gains and losses occur when parties cross certain thresholds. These thresholds are the SLT (seat loss threshold) and the SGT (seat gain threshold). Seats are lost when parties drop below the SLT and seats are gained when parties cross the SGT. We argued that a party protecting its seats should favor districts where its expected vote share is barely above its SLT_{sq} and a party looking to secure new seats should favor districts where its expected vote share is slightly below the SGT_{sq+}. Our independent variables of interest are distances between the party's expected vote share and their respective thresholds.

A party concerned with losing seats should favor districts where their expected vote share is very close to the marginal vote. The closer the expected vote gets to the critical marginal vote share, the greater the chance that votes lost will include this marginal vote and, consequently, cost the party a seat. Shorter distances translate into greater risk of seat loss, hence the variable is labeled *risk*. *Risk* is operationalized as the distance between the seat-losing marginal vote, identified by the SLT_{sq}, and the party's expected vote share in the upcoming legislative race. Considering that the chance of losing a seat increases as the distance decreases, we expect a negative relationship between the proportion of the allocated budget and the distance between votes. This produces the following hypothesis:

H_1: *The district's proportion of the program's budget increases as the risk variable decreases*

A party concerned with gaining seats is expected to favor districts where its expected vote share is very close to a marginal vote, not unlike in the previous hy-

pothesis. In this case the marginal vote a party focuses on is the one that delivers a new seat, identified by the SGT_{sq+}. Similar to hypothesis one, the closer the expected vote gets to the marginal vote, the greater the chance that a gain in shares will include this sought-after vote. Shorter distances translate into greater chance of securing the new seat, hence the variable is labeled *new seat*. *New seat* is operationalized as the distance between the seat-wining marginal vote and the party's expected vote share. Chances of securing a new seat increase as the distance decreases, suggesting a negative relationship between *new seat* and the proportion of the allocated budget. This produces the following hypothesis:

H_2: *The district's proportion of the program's budget increases as the new seat variable decreases*

To test the overarching hypothesis that parties will favor districts where they are closest to a marginal vote, whether it is a marginal vote that is closest to the SLT or the SGT, we introduce a third hypothesis. A party concerned with securing the most marginal votes will favor districts where its expected vote share is closest to either the seat-losing or the seat-winning marginal vote. To test this hypothesis, we introduce a variable called *nearest.MV*, which is operationalized as the smallest of the *risk* and *new seat* values in that district. This produces the following hypothesis:

H_3: *The district's proportion of the program's budget increases as the nearest.MV variable decreases*

The calculation of the *risk* and *new seat* variables starts with inputting each

district's seat allocation formula, magnitude and number of competing parties into the MuMD marginal vote algorithm introduced in table 4.3. For *risk*, we count the number of seats the party in charge of the program holds in that district and use the algorithm output to identify the SLT_{sq} for that specific seat share, thus identifying the marginal vote that will cost the party its seat share *(disrupt the status quo)* in that particular district. We then calculate the absolute value of the difference between this SLT and the party's expected vote share in that district.

I repeat this process for the *new seat* variable, but instead of calculating the distance between the expected vote share and the SLT_{sq}, we substitute the SLT_{sq} for the SGT for one seat above what the party currently holds[1]. In other words, we account for the marginal vote that has to be secured so that an additional seat can be earned (*status quo plus one seat*).

For the *nearest.MV*, we simply look at the already calculated values for *risk* and *new seat* and take the smallest of the two.

To account for a party's expected vote share, we use a party's election results for the previous election. Our intention was to use public opinion polling data as a proxy for expected vote share, which presumably better reflects changes in support since previous elections. We were unable to secure consistent polling data at the district level for all districts. The little data we were able to secure are from six to three weeks prior to elections, which is probably too late for a party to make any

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[1]When a party ensures it will not lose a single seat, it is essentially protecting itself from losing two or more seats and therefore this party does not have to contemplate SLTs other the one for its current number of seats. When it comes to seat gains, we assume that a party will focus on gaining one seat additional to the ones it currently holds in the district. To contemplate seat gain beyond one additional seat would force us to introduce a series of assumptions about the distribution of expected gains from the delivery of resources and is beyond the scope of this project.

changes in its allocation patterns[2]. Previous election results have a 0.97 correlation with current results, while the polling data we secured has a 0.82 correlation with the same elections[3]. This suggests that polling data is not as good a predictor as previous results despite being more current. Given availability and performance of the polling data, we opted for the previous election results as the proxy. Figure 6.1 are plots of election results on polling data (a) and on previous election results (b) for the polling data we were able to secure.

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[2]For the polling data we did find, there were data from multiple polling companies, often with conflicting predictions. Picking one over the other would force us to introduce further assumptions about how parties pay attention to polling companies (and which ones), which is not trivial.

[3]The polling data consists of district level predictions for the top three performing parties for Brazil's 2006 elections. We regressed the actual 2006 results against the polling data and the 2002 results using two simple bivariate regressions. The polling data does not cluster around the regression line as closely as do the previous results and the overall model fit of the polling data is not as strong.
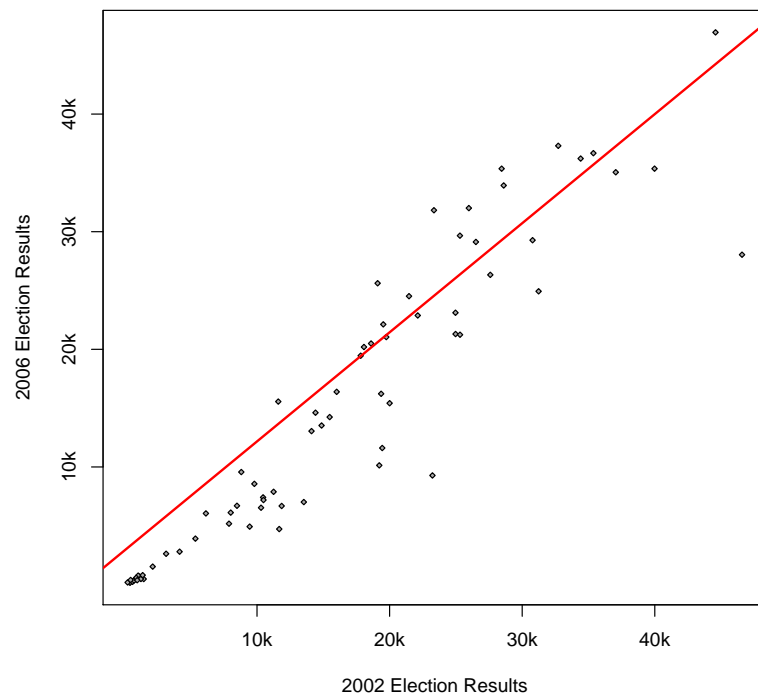
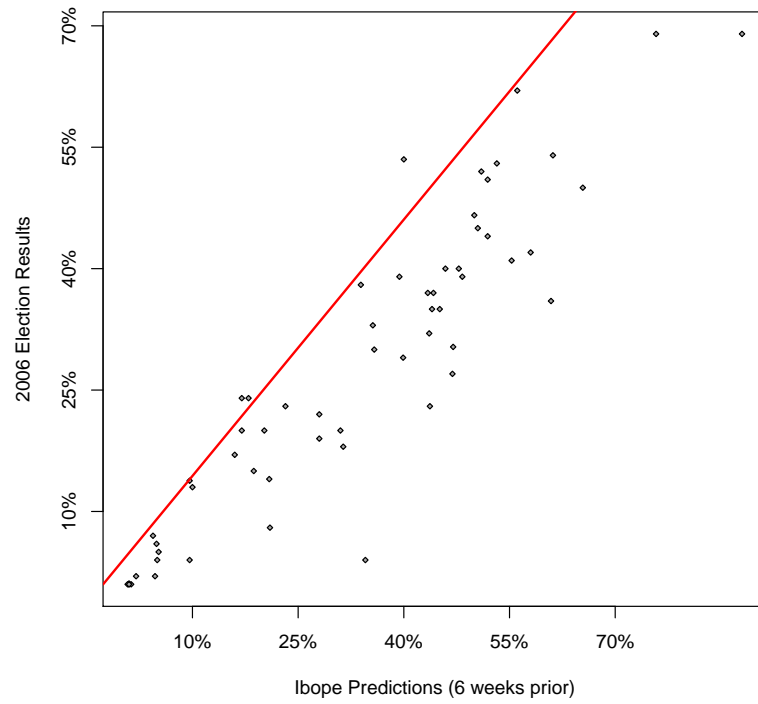Figure 6.1: Previous Vote Shares and Polling data plots

Figure 6.2 is the graphical representation of the operationalization process. The figure builds on figure 4.2 and operationalizes the *risk* and *new seat* variables twice. Subfigure (*a*) depicts the process for a hypothetical party holding one seat and expecting a 15% vote share (marked by the X). Subfigure (*b*) depicts the process for a party holding 2 seats and expecting an 81% vote share. In subfigure (*a*), because the party holds one seat, the thresholds of reference are the $SLT_{(1)}$ (12%) and the $SGT_{(2)}$ (64%). The *risk* and *new seat* variable values are 0.03 (|0.15-0.12|) and 0.49 (|0.15-0.64|). For subfigure (*b*), because the party holds two seats, the thresholds of reference are the $SLT_{(2)}$ (35%) and the $SGT_{(3)}$ (89%). In this case, *risk* and *new seat* values are 0.46 (|0.81-0.35|) and 0.08 (|0.81-0.89|). The nearest.MV for subfigure *a* is 0.03 (*risk* value), which is the closest of the two thresholds of interest. For subfigure *b*, the nearest.MV is 0.08 (*new seat* value)

In addition to controlling for population size and poverty levels, we control for a party's incentive to direct resources to its strongholds or bailiwicks, as suggested by Ames (1995). There is a control for the party's incentive to put resources in districts that have supported the party in executive races. Considering that this is a cross country data set, we introduce controls that account for differences between countries[4]. We control for potential corruption in government by introducing a transparency measure. We control for the stability of the political system, which impacts how familiar political parties are with the electoral rules. There is a control for whether voters are able to alter the order of the party list and, finally, a control

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[4]Notice that country level controls do not vary at the district level. While a hierarchical model would be more appropriate for data with different aggregation levels, such a model with only six different countries would not perform well (see Gelman and Hill, 2007 pgs. 246-7). To attempt to build further confidence in the results despite country differences, we ran six separate models, one for each country. By doing so, we virtually eliminate any differences that might exist between countries which might require controls in a cross sectional model. While not all of the coefficients for our variables of interest are significant, which is expected given their small N (N average 30), values are in the expected direction for five of the six countries.

Figure 6.2: Graphical Representation of Operationalization Process
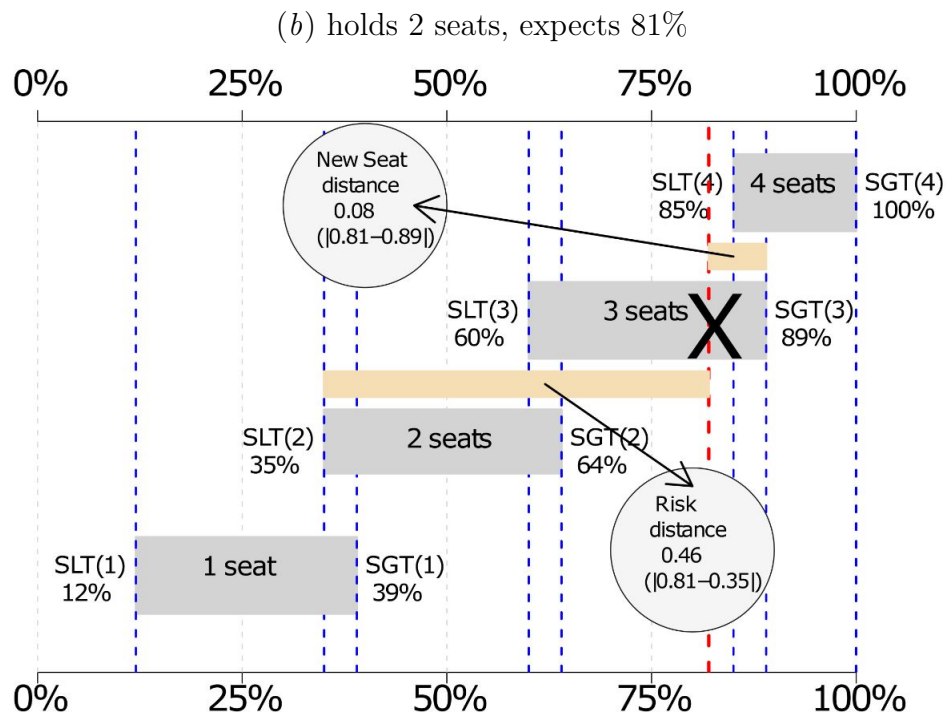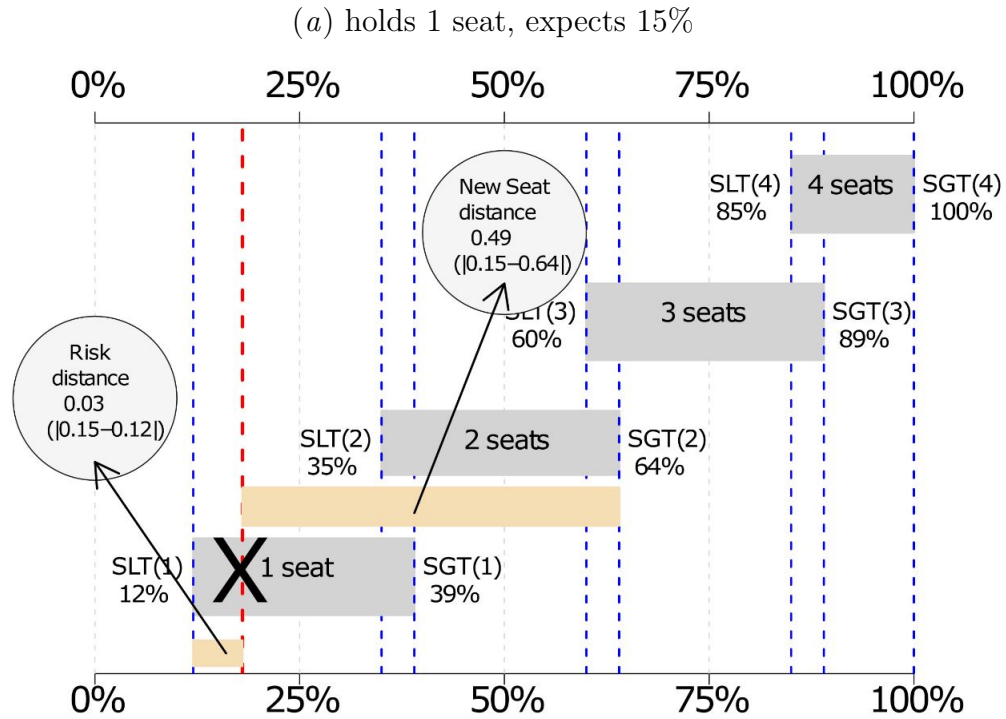
(*a*) holds 1 seat, expects 15%

(*b*) holds 2 seats, expects 81%

The nearest.MV for subfigure *a* is 0.03 (*risk* value), which is the closest of the two thresholds of interest. For subfigure *b*, the nearest.MV is 0.08 (*new seat* value)

for compulsory voting[5]. Please see table 6.1 for the operationalization and source of all variables. Table 6.2 contains some descriptive statistics of the variables used in the model.

Table 6.1: Variable Operationalization

Variable	Operationalization	Source
Favoring (dept var)	percentage of program's budget spent at the district (logit transformation)	MDS (Brazil,2008), JuNAEB (Chile, 2007), MinEduc (Guatemala,2005), INDA (Uruguay, 2009), DNP (Colombia, 2007) MD (Argentina, 2007)†
Risk	absolute value of the difference between the party's previous vote share and the SLT for the number of seats held by the party in the district	

Continued on Next Page...

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[5]I have also attempted to introduce a series of other cross sectional controls, such as the party age, degree of competition institutionally allowed by the system and the ability to pool votes across parties. Unfortunately, these measures suffer from multicollinearity. When I include these measures, their resulting VIFs are above 30, which is way beyond the accepted cut point of 10. The strong level of multicollinearity that the introduction of these variables would introduce can render the estimators useless (Fox, 1997 pg-338-40) and I therefore opted to keep them out of the model .

Table 6.1 – Continued

Variable	Operationalization	Source
New Seat	absolute value of the difference between the party's previous vote share and the SGT for one seat additional to the ones already held by the party in the district	
Nearest.MV	smallest of the risk and newseat values for the party at the district	
Population	population per 100k, from census	IBGE (Brazil,2001), INDEC (Argentina,2001), DANE (Colombia,2005), INE (Chile,2006), INE(Uruguay,2004), INE (Guatemala ,2002)†
Poverty	percentage of population living with NBI[1], from census	same as population

Continued on Next Page...

Table 6.1 – Continued

Variable	Operationalization	Source
previous vote share[2]	party's legislative vote share at the district in the previous legislative race	TSE (Brazil,2006), TSE (Guatemala,2003), CE (Uruguay,2004), SerVel (Chile,2005), Ministerio del Interior (Argentina,2003), Registraduria (Colombia,2006)†
Stronghold	one if party has been the largest vote getter in the district for the past 2 elections. Zero otherwise	same as previous vote share
Pres.Sup	party's executive vote share at most recent race (district level)	same as previous vote share
Corruption*	11 point scale (0 most corrupt, 10 least corrupt)	Transparency International country specialist Survey
Stability*	number of years since the most recent regime change	POLITY IV (*durable*)

Continued on Next Page...

Table 6.1 – Continued

Variable	Operationalization	Source
Compulsory*	one if voting is mandatory, zero otherwise[3]	Institute For Democracy and Electoral Assistance (*www.idea.int*)
Alter.list*	Zero if voter can alter the party's proposed list at the ballot, one otherwise[4]	country electoral code

Table 6.1 – Continued

Variable	Operationalization	Source

*- These variables are coded at the country level, which is one aggregation level above the district level.

†- Census, Program and Electoral data are from each country's electoral courts, statistics bureaus and ministries. These are available from the author by request.

1- NBI (Necessidades Basicas Insatisfechas: Unsatisfied Basic Needs) is a method to identify population needs sponsored by the UN's CEPAL (Comision Economica para America Latina y el Caribe). It characterizes poverty based on four criteria: access to housing, sanitation, basic education and income.

2- This variable does not make it into the model but it is used to calculate the *risk* and *new seat* variables.

3- Guatemala and Colombia are the two countries without mandatory voting, all others require citizens to vote.

4- Brazil and Chile get a zero for having an open list. Colombia gets a zero for allowing for a preferential vote. All others get a one.

Table 6.2: Variable Descriptive Statistics

Variable	Min	Max	Average	SD
budget %	0.0001	0.293	0.034	0.043
risk	0.00006	0.721	0.216	0.17
new seat	0.019	0.893	0.395	0.209
nearest MV	0.00006	0.587	0.195	0.148
population	0.2510	41.011	2.145	4.957
poverty	0.004	0.999	0.236	0.177
Pres.Sup	0.048	0.817	0.318	0.109
Stronghold	0	1	0203	0.403
Corruption	3.26	7.86	5.086	1.88
Syst. Stability	9	50	22.883	12.19
Compulsory	0	1	0.666	0.47
Alter list	0	1	0.363	0.48

6.1.1   Statistical Estimator

We use a logit to estimate the coefficients. The dependent variable is a proportion measure of the budget allocated to the district. Different budget sizes and currencies introduce unwieldy distributions, justifying the choice to use proportion as a way to standardize the measure across programs. While the adoption of proportions solves the standardizing issue, proportion measures are bounded between zero and one and this constitutes a violation of Gauss Markov assumptions. To circumvent this violation, we use a logit transformation that fits the proportions in the $\mathbb{R}$ line (Pindyck and Rubenfeld, 1991). The model is expressed in the following functional

form:

$$y = \alpha + \beta_1 Hyp_{1\&2\&3} \tag{6.1}$$

$$+ \beta_2 Poverty + \beta_3 Stronghold + \beta_4 Pres.Sup+ \tag{6.2}$$

$$+ \beta_4 Population + \beta_5 Corruption + \beta_6 Syst.Stability \tag{6.3}$$

$$+ \beta_7 Compulsory + \beta_8 Alter.list \tag{6.4}$$

$$+ \epsilon \tag{6.5}$$

We run three separate models. The three models are identical in all but the variable of interest. The first model tests hypothesis one by using the *risk* variable. The second model tests hypothesis two by using the *new seat* variable and the third model tests both hypotheses (1 and 2) simultaneously using the nearest.MV variable.

6.2 Results and Interpretation

Table 6.3 contains the results for the models. The risk model (on the left column) tests hypothesis one, new seat model tests hypothesis two and the nearest.MV model tests hypothesis three.

Given the transformations that variables must go through, it becomes difficult to interpret their actual impact by simply examining the coefficients. We will interpret their impact more thoroughly after a brief discussion of their overall support for the hypotheses. The results reported in Table 6.3 support all three hypotheses. The risk model, which tests whether districts where a party is in risk of losing seats

Table 6.3: Logit Model(s) Results. Dept variable: *Favoring*

	Risk	New Seat	Nearest.MV
risk	-0.701**	-	-
	(0.20)	-	-
new seat	-	-0.622**	-
	-	(0.179)	-
nearest.MV	-	-	-1.229 **
	-	-	(0.279)
poverty	0.096*	0.101 *	0.097*
	(0.049)	(0.079)	(0.048)
pres. support	0.227	0.326	0.312
	(0.248)	(0.253)	(0.248)
stronghold	0.0256	-0.039	0.028
	(0.014)	(0.074)	(0.073)
population	0.004**	0.004**	0.004**
	(0.0007)	(0.0006)	(0.0006)
alter list	0.448**	0.53 **	0.442**
	(0.089)	(0.087)	(0.085)
compulsory vote	-0.21*	-0.219**	-0.317**
	(0.084)	(0.086)*	(0.092)
corruption	0.086**	0.099**	0.129**
	(0.023)	(0.023)	(0.025)
system stability	-0.004	-0.002	-0.005
	(0.003)	(0.003)	(0.003)
Intercept	-1.938**	-1.987**	-1.989**
	(0.237)	(0.24)	(0.236)
adj R^2	0.330	0.313	0.334
N		231	

The * indicates statistical significance with a 5% confidence interval and ** indicate 1%. Robust Standard errors are calculated using R sandwich package.

The alter list, corruption, compulsory vote and system stability variables are coded at the country level. We also ran six separate models, one for each country, therefore eliminating cross country differences. Resulting small sample sizes (average N approximately 30) increases the errors but coefficients for the variables of interest were negative for all but Chile (on the risk and nearest threshold models) and for Chile, Colombia and Brazil on the new seat model. Overall, the separate models suggest that results from the pooled models presented in this table are robust despite cross country differences.

receive larger proportions of the budget, produces statistically significant negative coefficients. The negative sign reflects the shortening of the distance between the expected and the marginal vote: the budget share increases as the distance decreases. Evidence for hypothesis two, which states that a party will favor a district where it is closest to securing a new seat, is also found. The coefficient for new seat is also negative and statistically significant, matching the inverse relationship suggested by the hypothesis. Overall evidence that parties go after the marginal vote, be that to secure a new seat or to hold on to current seats is also found, as the coefficient for nearest.MV is negative and statistically significant.

The logit transformation makes interpretation of the coefficients less intuitive than that of a standard linear model. To better illustrate their impact, we calculated the differences in the expected program budgets for a district with varying levels of the nearest.MV variable. Consider an average Brazilian district[6] where the incumbent party's expected vote share is 5 percentage points away from the nearest marginal vote. The program's expected budget for this district is 14.2%. Once I move this expected vote share to 0.1 percentage points away from this same marginal vote, consequently reducing the distance by almost 5%, the district's expected budget increases to 15.4%. While a 1.2% budget increase might appear small, from the perspective of the district a 5% shift closer to the marginal vote increases its budget by 8.5%, which is a substantial amount especially when no changes in population or poverty levels have taken place.

The impact of marginal vote seeking becomes even more pronounced when contrasted with the impact of poverty. Consider the same average district, where the party's expected vote share is 5 percentage points away from the nearest marginal

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[6]By average, we mean a district where all other values are held at their respective means

vote and poverty level is at the country's mean. Instead of moving the party's vote share closer to the nearest marginal vote, we increased the poverty level by 5%. This 5% increase in poverty moves the budget from 14.2% to 14.5%, a gain of about 2% from the perspective of the district. To put it bluntly, moving the vote share 1 percentage point closer to a marginal vote has an impact over four times larger than increasing poverty levels by 1%. Considering that all programs used here are poverty alleviation programs, it is natural to expect that poverty should be the main driver behind allocation patterns. The data shows, however, that this expectation is unrealistic. Figure 6.3a, named strategy free allocation, is a representation of what I expect a marginal-vote-seeking-free allocation pattern to look like. Poverty does all the driving and changes in the distance to the marginal vote would have no impact. The impact of poverty is represented by the positive slope of the poverty axis and marginal vote seeking's lack of impact is represented by the lines running parallel to the distance axis[7].

Figure 6.3b, named observed allocation, is a graphical representation of the allocation pattern derived from the observed data. As the graph clearly shows, distance to the marginal vote does not have a flat slope. By putting both the poverty and marginal vote seeking slopes in the same metric, the graph shows that the impact of marginal vote seeking is actually much stronger than poverty's. By contrasting the two graphs, it is clear that allocation pattern suggested by the data is drastically different than what can be expected from a strategy free program. While poverty does impact allocation patterns, it only plays a secondary role.

The observed pattern is largely driven by marginal vote seeking, evidenced by the much steeper slope of the distance to the marginal vote measure. As a conse-

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[7]While the actual slope (and functional form) of the graph is arbitrary, the important message behind the graph is that the allocation pattern of a strategy free program is driven solely by poverty.

Figure 6.3: Graphical Representation of Allocation Patterns
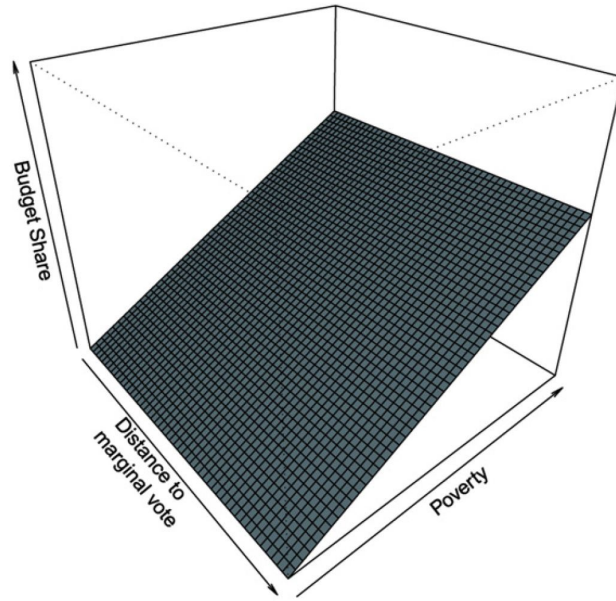
a: Strategy Free Pattern
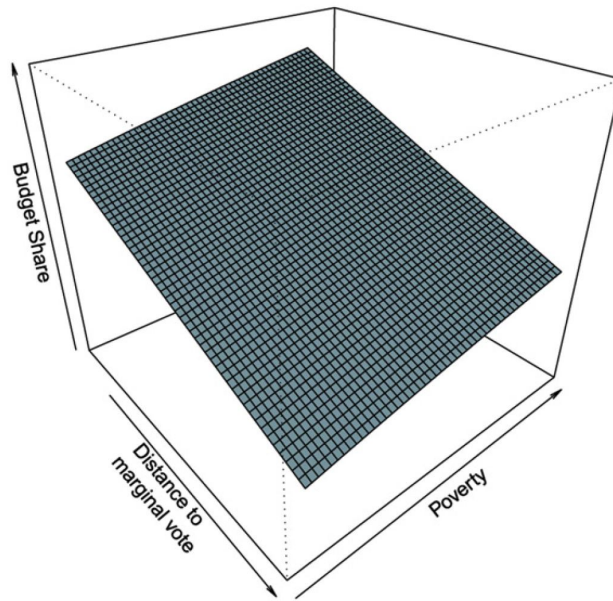
b: Observed Allocation Pattern

quence of the marginal vote seeking's stronger impact, the programs' original purpose of targeting the poor takes a back seat to electoral interests. An efficient poverty alleviation program presupposes an ability to target the poor. In light of this required ability, the take home message from figure 6.3(b) is that the observed allocation pattern is inefficient. This inefficiency is evidenced by the fact that the point of highest poverty is not the unanimous focus of resources, as is the case with the strategy free graph (figure 6.3(a)). The fact that marginal vote seeking is taking place subtracts from the programs ability to target those it originally intended to reach, the poor, and therefore characterizes the inefficiency.

These programs are unable to simply target the poor and only able to target the segment of the poor whose votes are marginal. Given the stronger impact of marginal vote seeking, should these programs be classified as either poverty alleviation programs that happen to elect politicians or politician electing programs that happen to alleviate poverty, the data suggests that the latter would be the most appropriate. Ultimately, this analysis highlights the dangers that marginal vote seeking imposes on a government's ability to carry out policy in an efficient manner. The positive side of these results is that program resources do reach the poor. Unfortunately, the negative side is that despite the praise these programs are getting regarding their poverty alleviation capacities, evidence shows that resources are still being overwhelmingly manipulated.

Concerns with space have kept us from addressing results related to controls, most importantly presidential performance. The inability to produce robust coefficients for this variable can be attributed to the complexity of the measure at a conceptual level. Cox (1987) argues that candidates in multi candidate winner-take-all races can have two main goals: maximize their lead or maximize their distance from their competitors. Operationalizing the presidential support variable in accor-

dance with these possible goals requires a degree of knowledge of the executive that is unavailable to this study. Multiple operationalizations were attempted, without success. The focus on the MuMD aspect and an attempt to produce a measure that can be used cross sectionally may have diluted the potential performance of the measure. System stability also failed to produce statistically significant results. Corruption levels, compulsory voting and voter's ability to alter party lists produced statistically significant coefficients. Overall, the models have performed well despite the challenges that cross sectional studies face.

6.3   Discussion and Concluding Remarks

It is important to see the above budget predictions with a critical eye. The focus of this empirical test has been to leverage the power of our proposed marginal return theory of politics to understand how parties chase after votes. We put the theory through a stringent test, concentrating our efforts on MuMD systems. These systems introduce district level idiosyncrasies that create strong incentives for parties to adopt a much simpler strategy of vote maximization across the board. Despite these strong incentives, our proposed marginal return theory of politics proved crucial to the development of a framework that allowed us to better understand how parties chase after votes in even the most complex of environments.

The examination of program budgeting is merely a way to test these incentives. Ultimately, budget increases in one district must be met by decreases in other district(s). Despite the importance of this zero sum dynamic, it pertains much more to budgeting then it does to incentives to strategize over vote shares. As far as incentives go, we have shown significant evidence that political actors differentiate between the votes and this differentiation is captured well through the lenses of marginal re-

turns.

Part II of this manuscript started with a discussion of how to leverage our proposed marginal return theory of politics in order to explain electoral strategies in MuMDs. As to future research on MuMD, we believe that results produced here are the first step in the direction of building a model that is capable of identifying and testing equilibria in MuMD systems, much like the studies discussed in the chapter 2. Building on the evidence presented here, which suggests that parties favor districts where they are closer to securing the marginal vote, future research can begin to build models that incorporate the perspective of parties not only vis-a-vi their proximity to marginal votes, but also vis-a-vi their competing parties. In other words, here we assume that returns to investments in district are not affected by vote shares that competing parties expect to secure (votewise). Returns to votes can increase simply because competing parties might split vote shares into distributions that will inadvertently increase the marginal returns of other parties. Should these shifts become obvious, contending parties might attempt to capitalize on them.

As to future research on the return to investments in the district, part II has not directly addressed how the return to investments is impacted by how the recipients of the investments, i.e. voters, perceive the resources delivered to them. We purposely avoided this topic because its complexity is such that it should be addressed on its own and not simply as a moving part of another test. Here, we bypassed this discussing by assuming that the return to delivered PAD resources would be constant across districts. Future research should take concerted efforts in relaxing this assumption. Part III of this manuscript takes the initial step in that direction.

Part III

Voter Returns

Chapter 7

Voters and Their Marginal Returns

7.1   Introduction

This manuscript started with the introduction of what we coined the marginal return theory of politics. This broad theory attempts to explain political exchanges by paying close attention to the returns to the investments that political agents make into the political arena. We recognize that at its broadest and most general form, the theory works mostly as a framework. We then suggest that this framework, while powerful, must be carefully reduced to narrower realms before we can make it applicable to specific topics.

Part II heeds this advice and narrows the broad theory into the more compartmentalized realm of electoral competition in multi member district systems. We provide robust evidence that parties do mind the marginal returns of the votes they chase after, strategically placing their resources in districts that offer them the greatest returns vis-a-vis the votes being collected.

To conduct the tests in part II, we relied on the assumption that voters being showered with PAD resources would return those resources with votes at the same

rate. This assumption, which facilitated the test, is unlikely to hold. We recognized the importance of this assumption since we first faced it, but chose not to relax the assumption until now due to the complexity of the topic. Trying to account for the marginal return of votes while simultaneously accounting for the marginal return of delivered resources would introduce an unwieldy test. For the sake of clarity, we decided not to address this assumption until we reached part III of the manuscript.

Here we address this assumption head on, elevating it to the main concern of this third and final part of the manuscript. The following section discusses the meaning of this assumption in further details, highlighting that we can actually leverage our marginal return theory of politics to assess its implications. We introduce literature that has addressed the issue in a similar vein, discussing the similarities and differences between them and the approach adopted here. Section 7.4 once again takes our marginal return theory of politics as a starting point, taking the necessary steps to narrow it down to a level that can help elucidate how resources are distributed as a function of how voters will consume these resources. We conclude this chapter by introducing a series of expectations that are a direct result of relaxing the assumption of constant returns to delivered resources while being informed by our general marginal return theory of politics.

7.2 Conceptualizing Returns based on voter response to resources

In part II, when we assumed that the returns to PAD resources were constant, what we meant was that once a voter received those resources, they would consume

those resources and return them with a vote. The constant return aspect suggests that all else equal, the delivery of x amount of resources would always lead to the collection of y many votes. Because in part II our focus was on the marginal return of the votes themselves, we purposely shied away from the challenge of understanding how a voter processes the resources delivered to her.

We recognize that the assumption of constant returns is unlikely, which is why we are addressing it in this part of the manuscript. In part II, we got around the assumption by controlling for district support for the president and party stronghold at the district. Here we leverage the marginal return theory in order to do without the assumption altogether.

In politics as it happens on the ground, voters do not all respond to resources delivered to them at a constant rate. Half a century ago, Key (1955) argued that voters are impacted by how psychologically involved they are, how intense the cleavages are between groups, what voters expect to be the consequences of their votes, just to name a few. It should come as no surprise to any student of politics that voters will not simply turn away from their preferences and blind return vote for resource, especially if given the choice to exercise its vote in secret.

If we don't expect students of politics to be surprised by the multitude of elements that impact voter choice, we certainly don't expect political parties not to be aware of them either. Quite contrarily, the chief point of our marginal return theory of politics is that political agents pay close attention to the returns of their investments. If resources delivered have different returns on account of elements related to how voters will perceive of those resources, we expect that political parties will pay close attention to these very elements.

While we are honest about the importance of relaxing this assumption, we are also painfully aware that we cannot account for all of the elements that voters

take into account when marking their ballots. Here we limit our study to what we believe to be the two most important cues that voters account for when making their decisions: partisanship and output expectation.

By partisanship, we speak of a degree of attachment to a certain party. Supposedly attachment can range from completely attached to completely unattached. By output expectation, we speak of voter expectations related to the output that parties produce, ranging from policy to pork. The underlining assumption is that voters make their decision based on their levels of partisanship and their expectations of what political parties should do. In the next section, we develop the theoretical framework that will inform the empirical test carried in this third and final part of the manuscript. The departing point for this framework is, obviously, our marginal return theory of politics.

7.3 Returns to Resources: Influential Works

Research on the redistribution of resources has leveraged the concept of returns as a way to produce expectations. Researchers have paid particular attention on the use of pork barreling as a political currency to buy support. A focus on pork barreling goes as far back as Ferejohn (1974). Beyond pork barreling in the U.S. (Bickers and Stein, 1996 and 2000; Balla *et al*, 2002), researchers have examined pork barreling in Latin America (Menocal, 2001; Molinar and Weldon, 1994; Schady, 2000; Calvo and Murillo, 2004, Ames, 1995), Scandinavia (Tavits, 2009), continental Europe (Lancaster and Patterson, 1990; Golden and Picci, 2008) and Australia (Denemark, 2000). Pork barreling has shown to be resistant to institutional variations, having reared its head in presidential systems such as the US, Mexico, Peru,

Argentina and Brazil (Bickers and Stein, 1996; Ames, 1995; Menocal, 2001; Schady, 2000, Calvo and Murillo, 2004) as well as parliamentary systems such as Finland, Sweden, Denmark, Germany, Italy and Australia. (Tavits, 2009; Golden and Picci, 2008; Denemark, 2000). Not only is it used in SMD and PR systems, but in mixed systems as well (Stratmann and Baur, 2000).

When making their predictions, these works rely heavily on swing and core group models of allocation. Borrowing from profiles described by Fenno (1978), these models predict allocation patterns based on which groups, core or swing, are the most appropriate targets. (Cox and McCubbins, 1986; Lindbeck and Weibul, 1987). In essence, core and swing groups are elegant typologies of returns to investments: resources exchanged between parties and core opposers, core supporters and swing groups can be perceived as nothing but exchanges with various rates of return. Core supporters are groups of voters who support a given party unconditionally and solely based on party label. According to this definition core supporters vote by seeking to identify which of the candidates represents their party. Once a core supporter recognizes that a given candidate enjoys the endorsement of their party, it is enough for her to deliver her support. By definition, a core supporter of a given party is a core opposer of all other parties. This is because the only cue that will prompt a core supporter to deliver its vote is a specific party label. No other party is able to give this core supporter the cue she is looking for and therefore these voters will always support their party of choice and consequently oppose all other parties. Swing groups, on the other hand, do not enjoy a strong attachment to any given party and take cues other than partisanship, i.e. consumption goods such as pork, when it comes to delivering their vote.

The literature on these models has made considerable strides in clarifying why certain groups, i.e. core supporters, make for better investments than swing groups,

depending on either risk or redistributive capacity (Lindbeck and Weibul, 1987, Dixit and Londegran 1995, 1996, 1998 and 1998b). Lindbeck and Weibul (1987) argue that when simply based on ideological attachment, swing groups enjoy a much higher return to a party's investment because when making their decision, swing groups emphasize consumption over ideological attachment. Cox and McCubbins (1986) recognize the importance of consumption for swing groups, but argue that their net returns are lower than those of core supporters on account of the risk involved with targeting swing groups. Namely, Cox and McCubbins argue that core supporters are a well-known group, with whom a party enjoys a close relationship and therefore can easily identify and effectively target. The gains incurred by targeting swing groups are countered by losses coming from the likely errors that will come associated with addressing groups about which a party knows very little. These errors can come in the shape of addressing wrong groups, addressing the correct groups with the wrong resources or even addressing the correct swing groups with the correct resources but with wrong timing.[1]. In addition, Cox and McCubbins (1986) argue that while swing groups are more responsive, they are responsive to other parties as well. Their returns, while attractive on grounds of responsiveness, are lowered by the fact that they are *"an open game"* for any party to capitalize on (Cox and McCubbins, 1986, pg. 379).

We recognize the important strides that this literature has made in developing models of resource allocation that are theoretically driven. These models have been widely used in empirical studies that have attempted to shed light on party resource allocation. (see Tavits,2009; Menocal, 2001; Schady, 2000 just to name a few). Unfortunately, the introduction of the risk parameter detracts from the model's ex-

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[1]A notable exception to these models is discussed by Weingast *et al* (1981), which addresses spillover effects of targeted redistribution efforts.

planatory power. When we don't account for risk, swing groups enjoy higher rates of return and emerge as the likeliest targets of resources. When we do account for risk, than net returns from swing groups are lowered and core supporters emerge as likely targets. Between the two variations of the model (accounting for risk and not accounting for risk), we can justify allocation patterns to either group. While it is relatively noncontroversial to assume that core groups are less risky, electoral risk is difficult to observe and propensity to accept or reject risk is complex to assess in the realm of collective bodies. While individuals are risk accepting or risk takers, even the most disciplined parties are still collective bodies. We cannot say that a certain party is risk taking without anthropomorphizing it, yet we don't really know how risk propensity works at this collective level of aggregation.

It is not the goal of this manuscript to demerit the works that have either advanced these models theoretically or applied them empirically. Quite contrarily, not only do we recognize the importance of the models, but we accept them as evidence to the power of the marginal return theory of politics that we are trying to advance here. While these models are not as explicit about the explanatory powers of marginal returns as we have been throughout this manuscript, the concept of marginal returns is crucial to the functioning of the models. We accept these models as a departure point to part III of this manuscript. The overarching goal of the manuscript is to leverage the power of marginal returns and in light of that goal, we take it upon ourselves to introduce a more precise typology of returns to investment in different groups.

To develop such a typology, we step away from risk as a parameter of interest. Our choice to shy away from risk is based on two main reasons. First, as we have alluded to above, accounting for risk solves a problem by introducing another problem. When we account for risk, we do introduce a theoretically plausible factor in

discerning between returns. Unfortunately, we also create the problem of identifying risk propensity at the party level. It has been argued that incumbent parties are risk averse, while challengers are risk takers. This suggests that incumbents would shy away from swing groups while challengers would be attracted to those. While that may be the case, competitive races make it practically impossible to discern between the behavior of incumbents and challengers, subtracting from the applicability of the parameter. Second, for reasons we'll discuss further in the next chapter, the risks of making targeting errors can be reduced by the deployment of the government sponsored machines that come attached to PAD programs; which are once again adopted in the empirical test here at part III.

The next section focuses on improving the typology of returns introduced by core & swing models of resource redistribution. It does so by placing front and center the elements that individuals take into account when making their electoral choices.

7.4 Choice Making

To give choice making a more central role in our theory, we draw from the literature on persuasion. This literature is strongly rooted around the question of how voters make their choices and what are the elements that impact these decisions. Lasswell (1948, pg.216) argues that a useful way to frame communication and persuasion is to attempt to answer the following questions: *"who says what to whom with what effect? "*. In the case of the delivery of resources as a persuasion attempt, our *who* is a political party. In this manuscript, we have used PAD resources as our *what* and we'll continue to use PADs here in part III. A group of voters is our *whom.* The point we must focus on is *to what effect.*

It is worth noting that the *to what effect* aspect speaks directly to our previous assumption of constant returns in part II. Previously we assumed that resources delivered to a group would all be reciprocated with votes at a constant rate. In the context of Lasswell's framework, we would say that part II has focused on understanding who says what to whom, having left out the *with what effect* part. Here we focus on incorporating this final aspect.

Several researchers within the literature on individual choice making have geared their efforts towards understanding the effects of exchanges between persuader and persuaded during the decision making process. Exchanges need not be material and can be as simple as an information exchange during a conversation or even one sided exchanges that come through exposure to media. This literature is not without contending theories.

Several works argue that political choices are made based on how individuals access and process their memory banks. Some argue that voters make their choices based on information they can retrieve from memory, an approach known as the memory based (Zaller, 1992; Zaller and Feldman, 1992; Higgins and King, 1981). This approach presupposes that when a voter is exposed to information, she will store that information into a memory bank. When it comes time to make an electoral decision, this voter will draw all the information from this bank, assess it all and decide. This approach suggests that choices are made when choices are needed. In other words, it is only when confronted with the need to make a choice that a voter will draw its memory bank and decide.

Memory based models have been criticized due to the black box nature of the model. These models rely heavily on the creation and maintenance of memory banks that voters can turn to in decision making times, yet little is known about the biases that come associated with accessing and managing these banks (Lodge *et al*, 1990).

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Voters are constantly bombarded with electoral information, potentially to a level of overload. Which pieces of information make it to the memory bank and how it is assessed later presumably impact the final decision, yet we know little about them. Information is hardly ever impervious to interpretation and it is hard to argue that voters will store information as it is presented to them and without any distortion. The process of storing information can in itself be an interpretation process, which would imply that choices indeed begin to be shaped way before any decision is actually made. These models are also criticized for the underlining assumption that voters maintain memory banks, an assumption that requires a heavy investment in the part of the voter.

Other works that also rely on information processing have side stepped some of the memory storing and accessing challenges by substituting the memory based approach in favor of what is termed online processing (Hastie and Park, 1986; Bassili, 1989). Online processing rejects the memory based notion that choices are made when choices are needed and argues that voters are in fact making choices every time they receive information. Instead of storing information into a memory bank to be accessed when decisions are needed, online processing suggests that voters constantly juxtapose information against preference. The process consists of weighting the information at the time it is presented against a current preference, with the goal of updating the preference. The information is processed and its evaluation is tallied against a current preference. Once the information is processed and the new preference is produced (either enforcing or swaying a current preference), information is instantly discarded and the voter is simply left with the updated preference. The ability to discard information once preferences are updated allows these models to avoid the criticism that voters are heavily invested in the voting act. By being able to discard information, there is no need to incur the costs associated with maintaining

a memory bank. As to how evaluations are made during the preference updating process, these models are still susceptible to the same criticism that memory based models face.

In a different vein, other research that has gotten significant attention focuses on aversions to risk (Quattrone and Tversky, 1988) and framing effects (Druckman, 2000; Druckman, 2004; Tversky and Kahneman, 1981). This literature argues that choice making is strongly impacted by how information is framed when presented to voters. Cobb and Kuklinski (1997) argue that choice making is impacted by two main dimensions. The first is the for or against dimension, which speak to whether arguments presented are meant to impact preference in favor or against a particular choice. The second dimension is the level of difficulty of the argument presented. Their evidence suggests that arguments attempting to persuade against a choice are more effective than arguments for it, sometimes overriding traditionally strong predictors of choice such as partisanship. It is not only the content of message that can impact choice, but also the qualities associated with its source. Researchers have found that the credibility of those delivering the message impact the message's overall ability to persuade. Enhanced credibility comes from being a recognized expert in the field, an incumbent or a popular official (Page *et al*, 1987. Kuklinski and Hurley, 1994) . These positions reflect concerns for expertise, membership (insider status) and likability. Expertise and inside information status can be interpreted as ways for voters to minimize the risk of making erroneous decisions. In this manuscript, we shy away from risk related theories due to a concern that incorporating these elements into decision making would inevitably lead us to simply replicate risk based typologies we are attempting to build on in the first place.

7.4.1 Defining Voter Profiles

Regardless of the approach, these literatures share a consensus that choices are fluid and that they change depending on conditions related to voters' beliefs and capacities, which interact in a political environment. Here we take this consensus, chiefly the notions of belief and capacity, as a starting point to build our contribution to the current resource allocation models. We do so by analyzing the combinations of capacity and belief with an eye on how they impact changes in choice.

From the literature on individual choice making, we learn that returns can be perceived as a function of belief and capacity. Certain combinations of these two dimensions will successfully impact choice making and push voters to change their minds, while other combinations will not do so. In part II, we argue that political parties distribute resources with an eye on the returns of the votes they collect. Here, we frame the discussion of returns with a focus on their persuasiveness. Belief-Capacity combinations that lead to stronger chances of persuasion have higher returns than combinations that lead to weak changes of persuasion. Consequently, we argue that political agents will favor the voters whose combination of the dimensions of interest yield high returns to their resources, ignoring those whose combinations yield low returns.

These dimension combinations are explored in Basinger and Lavine (2005). The authors interpret the concepts of belief and capacity as ambivalence and awareness, respectively; defining them as the two main axes behind electoral choices. Ambivalence is the degree to which one feels attached to a single interpretation of an issue space. Ambivalent individuals are likely to see an issue from multiple angles, often validating multiple sides of an argument. Non-ambivalent individuals, on the other hand, do not seek multiple perspectives and either validate or reject an argument

from a single, constant point of view. Awareness speaks to an individual's ability to process information. An aware voter is one who is able to process the information it is faced, while an unaware one is unable to do so. This could be the due to intellectual level or simply due to the high complexity of the information itself.

It is important not perceive of ambivalence as a type of indifference. Indifference is actually rather contrary to the concept of ambivalence in that an indifferent individual cannot be bothered to distinguish between choices. Ambivalence on the other hand suggests that an individual welcomes differences between choices, analyzing them carefully and accounting for them from multiple angles. It is also important not to confuse ambivalence with the notion of sophisticated voting. Sophisticated voting has been interpreted as the result of a thoughtful use of policy to guide electoral decisions (Carmines and Stimson, 1980), an ability to attribute causal responsibility to the correct agents (Gomez and Wilson, 2001) or just simply the ability to sift relevant from irrelevant information (Mackuen *et al*, 1992). While all of these interpretations require a careful interpretation, they say little about how decisions account for multiple angles of the same issue. Sophisticated voters may make decisions after giving a single issue thorough attention, without necessarily having contemplated the same issue from multiple angles.

Different combinations of awareness and ambivalence create different profiles and researchers have examined how these profiles behave. Basinger and Lavine (2005) argue that when a voter of low ambivalence levels makes an electoral choice, she refrains from contemplating the choice from multiple angles. This voter simply turns to her partisanship ties and decides based on that alone, irrespective of awareness levels. Here we see a similarity with Cox and McCubbins's aforementioned core voter. Much like a core supporter or a core opposer, this non-ambivalent voter does not make use of the information presented to her (regardless of the complexity level of the infor-

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mation) and simply decides based on partisanship. This becomes our first profile of interest, which we call partisan voter.

When a voter of high level awareness and high level ambivalence makes a choice, Basinger and Lavine (2005) argue that this combination leads her to shun partisanship and use the information to vote based on issue positioning. Here we see some similarities with the swing voter as characterized in traditional redistribution models; neither type relies on partisanship to make electoral choices. This profile becomes our second profile of interest and we call it the issue voter.

When a voter of low levels awareness and high level ambivalence makes a choice, Basinger and Lavine argue that she still attempts to contemplate multiple angles surrounding her decision, but is frustrated by the complexity of the information at hand and ultimately is forced to make her decisions based on personal gains. In other words, this voter makes its decision based on how each option best improves her own well-being. Here we also see similarities with the traditional swing voter, as partisanship also does not play an important role in the decision making. This profile is our final profile of interest, which we name consumer voter.

7.4.2 Profile Returns and General Expectations

These three different profiles use different cues when it comes to making their electoral decisions. Based on our marginal return theory of politics, we expect that resources will be focused on the profiles that offer the greatest returns to resources delivered. To draw expectations from these profiles, we need to examine each one of them with an eye on their returns. Here, as in part II, we continue to think of resources as PADs in hopes that findings from part II can inform our findings here and vice versa.

We start by analyzing returns to investment from partisan voters. This profile makes electoral decisions based on partisanship. We argue that PAD resources are wasted in these groups, as they will be consumed by voters while having no consequences on their electoral choices. Because PAD resources are not an input in a partisan voter's decision process, we argue that partisan voters have the worst returns to resources. Considering their returns, this is our first our general expectation:

All else equal, partisan voters should receive the least amount of resources.

Our second profile of interest are issue voters. Not unlike partisan voters, issue voters also do not account for resources delivered as an input in their decision making process. As such, our initial expectation is that their returns would not differ from those of partisan voters. However, we recognize that PAD programs are a consequence of developmental policies and therefore carry some element of issue positioning in them, even if it is only a second order type of cue. PAD resources delivered to issue voters may be interpreted as a sign of issue positioning in the sense that they show a party's commitment to poverty alleviation and therefore impact voters favorably towards the party delivering them. Based on this possibility, we argue that issue voters have higher returns to (PAD) resources than those of partisan voters. Our second general expectation follows:

All else equal, issue voters should receive more resources than partisan voters.

Our final profile, consumer voters, emerges as the group with the highest returns to PAD resources. For these voters, resources that can be consumed and directly impact their personal gains are the chief input in their decision making process. For a party with fungible resources to dole out, these voters become the most

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attractive because the resources will directly impact these voters towards supporting the party. Based on the main role that these resources will play, we rank the returns of consumer voters as the highest returns of all profiles and therefore should become the main target of parties with fungible resources to distribute. Our third and final general expectation is the following:

All else equal, consumer voters should receive more resources than either partisan or issue voters.

Chapter 8

The FONCODES program

8.1 Introduction

In this chapter we introduce another PAD; Peru's Fondo de Cooperacion para el Desarrollo Social (Cooperation Fund for Social Development, henceforth FONCODES). We decided to continue to focus on PADs for the empirical test of part III in hopes that findings that come out from this test can inform findings from part II and vice versa. By continuing to utilize a poverty and development program, the nature of the resources employed in the test remains constant throughout the entire manuscript and findings from parts II and III can better inform each other. This chapter has three main goals: to discuss Peru as an appropriate case for our empirical test, to introduce an overview of our program of choice, and to discuss the level of analysis (mayoral races) of the test. In the following section, we address the overall suitability of Peru as a case. Section 8.3 introduces FONCODES, discussing its history, types of projects, organizational structure and history of political manipulation. Section 8.4 discusses the levels of analysis of the empirical test. A brief conclusion summarizes the chapter.

8.2 Peru as an Appropriate Test

The first question that needs answering is a simple one: why is Peru an appropriate test to our theory. Peru's party system during the 1980s was relatively stable. Most of the votes were split between four main parties. These were the Alianza Popular Revolucionaria Americana (American Popular Revolutionary Alliance, henceforth APRA), the Accion Popular (Popular Action, AP), the Izquierda Unida (United Left, IU) and the Partido Popular Cristiano (Popular Christian Party) (see Melendez 2007 for a historical overview of each of these parties). Researchers have argued that these parties enjoyed an overall strong presence in the Peruvian political arena during the 1980, even if there were differences in strength between the right and left wing parties (Tanaka, 1998, Cotler, 1994). Through most of the decade, independent candidates running without any party labels secured an average of no more than 9% of the total vote. The four parties mentioned above managed to secure around 91% of the valid votes[1], which serves as evidence of their established presence in Peruvian elections of all levels, be them legislative, local or executive. Levitt (2000) recognizes the presence of parties throughout the decade, but highlights that despite their electoral performances, they are marked by a personalistic traits that are more common in weak party systems.

Despite disagreements over party strength during the 1980's, there is a large body of research that argues that a decade of Fujimori rule wreaked havoc to the party system (Levitsky and Cameron, 2003; Tanaka, 1998; Cameron, 1994; Graham, 1994), bringing the four main established political parties to their knees. With the end of the Fujimori era, traditional parties such as the APRA and the AP have be-

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[1]These figures were calculated by the author, based on data found on Tanaka (1998, see table 1.5, pg.55)

gun to take steps towards rebuilding their support base (Kenney, 2003; Levitsky and Cameron, 2003).

The post Fujimori political environment gives Peruvian parties such as the APRA an opportunity to reconnect with old supporters and find new ones. Rebuilding party support is crucial, as old allegiances are likely to have eroded during Fujimori's decade long attack on traditional parties. On one hand, the erosion of old allegiances hurts a party. On the other hand, if all parties have suffered from this erosion, then that means there are pools of voters with weak links to any parties. These voters can be courted and hopefully annexed to a given party support base. Given this ripe environment for party support building, it makes sense for a party with resources to strategize well over them. With the party system still fluid, voter allegiance is not set in stone and, as a consequence, returns to resources are particularly heightened. In light of the status of party politics in this period, we believe that Peru is an appropriate case for our theory.

Not as crucial to our choice but still worth noting, with a decade long disconnect between party and support base, much of the knowledge of one's support base is lost. Traditional models of resource allocation rely on the knowledge of one's base as a parameter that allows for the differentiation between the returns of core and swing voters. Simply put, knowledge of ones support base allows a party to minimize allocation errors, boosting the returns of those groups. Without this knowledge, traditional models lose some of their explanatory power. On that account, Peru emerges as an appropriate test because the Fujimori decade of party disconnect is likely to have wiped away much of this knowledge. If our proposed explanation performs well despite the use of this parameter, we can feel even more confident about its overall applicability.

8.3 Foncodes as an Appropriate PAD Program

8.3.1 History

Like its PAD counterparts throughout Latin America, the FONCODES is a program that attempts to promote local development. Its main goal is to reduce poverty by ways of facilitating access to basic social services, improving infra-structure and fomenting productive capacities.

The program was first introduced by Fujimori in mid-1990 as a palliative to the severe economic crisis that impacted an overwhelming fraction of the population. Since the mid-1980s, Peru's economy had been under constant degradation and large fractions of the population were under a strong poverty undertow that kept pulling them further into poverty. According to Glewwe and Hall (1992), Garcia's unorthodox attempts to control hyperinflation were unsuccessful and for every attempt that failed, hyperinflation kept on corroding at the purchase power of the Peruvian population. By late 1990s, Glewwe and Hall estimate that as much as 54% of Peruvians living in Lima were under the poverty line, up from 12% since the first half of that decade. According to World Bank figures, Peruvian GDP per capita in 1981 was US$1846 (In 1988 US dollars). In 1990 that figure was US$1312, which was combined with an average yearly growth in consumer prices of 7500%, resulting in devastating instability and uncertainty (Graham, 1994).

To effectively take charge of this downward trend, Fujimori was forced to adopt severe austerity measures, which were expected to cause even more social unrest.[2] Initially Fujimori opted to adopt orthodox austerity measures without the aid

[2]Graham (1994) argues that this very awareness of the consequences of austerity programs is what made Garcia so reluctant to adopt them in the first. According to the author, Garcia was aware that adopting austerity measures could give him the handle on the economy that was needed,

of any social safety net, despite having campaigned on an anti-austerity platform. Graham (1994) argues that social upheavals such as strikes and street protests had been strongly associated with anti Sendero Luminiso movements and the population feared that taking the streets could lead to reprisals from the Sendero itself, which mitigated incentives to take the streets. Without observing social unrest, Fujimori deployed austerity measures without showing concern for how the public would react to them.

Not surprisingly, it was not long until the already overstretched population began to feel the stresses of the austerity measures. Fujimori did not take notice of the discontent until mid-1990, at which point he deployed the program under an *"emergency fund"* banner. At its initial stage, the FONCODES was named Programa Social de Emergencia (*Emergency Social Program*). Its effectiveness was questionable, mainly because the program's control was given to Percy Vargas, who was close with Hurtado Miller. Fujimori feared Miller was beginning to mount a campaign against him and could ultimately claim the credit for the program. This fear prompted Fujimori to give the program only minimal resources, essentially dooming it from the start. As the austerity measures continued to hurt the population, the Inter-American Development Bank pushed Fujimori to fund the program by facilitating a US$425 million loan.

With IDB money, Fujimori warmed up to the program. In mid-1991, the program is renamed FONCODES, the name it continues to hold as of today. Fujimori was quick to replace Vargas for Luz Salgado, not only Fujimori's copartisan but also a key player in the orchestration of Fujimori's presidential bid. Her appointment is taken as evidence of Fujimori unwillingness to let go of the opportunity to capitalize

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but the political consequences of these plans was far too great and risky for Garcia to adopt them. Instead, Garcia attempted *creative* and *unorthodox* solutions that eventually proved fruitless.

on the electoral benefits that can be reaped from the disbursement of resources to voters. While Salgado was replaced one year after her initial appointment as program director, Schady (2000) argues that Fujimori continued to leverage the FONCODES as an electoral tool throughout the entire decade.

A decade after Fujimori's departure from Peruvian politics, the FONCODES remains an important social development program.

8.3.2   Lines of Action

The FONCODES operates through three main lines of action: development of production, development of population capacities and development of social infrastructure.

Development of production entails investments towards the strengthening of the means of production through the deployment of infra-structure initiatives that boost agriculture and facilitate the transformation and commercialization of agriculture yields. Development of population capacities aims at the development of social capital. Its main directive is to improve the execution of social programs by incentivizing what the program calls protagonism *(protagonismo)*. Protagonismo is the notion that the population that is going to benefit the most from resources delivered by the FONCODES should be educated in ways that empower them to become the protagonists of those programs, actively shaping program outcomes and outreach in local communities.

The development of social infrastructure entails financing small projects that aim at satisfying the basic needs of the population. With an average cost of around US$35 thousand, social infrastructure projects mainly attempt to build local educa-

tion centers, overpasses that can sustain the weight of cars or horse carriages, health clinics, water filtration or sewage systems.

8.3.3   FONCODES: History and Structure of Manipulation

FONCODES was not the first safety net like program in Peru. All through the 1980s, programs were set up to attend to the poor. From roughly 1985 to 1989, the APRA government invested resources on two main programs, the PAD (Programa de Assistencia, not to be confused with Poverty Alleviation and Development) and the PAIT (Programa de Apoyo de Ingreso Temporal: Program of Temporary Income Support). Graham (1991, pg. 98) argues that the PAIT was a highly centralized, semi-autonomous institution that was capable of bypassing opposition and the lethargy of the political process, often circumventing local institutions that were not politically aligned with APRA. President Alan Garcia showed a strong concern with populating the PAD and PAIT bureaucracies with APRISTAs (APRA members or at least sympathizers), showing blatant efforts to leverage the program as an electoral tool. Ultimately, argues Graham, the fate of these programs were largely undermined by the critical role that political criteria played in the allocation of resources (Graham, 1991, pg. 129).

When it came time for Fujimori to set up FONCODES, it is not surprising that the program was designed with an eye on political manipulation. As mentioned, one of Fujimori's more blatant attempts to establish a direct link between himself and FONCODES was to name Luz Salgado as program director. Kay (1996) argues that after working out the initial kinks of the program's first and second years, Fujimori drastically targeted program resources towards districts that had shown most resistance to his constitutional amendments (particularly the one that legalized his

reelection), in what Kay illustrates as a blatant use of public resources to build electoral support. "By mid-1994, the Presidential Ministry, through FONCODES, was responsible for the management of 4,760 support projects, most of which (54%) were public works that kept an estimated 23,000 employed in new jobs (on a monthly basis) throughout the year" (Kay, 1996, pg.80). Schady (2000) analyzes departmental level, monthly FONCODES data from 1991 to 1995. His findings, which are robust to several statistical specifications and controls, suggest that Fujimori was keenly aware of the timing of electoral business cycles.

Schady (2000) argues that beyond the appointment of Luz Salgado, Fujimori also engineered the FONCODES to be largely responsive to him. The program was set up as an autonomous body that operated parallel to traditional ministries. The justification for this isolation from traditional means of politics was to give the program the agility and flexibility necessary to respond to the needs of a population with fast eroding quality of life. Linking FONCODES to traditional ministries would mean that the program would be susceptible to the lethargy of the bureaucracies that come attached to these ministries. On paper, this flexibility makes sense. However, when you couple this flexibility with a governing body that is tethered to the executive, the program's flexibility and agility are used to the benefit of the executive, not the people. This tethering was accomplished by making the FONCODES director report directly to a board of directors. This board, which consists of four members, was directly appointed by the executive (Fujimori himself).

It is import to highlight that in our empirical test, we use FONCODES data under APRA's 2006 government. It is therefore crucial that we examine the administrative organization of the FONCODES in that period, roughly 15 years after the program's debut.

Since the original decree that first instituted the FONCODES in 1991[3], the program's administrative organization has gone through roughly three restructuring rounds. All the way through 2002, the program had maintained its autonomous body status, along with the president appointed board of directors. Our analysis of the subtle changes in the organization of the program suggests that the executive's hold over the program remain strong. In 2002, decree 017-2002-MLMDES brings about the first organizational changes that can actually impact the president's control. While there are significant changes made to the program, it is not clear how these changes either hamper or facilitate political manipulation from the executive.

There is evidence to argue that the program becomes less susceptible to political manipulation by the executive, which is based on the program's loss of its "autonomous status". The decree effectively subordinates the FONCODES to the Ministry of Women and Social Development (MLMDES: Ministerio de la Mujer y Desarrollo Social). The autonomous status afforded the program with agility to operate without the constraints of a typical government agency and its subordination to the MLMDES effectively reduces that agility. However, the decree clearly specifies that the FONCODES is to remain a decentralized public body within the MLMDES[4]. Ministerial Resolution 455 [RM-455.2005] does away with the four member board of directors, all of which were appointed directly by the executive. The dissolution of the board, however, is not clear cut when it comes to strengthening or weakening the executive's control over the program. In its original version, the four member board answered to the program's director. After RM-455.2005, the executive can no longer rely on the board to control the program director. However, the program director

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[3]Decreto Legislativo 657, August 18th, 1991

[4]We were unable to find a satisfactory explanation of what that status actually entails.

position is also eliminated in favor of a single position, the executive director. According to the program's current rules, the FONCODES is controlled by the executive director, who is appointed by the minister of the MLMDES, who is in turn appointed by the executive. Initially, the executive exercised political pressure on the program by appointing the four board members, who in turn oversaw the program director. Currently, the program director is free from board member pressure, but answers directly to the minister. In either case, the executive is separated from the program by a single degree of separation. Given equal proximity to the program's director, we believe that the FONCODES has remained susceptible to political manipulation since its inception, under Fujimori, all the way through Garcia's second term, two decades later.

8.3.4 FONCODES as an Appropriate Empirical Test

In part III, our goal is to show that parties distribute resources with an eye on the returns of each group. We decided to use focus on the FONCODES under APRA for two main reasons; the FONCODES brand and APRA's post Fujimori situation. As for the FONCODES brand, we speak of the program's size and exposure. If resources delivered are too few, it is unlikely that any party will put the effort towards manipulating them. The FONCODES, with its established history, is a known brand in Peru. It contains enough resources to cause the type of impact that would prompt a party to rally around its resources. Graham and Kane (1998) produce evidence that higher levels of FONCODES expenditures are associated with significant increases in support for the executive, which we take to be evidence of the program's ability to sway voters.

As to focusing on APRA, while we do not disagree with prevailing understanding that Fujimori manipulated the FONCODES for his gain, we believe that the Fujimori has shown characteristics that are highly undemocratic and personalistic. Here, we are concerned with the application of our theory beyond Peru. The overall goal of the manuscript has been to introduce the marginal return theory of politics, which argues that political agents put their resources with an eye on the greatest possible returns to them. We have focused on political parties as political agents because we believe them to be staple elements of healthy democracies. Focusing on Fujimori might bring us a much better understanding of how governments with an authoritarian vein utilize their resources, but would produce findings that do not speak directly to how political parties utilize their resources. In part III, we decided to continue to use PADs as our resources of interest and it makes sense to continue to focus on political parties as our agents of interest. That way, we continue to ensure that our findings from either part can inform one another in the most direct way possible while still addressing different dimensions of the topic.

8.4   Mayoral Races

The final point addressed in this chapter is the level of analysis. In part II, we focus on the district level for one simple reason: votes are aggregated at the district level and that is the level that will ultimately impact the returns of votes. Here in part III, we are focusing on the returns of resources delivered conditional on the makeup of the voter group. Not unlike in part II, parties are still concerned with securing votes. We believe, however, that given the history of Peruvian party politics in Fujimori and post-Fujimori politics, Peruvian parties are going to invest their

resources towards rebuilding and reestablishing their party labels. While the goal of political parties is often to write and execute policy at the national level, much of party building is done at the local levels. Based on post Fujimori party goals and considering that much of party building is done at the local level, we decided to focus on mayoral races.

By electing mayor, a party is able to establish a formal relationship with a small and more identifiable group of voters. This link is of particular importance to parties that elect national level legislators through systems of proportional representation, an importance that is often overlooked. When national congressmen are elected from single member districts, they often become the district's go to politician, as they are the most identifiable link between the voter and the national government. Researchers have argued that proportional representation formulas naturally lead to large size, multi member districts that jeopardize identifiability in two fronts. First, voters belong to a district that is represented by multiple legislators, none of which is particularly responsible for any subsection of the district. Identifiability is therefore hurt because while voters are represented by all legislators, they cannot identify a single representative to whom they can turn to. In addition, the large size districts make it difficult for representatives to cover the entire territory they are supposed to represent. This difficulty translates into less face time with voters throughout the district, ultimately hurting identifiability (see Blais and Massicotte, 1997 for further discussion).

In systems that suffer from this identifiability deficit, such as Peru, mayors are one of the most readily identifiable representatives of a small and tractable area and can command a great deal of visibility. Given this heightened role that mayors enjoy, they can become potent forces in the party rebuilding and grassroots efforts. It should not go unmentioned that mayors are also executive positions, which come with

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budgets. Identifiability and budget combine themselves into an attractive political position for a party to hold.

Methodologically, the focus on mayoral races allows us to take full advantage of information made available by the data. The FONCODES operates through small projects that aim to improve the local infra-structure. Focusing on provincial or regional levels would require aggregation of data that would result in losses in precision.

Overall, when we account for the fact that the FONCODES is designed to target small districts and that mayors of these districts enjoy a heightened degree of visibility that political parties are unlikely to disregard, we expect that the party holding the presidency will take advantage of this design to favor district according to our theoretical expectations. As such, mayoral races become our level of analysis for our final empirical test.

8.5 Summary

In this chapter, we discussed why Peru constitutes an appropriate case to our empirical test. We argued that given the status in which parties emerged from the Fujimori era, we should expect the delivery of resources to be highly sensitive to strategic maneuvering. The chapter also introduced our program of choice, the FONCODES. We argued that the FONCODES is an appropriate program because of its reach and organization, which lend themselves to be manipulated by parties with strategic concerns. We concluded the chapter with a discussion of the level of analysis of the test, mayoral races. Our choice to focus on this level of analysis is grounded on the identifiability of these offices, a trait that is particularly attractive to parties looking to solidify their support base.

The following chapter introduces the data and statistical estimator. It introduces formal hypotheses between variables and discusses the results.

Chapter 9

Data and Results

9.1   Introduction

This chapter concludes part III of this manuscript. It does so by going over our variables of interest and formalizing their relationships into hypotheses. A significant part of our efforts is devoted to translating our general expectations, introduced in chapter 7, into tests that are free from aggregation fallacies.

The following section begins to sort out our hypothesis by reintroducing our general expectations.

9.2   Resource Allocation on the Ground: Challenges of an Empirical Test

In chapter 7, we narrowed our proposed marginal return theory of politics into three general expectations of resource allocation. Allocation is a function of returns from three different voter profiles:

All else equal, partisan voters should receive the least amount of resources.

All else equal, issue voters should receive more resources than partisan voters.

All else equal, consumer voters should receive more resources than either partisan or

issue voters.

The first challenge we face is that we do not know what the proportions of these voters in each district are. To estimating these proportions, we leverage the two key elements that combine to shape up these voter profiles: ambivalence and awareness. In doing so, we must be careful not to commit a fallacy of aggregation. Ultimately, the three profiles identified in chapter 7 relate to an individual voter. Unfortunately, we have not been able to collect individual level data to be used in the manuscript.

While the underpinnings of the theory presented in chapter 7 operate at the level of the individual, PAD programs usually do not allow parties to directly target individual voters. More commonly, the distribution of resources is usually aimed at groups within a district, or districts within the polity. Instead of targeting individual voters that are of certain sought-after profiles, parties identify and favor districts whose proportions of those types of voters is high, ignoring districts whose share of those types of voters is low. Given that the non-exclusivity of PAD resources precludes a party from proselytizing between consumer, partisan and issue voters, the optimal strategy is to deliver to districts composed entirely of consumer voters. Absent this choice, a party should favor districts with the highest proportions of these groups. To make this test possible, we focus our efforts towards creating proxies of the elements that combine into these profiles and operate under the assumption that where the proportion of these elements is highest, the chances that these profiles will appear

with greater frequency is maximized. [1]

As discussed in the previous chapter, we test our expectations by observing the delivery of FONCODES resources with an eye on mayoral races in Peru.

Data

Peru is divided into 25 regions, which are subdivided into provincias. Each provincia is itself subdivided into distritos. As of 2003, there are 195 provinces and 1833 distritos (Instituto Nacional de Estadistica y Informatica). Each distrito directly elects its own mayor for a four year term. Not every district holds elections during every election cycle, with between 40 and 70 out of the 1833 districts not holding mayoral elections. Our data only included districts holding elections in all of the 6 election years examined here. After subtracting districts that failed to hold elections every cycle, the data set contained 1430 districts.

We operationalized our dependent variable as delivery of FONCODES resources to the district, in ten thousands of Soles. This variable is labeled FONCODES. While we were able to collect district level data on FONCODES expenditures, there is still the challenge of timing. Considering we are interested in observing the delivery of pork that is going to influence the mayoral elections of late November, 2006, we should attempt to observe the delivery of resources during 2006. Accounting for FONCODES expenditures for the entire year of 2006 would introduce measurement error because the Peru Posible party was in charge of FONCODES until June of 2006, at which point the APRA took charge of the program. To avoid this error, we only

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[1]We recognize that this assumption is not without risk of measurement error, as there is no guarantee that resources delivered to a district with high concentration of consumer voters will not actually be consumed by a partisan opposer. While that might be the case, by choosing to target districts where the concentration of consumer voters is high, a party is actively minimizing the chance that this resource will be consumed by other profiles.

account for FONCODES expenditures from June of 2006 on. It is also possible that resources directed to a given district in late 2006 only make it to the district in early 2007. As projects start to take shape, benefits such as increased employment can already bring electoral benefits. If this delay is indeed true, we should also observe the delivery of resources in 2007. Therefore the FONCODES variable is operationalized as expenditures in the district from June of 2006 to August of 2007.

An important challenge of this study is the operationalization of our main independent variables of interest: proportions of consumer, partisan and issue voters. Identifying proportions of profiles requires that we collect individual level data. For this version of the manuscript, we were unable to collect individual level variables. While lack of data at the individual level precludes us from directly getting to some of the expectations of the theory with a high level of detail, we can test the implications of the theory that are observable at the district level. It is also important to note that parties themselves by and large do not have access to individual level data and make their decisions based on aggregate information. It is true that parties have grassroots operations that afford them more nuanced information about districts, but even these are not available at the individual level and certainly not for every single district.

Because we don't know what are the profile proportions of each of the 1833 Peruvian districts, we build our hypotheses by examining how changes in the dimensions that combine themselves into profiles impact the aggregate returns from each district. By aggregate returns, we speak of the average returns of all members of the district. If a district is composed of three voters (a partisan, a consumer and an issue voter), this district should have a smaller aggregate return than a district composed of three consumer voters. The two main dimensions that combine themselves into the three profiles are ambivalence and awareness. We know from the theory introduced

in chapter 7 that partisan voters show low levels of ambivalence.[2] Issue voters show high levels of ambivalence combined with high levels of awareness. Consumer voters show high levels of ambivalence that are combined with low levels of awareness.

To execute the test, we assume that if we have proxies for these two dimensions, then we can juxtapose FONCODES expenditures against these proxies. As the values of these dimensions fluctuate, we should expect shifts in the proportions of voter profiles. For example, as the ambivalence dimension lowers from its highest to lowest point, we should expect that proportions of partisan voters should increase. Considering we know that partisan voters have lower returns than the other two profiles, we should expect that drops in the levels of ambivalence should be accompanied with drops in investment. Alternatively, as awareness levels increase, proportions of consumer voter should decrease, resulting in falling levels of FONCODES expenditures.

These two relationships are anchored on the makeup and return of each of the three profiles. Consumer voters, whose profile is defined by high ambivalence low awareness, have the highest returns and therefore are expected to be the choice target of FONCODES resources.

Consider a district D with a certain proportion of all three profiles of voters. If information levels in this district rise to a point where all voters attain high awareness levels, then the proportion of partisan voters present in the district will remain constant, as the partisan profile is independent of awareness levels. The proportion of issue voters, however, will increase. Issue voters differ from consumer voters only in their awareness levels. While issue voters show high awareness, consumer voters show

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[2]Partisan voters do not take awareness into account when making their decisions, therefore a low ambivalence high aware partisan voter is not any different than a low ambivalence low awareness one

low awareness. As awareness levels increase, consumer voters turn into issue voters. The consequence of an increase in levels of awareness is that at best, the district's overall return remains constant[3]. Most likely, the overall returns of the district is likely to drop, as increases in awareness levels turn consumer voters into issue voters, whose returns are lower. Given that increases in district levels of awareness tend to lower a district's overall returns, we expect a negative relationship between the delivery of FONCODES resources and the levels of awareness. The following hypothesis formalizes this relationship.

Hyp[1]: As awareness levels increase, FONCODES expenditures should decrease.

Let us now reconsider the same district D, with the same proportion of all three profiles of voters. Instead of increasing the district's awareness levels, we examine increases in levels of ambivalence.[4] As levels of ambivalence increase, partisan voters will turn into either consumer voters or issue voters. If ambivalence increases and awareness levels are kept high, partisan voters will convert into issue voters. As a consequence of this conversion from partisan to issue voter, the proportion of voters with the lower returns (partisan voters) will decrease and consequently the district's aggregate returns will increase. In the case of increasing levels of ambivalence while awareness levels are kept low, partisan voters will convert into consumer voters. In

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[3]Constant returns in spite of increased awareness would require that a district would be entirely made up of partisan voters, who do not take awareness as an input in their decision making process

[4]An important assumption behind this shift in levels of ambivalence is that those are not fixed. The assumption of shifting levels is not at all controversial in the case of awareness, as this dimension pertains to the complexity and availability of information. Given that information related issues do not depend of the individual, we can easily conceive of scenarios where information characteristics vary and consequently, so do the levels of awareness. This shifting is not so straight forward in the case of ambivalence. As discussed in chapter 7, ambivalence speaks to an individual's ability to entertain arguments from multiple angles, which could be argued to be an individual trait that is constant throughout life. If so, variation in ambivalence levels could only be achieved through population immigration. Here, we simply assume that these levels are not fixed and voters are able to behave more or less ambivalently. We recognize that this assumption is not without challenges.

this case, the proportion of voters with the lowest returns is replaced with voter profiles with the highest returns and the increase in the district's aggregate returns is even more pronounced. In either case (high or low levels of awareness), increases in ambivalence will increase the aggregate returns of the district and therefore should be met with larger proportions of FONCODES resources. The following hypothesis formalizes this relationship.

> **Hyp$_2$**: As ambivalence levels increase, FONCODES expenditures should increase.

These are the two hypotheses that speak to FONCODES expenditures given our district level data. We recognize that resolution is lost when we translate the model's theoretical underpinnings to fit our district level data. While the loss is unfortunate, collection of individual level data that would allow us to leverage actual FONCODES expenditures is challenging for any research project, and nearly impossible for this manuscript. Peru contains 1833 mayoral districts and to collect individual level data on each one of them is a daunting task. Alternatively, we contemplated collection of individual level data on a sample of districts. This choice would help on the individual level front, but would also introduce challenges of its own, mainly that we would have to discard data on all other districts from where data was not collected. Ultimately, no clear cut compromise free solution to the problem exists and we opted to carry the test by leveraging the data we have at hand.

9.3   Variable Operationalization

We have already defined our dependent variable, FONCODES expenditures. In this section we discuss the operationalization of our two independent variables of

interest, ambivalence and awareness, as well as other controls that are included in the model.

To produce a proxy for ambivalence, we start with the belief that ambivalent voters, who are eager to digest issues from multiple angles are also more likely to be open to new ideas. This belief is couched on the idea that openness to multiple angles exposes them to new perspectives and the values that might come with them. We then assume that a district is made up entirely of ambivalent voters. If such an assumption were to hold, the entire voter pool would be open to new ideas, making it a fertile ground for new parties to attempt entry into the political arena. The other side of this overly receptive district is that because voters would be so receptive to new ideas, older ideas might be disposed with high frequency. This would mean that parties currently in contention might be ignored in favor of new parties. As the assumption fails and ambivalent voters are replaced with non-ambivalent ones, the fertile ground for new parties that was a product of mostly ambivalent voters loses more and more of its strength in a rate that is proportional to the level of substitution[5]. As a consequence of this substitution, we should see fewer new parties contesting elections and more parties remaining active within the district. Presumably, as all ambivalent voters are replaced by non-ambivalent ones, we should expect the district to be entirely made up of partisan supporters. With a 100% partisan voter pool, no new parties would show up and all current parties would remain with their vote shares showing little fluctuation.

A consequence of this assumption, and its relaxation, is that the electoral volatility of the district is directly correlated to the proportion of ambivalent voters in the district. Based on this correlation, we use the district's volatility as a proxy

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[5]Or, alternatively, the degree to which the assumption holds.

for the proportion of ambivalent voters in the district. Larger volatility is associated with larger proportions of ambivalent voters. To operationalize volatility, we use Pedersen's measure of electoral volatility (Pedersen, 1979). To build our volatility measure, we examine the electoral results from the 1998 and 2002 mayoral elections.

To produce a proxy for awareness, we turn to the meaning of the concept itself. Awareness speaks to an individual's ability to process information. We interpret that ability to be a function of two elements; the complexity and the availability of the information to be analyzed.[6] As for the complexity of the information, for the purposes of our test we are concerned with a voters' ability to make ideological distinctions between contending parties. We focus on making ideological distinctions because we are interested in how consumer voters convert into issue voters. This transformation is based on the voter's capacity to process party issues and issue positioning, thus directing us towards a focus on ideological distinction. As to the availability of information, we are concerned with voter's access to political information, which she will use to make electoral choices.

To produce a proxy of awareness that captures the availability dimension, we calculate the percentage of district households that are wired to the electricity grid. A considerable amount of a voter's exposure to electoral information comes from watching television, listening to the radio or surfing the internet. Populations that are not wired to the grid have this venue of access to information significantly, if not entirely cut off from them. We interpret larger proportions of the population with no access to the electricity grid to mean more restricted access to information, which in turn means lower awareness levels.

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[6]It is undeniable that an individual's ability to process information is inherently impacted by each individual's intellectual capacity to process that information. However, as per our previous discussion on the availability of individual level data, we shy away from attempting to produce any proxies for individual intellectual capacities.

To produce a proxy that captures the complexity aspect of awareness at the district level, we conjecture that two parties that are ideologically identical are incredibly complex to distinguish, given their similarities. From that, we believe that a highly complex race (i.e. a race between virtually indistinguishable parties) would lower voters' awareness. We collected party manifestos for 99 of the 213 contending parties in the 2006 mayoral elections. Each manifesto was individually read and exerts that captured the party's overall vision for the future and party values were pasted into a document. These documents, each averaging around 500 words, were then scored using the WORDFISH automated text analysis technique (Proksch and Slapin, 2009; Slapin and Proksch, 2008). The technique places documents in a unidimensional scale by using word counts as data. It assumes that word frequencies are distributed *Poisson* and utilizes an estimate maximization algorithm to estimate the positions of each document given two anchor documents.[7] The remainder 114 parties whose manifestos we were unable to find are assumed to be ideologically indistinguishable from its competitors.[8]

With the estimates of party positions at hand, we can build a proxy for the complexity of the electoral information that districts were faced with. The measure consists of dividing the ideological range of the district by the number of competing parties. We get the ideological range by calculating the distance between the two most extreme parties in the race. What we end up with is the average ideological distance between parties. Shorter distances means that all contending parties are ideologically

[7]The model is identified by taking two documents that are designated as position anchors. One document is identified as being to the left of the other document. In our case, we introduced the APRA (historically a leftist party) as the party to the left of Si Cumple (remnant of Fujimori's right wing supporters)

[8]This assumption is based on the fact that if a party does not file at least the mandatory party guidelines (ley 26864, article 10 paragraph 11), it is in fact void of any ideological underpinnings

close together, consequently making it difficult for voters to discern between them. Conceptually, we are interested in observing the difficulties in making ideological distinctions between parties. This measure tells us how close together parties are in any given district. The closer they are, the more difficult it is to tell them apart. Figure 9.1 is a plot of the party positions of all parties that filed a manifesto.

Figure 9.1: Party Ideological Placement
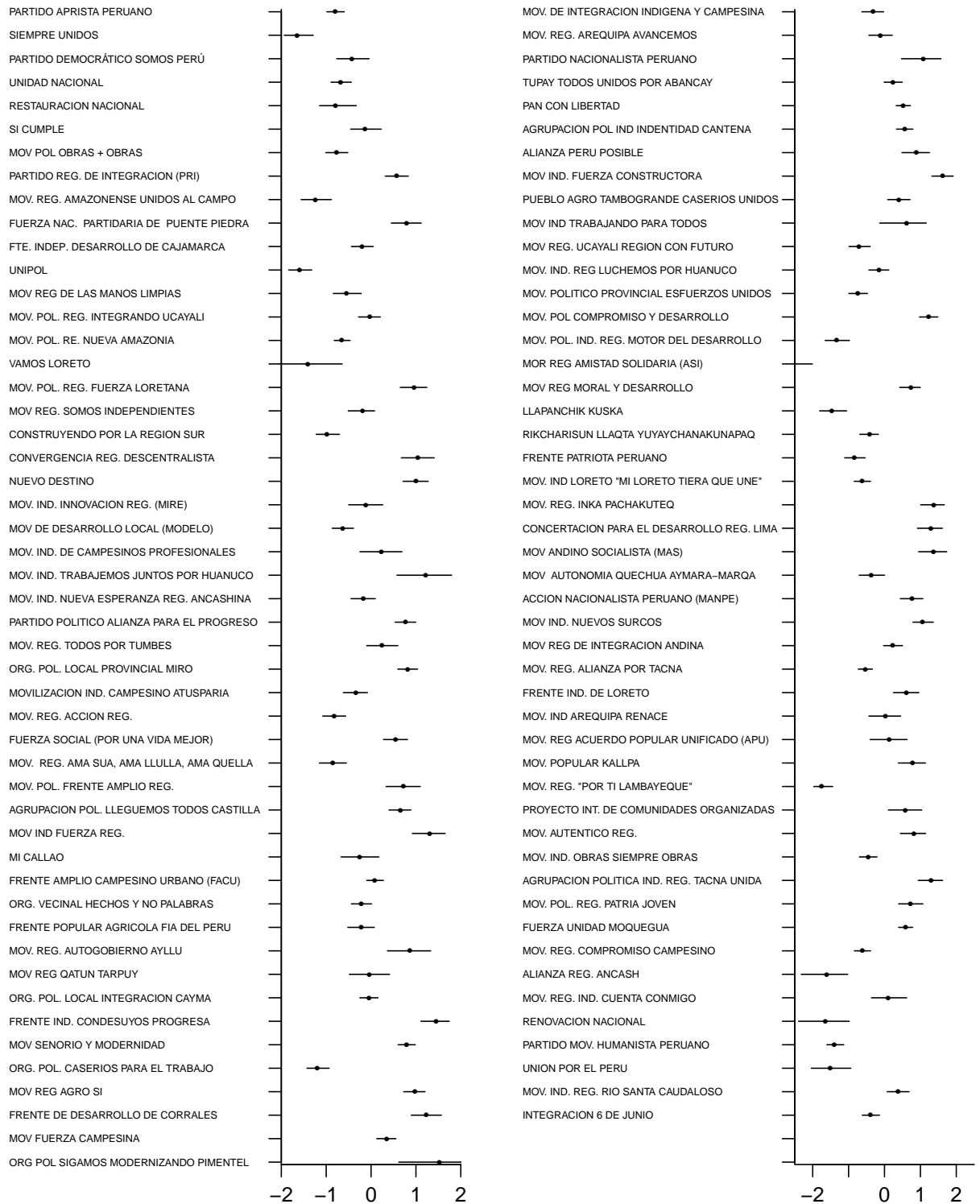
Along with our two dependent variables of interest, we introduce a series of controls that are meant to account for possible alternative explanations as to what drives the delivery of FONCODES to the districts. We control for population size and poverty. As to the poverty measure, we operationalize the variable by measuring literacy levels in the district.[9] We also ran alternative models using the FONCODES supplied measure of poverty. We were unsuccessful in our search to understand what the program's *official* measure actually captured. It consists of 2 factors that would have to be included as dummies. Because this is the official measure used by the program, we fear the measure can overpower the estimation and suggest that poverty is the absolute driver of the program. Such results would lend undue credibility to the program and very likely subtract from the theory introduced here. Given the obscurity around the measure, we decided to adopt more traditional, less controversial measures of poverty, such as literacy rates.

Part of the argument being made here is that districts that exhibit certain patterns will be favored over districts that don't. The maintenance of these patterns across elections presupposes that populations remain the same across time, an assumption seldom met. To account for shifts in population, we introduce a variable labeled migration, which accounts for changes in population due to migration within Peru. The variable measures the percentage of the district's population that has been a permanent resident of the district for a minimum of five years. An alternative operationalization of this variable measures the percentage of the population whose mother was a permanent resident at the district at the time of the respondent's birth. To account for the employment levels, we introduce a variable labeled Unemploy-

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[9]Alternative measures attempted were the percentage of the households whose water service is not continuous and the percentage of the households without sewage. While these measures correlate, they don't perform as well and were discarded based on overall model fit.

ment, which measures the percentage of the economically active population that is unemployed.

We control for APRA's incentive to target districts that historically were loyal supporters of the party. We introduce a dummy, named HistSupp that is scored one if the district was a loyal APRA supporter in the pre Fujimori decade (1980s). These are the Northern districts in the departments of Piura, La Libertad and Tumbes (Graham and Kane, 1998). We control for an incentive to target Lima, a district whose weight draws resources from any party. For the sake of completeness, we also introduce a dummy for the Southern department of Arequipa, which historically has shown disproportionate support to candidates running independently (Graham and Kane, 1998).

We also introduce a series of electoral controls in order to account for other incentives that might impact a party's allocation patterns. We control for the party's concern with prioritizing districts where races are competitive by calculating margin of victory between the winner and the runner up.[10] Finally, a party might alter its allocation patterns given how many parties are competing for seats. To account for this concern we introduce a measure (ENPP:Laakso), operationalized as Laakso and Taagepera's 1979 measure for effective number of parties running for a seat in the previous election. For the sake of completeness, we use a corrected version of the

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[10]It is important to highlight that the competitiveness measure is operationalized as the margin of victory, meaning this measure is observed after the delivery of resources. While we recognize the timing issue, we take the margin as a proxy for the level of competitiveness, which we assume parties in the race have a good grasp on. In other words, parties do not need to wait for election results to know which races will be competitive and we take the margin of victory as a proxy of that. While the observed measure is after the delivery of resources, it is a proxy for a concept that materializes before the delivery.

Laakso and Taagepera's measure (ENPP:Golosov), as suggested by Gosolov (2010)[11].
See table 9.3 for results of alternative models. See table 9.1 for a summary of the
operationalization of the variables and some alternative operationalizations.

To test the hypotheses, we adopt an OLS. Due to the two ways in which the
awareness variable is operationalized, we run two separate models. Model one uses the
awareness operationalization that is meant to capture the availability of information
dimension. Model two uses the operationalization meant to capture the information
complexity dimension. Table 9.4 includes some descriptive statistics of the variables
used in the model. Table 9.2 contains results for the main models used to test hy-
potheses one and two.

Table 9.1: Variable Operationalization

Variable	Operationalization	Source
FONCODES (dept var)	Amount spent in the dis-trito, in 10,000 Soles	Ministerio de la Mujer y Desarrollo Social (MLMDS) `http://www.foncodes.gob.pe`

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[11]We do not report results for the alternative models using Golosov's correction because the variable does not outperform the original measure. This operationalization corrects for Laakso and Taagepera's unrealistically high scores for certain skewed party share distributions.

Table 9.1 – Continued

Variable	Operationalization	Source
Ambivalence	Pedersen's Volatility scores for the 1998 and 2002 mayoral elections	Pedersen, 1979
Awareness		
Availability	Proportion of the district's households that are wired to the grid.	Instituto Nacional de Estadistica e Informatica (INEI). `http://iinei.inei.gob.pe`
Availability	Proportion of the district's household that list a radio as their only electricity powered appliance.	INEI
Complexity	Average ideological distance between competing parties	Slapin and Proksch, 2008
Population	Population in the district.	INEI
Poverty		
Poverty	percent of the district's population that is illiterate.	INEI

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Table 9.1 – Continued

Variable	Operationalization	Source
MLMDS	FONCODES supplied measure of poverty, three dummies labeled Q3, Q4 and Qmp.	MLMDS
Water	percent of the district's households with access to treated water.	INEI
Migration		
Migration	percentage of the population that has been a district's resident for at least five years	INEI
alternative	percentage of the population whose mother lived in the district when respondent was born	INEI
HistSupport	Dummy scored 1 if district is in the departments of Piura, La Libertad or Tumbes.	Graham and Kane, 1998

Table 9.1 – Continued

Variable	Operationalization	Source
Lima	Dummy scored 1 if district is in the department of Lima	coded by author
Arequipa	Dummy scored 1 if district is in the department of Arequipa	Graham and Kane, 1998
Margin of Victory	Difference in votes (percent) between election winner and first runner up	Oficina Nacional de Procesos Electorales. `http://www.onpe.gob.pe`
Rural Pop	percentage of district's population living in rural areas	INEI
Employment	percentage of economically active population that has been unemployed for the past six weeks	INEI

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Table 9.1 – Continued

Variable	Operationalization	Source
Number of Comp Parties		
Laakso	Inverse of Hirsch Herfingh-dal score for the competing parties in the previous election	Laakso and Taagepera, 1979
Golosov	Corrected ENPP:Laakso	Golosov, 2010

Variables with alternative operationalizations are introduced in bold, with alternative versions indented

9.3.1 Results

Table 9.2: Table of Results

	Model 1	Model 2
Ambivalence	11.05^+	8.57
	(6.70)	(6.80)
Awareness		
Complexity		6.39^*
		(2.67)
Availability	-9.09^*	
	(2.97)	
Population	1.38^*	1.33^*
	(0.56)	(0.57)
Poverty	31.42^*	48.18^*
	(10.81)	(9.87)
No Allocated Proj	-29.53^*	-29.90^*
	(1.30)	(1.31)
Hist Support APRA	-3.63	-3.64
	(2.29)	(2.32)
Lima	-1.60	-2.06
	(3.89)	(3.92)
Arequipa	-2.99	-3.47
	(2.23)	(2.26)
(Intercept)	10.83	2.60
	(8.15)	(8.11)
N	1430	1430
R^2	0.42	0.42
adj. R^2	0.42	0.41
Resid. sd	19.46	19.61

Standard errors in parentheses
* indicates significance at $p < 0.05$
$^+$ indicates significance at $p < 0.1$

Results for the two models are found in table 9.2. We do find support for our two hypotheses, but overall results are mixed. Before we address the actual impact of the predictors, we will focus our discussion on the evidence for our hypotheses, starting with model one.

Model one tests the hypotheses with an eye on the availability of information

Figure 9.2: Correlation Plot for Complete Model (7)

aspect of awareness (*using the access to electricity proxy*). The model finds evidence for both hypotheses. The coefficient for Ambivalence is positive and significant at the 10% level, while the coefficient for awareness is negative and statistically significant at the 5% level. As for ambivalence, this means that as ambivalence increases, more FONCODES resources are funneled into the district. When it comes to awareness, the negative coefficients means that as larger proportions of the population get more access to information, less FONCODES resources are funneled to the district. Alternative model 1, found on table 9.3, attempts to test this relationship with an alternative measure that more directly speaks to access to information. The alternative proxy is the proportion of district's households where a radio is the only electricity powered appliance. This measure more directly captures access to information because even in case where households are wired to the grid, we expect that only having a radio means that access to information from TV ads and internet is cut. The model is robust to this alternative operationalization. As the proportion of *radio only* household increases, we see more FONCODES funds being funneled to the district. As expected, the relationship is inversed, as more limited access to information means lower awareness, which translates into greater proportions of consumer voters, our profile with the largest returns.

Model two tests our same two hypotheses, but the operationalization of awareness is adapted so to capture the complexity of the information. Results from model two are mixed. The ambivalence measure, which produced statistically significant evidence for our ambivalence hypothesis in model one fails to reach statistical significance. While the coefficient is not statistically significant, it is in the expected (positive) direction. The coefficient produces a very similar error in both models (6.7 in model one against 6.8 in model 2), but its actual impact is reduced (from 11.05 in model 1 to 8.57 in model 2), consequently reducing its z score below the confidence

interval threshold. The coefficient for awareness is statistically significant at the 5% level, but in the opposite direction. The positive coefficient suggests that as information in a district becomes less complex, fewer FONCODES resources are funneled to it, which is counter to our theoretical expectations.

A possible explanation to the performance of model two stems from the challenges of relying on party manifestos in order to locate a party in the political spectrum. Latin American party structures have been recognized as atomized and ideologically unanchored (Dix, 1989), lacking the essential characters that composes a solid party structure comparable to their European counterparts (Coppedge, 1998). Levitsky and Cameron (2003) have argued that one of Fujimori's legacies has been the personification of the Peruvian party system, pushing parties to focus on the personal and charismatic features of its candidates to secure seats.[12]. If this is truly the case, then ideological positions captured by WORDFISH are good on paper, but do not truly reflect party positions. It is difficult to interpret the meaning of the positive and statistically significant coefficient without having developed prior theoretical expectations. A possible interpretation of these results is that while the scores produced by WORDFISH do not truly represent the ideological position of the contending parties, candidates might frame their arguments and speeches around those topics. While these speeches do not necessarily represent their positions, they can polarize discussions if positions taken by one party are in stark contrast to positions taken by other parties.[13] Polarized discussions usually draw attention to races, which can have an impact on turn out. If that is the case, than larger distances would

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[12]While the authors make this point, they also show evidence that concerns with rebuilding the party system are in place, particularly coming from traditional parties such as the APRA and IU.

[13]Here we must be qualify position taken to mean a position taken at a time when the position was advantageous, but by no way being a an actual position against which voters can hold parties

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translate into more polarized races and therefore greater party exposure. The APRA could be delivering resources to these districts as it anticipates that those will be polarized races that will ultimately draw voters in and consequently increase APRA's exposure to them. Delivering resources to districts where voters are tuned into politics can be an effective way to credit claim. Unfortunately, this explanation is simply a post-hoc reaction to the findings produce by model two, here we simply entertain it as an attempt to understand an empirical trend picked up by the model.

It is also important to note that models one and two control for population size, poverty and electoral incentives to favor or avoid specific districts. Alternative models that include other controls are available at table 9.3. Alternative model 1 utilizes an alternative proxy for the availability of information (Radio Access Only). Alternative model 2 replicates table 9.2's model one but uses the MLMDS's supplied measure of poverty (3 dummies). Alternative model 3 introduces a third operationalization for the poverty measure (access to treated water). Model four substitutes the three controls related to incentives to redistribute to specific districts (Lima, Arequipa and Hist Support APRA) for other sets of controls. These are Percentage of Rural population, Employment levels, migration, margin of victory and the number of competing parties. Alternative model five replicates the alternative model four but utilizes a second operationalization for migration (5 year resident). Last but not least, alternative model six tests the data with the full set of controls. It is worth noting that this model has an overall fit to the data that is poorer than some of other models, despite being the most parameterized of all models shown. The expectation is that R^2 increases proportionally to the number of covariates added, yet despite this trend alternative model six still does not fit the data well and therefore we decided

against using it as our main estimator. Model six's overall poorer performance can be the result of multicollinearity.[14]

9.3.2   Substantive Interpretation

It is important to examine results beyond their statistical significance and actually focus on their impact on the ground. This subsection concludes the results discussion by highlighting what the results mean in terms of actual FONCODES resources. To do so, we take parameters from model 1[15] and calculate predicted FONCODES expenditures for an average Peruvian district that is not in Lima, Arequipa on any of the three Northern departments that have historically supported APRA in pre Fujimori times. To calculate these expenditures, we hold poverty and population constant at their means while changing the values of our two parameters of interest (ambivalence and awareness[16])

We start by calculating expected FONCODES expenditures for awareness. The mean value for our awareness proxy is 0.55, with standard deviation 0.25. To illustrate the impact of our variable, we calculate expected expenditures for a district with awareness value at one standard deviation below the mean (0.30), and then we recalculate the expected expenditure with awareness at one standard deviation above its mean (0.80). The expected expenditure for awareness at one SD below its mean is S$ 230.800. When we increase awareness levels to one deviation above its mean,

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[14]See figure 9.2 for this model's correlation matrix. VIF scores for some of the covariates reaches close to 3, which is high but not high enough to suggest parameter instability.

[15]We decided to focus on model one because this is the only model that produces statistically significant coefficients for both the awareness and ambivalence proxies.

[16]The changing of the values for each of the two parameters is done separately, meaning when we change values of ambivalence, awareness is held at its mean and vice versa.

expected FONCODES expenditures drop to S$185.300. This negative trend matches our theoretical expectation. As awareness levels increase, it is likely the consumer voters are converted into issue voters, thus lowering the overall district return. Lowering of overall returns is, as expected, met with a reduction in the amount of resources invested. Another way to examine the impact of awareness is to examine the actual shift in allocated resources in terms of proportions. In this example, a shift of two standard deviations in the level of awareness results in a 19% drop in investment, a very large figure.

We repeat this process for our second variable of interest: ambivalence. Ambivalence's mean value in our dataset is 0.77, with standard deviation of 0.09, We recalculated our expected expenditures, this time with awareness also at its mean of 0.55 and changing ambivalence from one standard deviation below its mean (0.68) to one standard deviation above it (0.86). At one deviation below, the expected expenditures are S$197.400 . At one deviation above its mean, the expected expenditures rise to S$217.000. In the case of ambivalence we observe a positive trend, which is also a match to our theoretical expectations. As ambivalence levels increase, partisan voters are likely to convert into either issue or consumer voters. Either one of the two profiles has higher returns than those of partisan voters and we expect that the district's overall returns will increase. Increases in returns should be met with increases in the amount of resources invested, which is what the data suggests. In terms of proportion, a two standard deviation increase in the level of ambivalence is met with an increase in investment of roughly 12%.

It is worth highlighting that these results could actually be more pronounced because we don't know what the actual proportions of our profiles of interest looks like. As awareness levels increase, it is possible that districts made up of largely partisan voters would not observe much change in their district's overall returns. If that

is the case, the proxy loses some of its strength. The fact that the proxy is able to perform despite this bias against it suggests that if we had access to the actual proportions of each of the profiles, the impact of these two parameters discussed above could be even larger.

9.4   Conclusion

This discussion concludes part III of the manuscript. The goal of part III was to focus on an important assumption that was first introduced in part II and relaxed here. The assumption as it was presented in part II was that voters displayed constant returns to resources delivered to them. In part III, we recognized that this assumption was unlikely and, empowered by our marginal return theory of politics, introduced a typology of group returns.

The theory introduced in this chapter relies on a typology of returns for three distinct profiles of voters. We used a Peruvian poverty alleviation and development program, the FONCODES, as a case to test hypotheses that formalized expectations between changes in levels of awareness and ambivalence (the two key components that make up our three profiles) and changes in expenditure levels.

We find evidence to support our hypotheses. This evidence, however, is not robust to alternative proxies or reparameterization of models. We attribute this lack of robustness to the complexity of navigating between individual and aggregate level data. We also recognize that the complexity of our two concepts of interest; awareness and ambivalence, puts a significant strain in our ability to carry out the necessary empirical test. We felt that the theory was worthwhile enough to warrant the pursuit of an empirical test despite the complex challenges that the empirical aspect of the research would introduce.

Overall, despite the findings, we do believe that at a minimum we have found enough evidence to warrant the continuation of the research carried here. Future effort should start with securing individual level data that better allows researchers to estimate the actual proportions of voter profiles in each district. The next chapter concludes this manuscript with a discussion of the other possibilities of our main theory, the *marginal return theory of politics*. After briefly discussing other possibilities for the use our theory, we conclude with a discussion of future research in the veins of findings produced in parts II and III of this manuscript.

Table 9.3: Alternative Models

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Ambivalence	11.12$^+$	8.86	6.56	7.22	7.72	8.91
	(6.67)	(6.47)	(6.54)	(6.81)	(6.82)	(6.87)
Awareness						
WiredToGrid		−8.7*	−13.45*	−6.11	−5.92	−6.55
		(2.83)	(3.02)	(3.48)	(3.52)	(3.50)
RadioOnly	15.65*					
	(3.90)					
Population	1.83*	1.32*	1.98*	1.21*	1.38*	1.31*
	(0.57)	(0.57)	(0.58)	(0.55)	(0.53)	(0.62)
No Allocated Proj	−29.68*	−26.50*	−29.95*	−29.60*	−29.48*	−29.33*
	(1.28)	(1.72)	(1.30)	(1.33)	(1.33)	(1.34)
Hist Support APRA	−3.11	−3.11	−3.34			−3.08
	(2.28)	(2.27)	(2.28)			(2.37)
Lima	−0.81	−3.59	−3.37			−2.47
	(3.89)	(3.84)	(3.87)			(4.06)
Arequipa	−2.54	−3.05	−3.85			−3.32
	(2.23)	(2.21)	(2.25)			(2.33)
Poverty						
main	27.22*			33.57*	28.14*	34.87*
	(10.74)			(13.25)	(12.33)	(13.26)
MLMDS q3		−1.19				
		(3.35)				
MLMDS q4		−9.59				
		(8.11)				
MLMDS qMP		7.57*				
		(1.98)				
NoTreatedWater			−0.96			
			(2.6)			
ENPP:Laakso				−0.18	−0.18	−0.23
				(0.50)	(0.50)	(0.50)
Migration						
Mother Resident				−6.83		−7.77
				(5.17)		(5.42)
5 year resident					−7.39	
					(10.44)	
Employment				−1.14	−1.92	−1.37
				(8.34)	(8.35)	(8.34)
Margin of Victory				1.73	2.00	3.33
				(7.91)	(7.91)	(8.52)
PercPopRural				5.68	5.36	4.72
				(3.22)	(3.22)	(3.26)
(Intercept)	−3.92	16.43	23.11	15.60	15.37	14.90
	(8.21)	(7.36)	(7.91)	(9.52)	(11.83)	(9.86)
adj. R^2	0.42	0.42	0.42	0.41	0.41	0.41

Standard errors in parentheses

Table 9.4: Variable Descriptive Statistics

Variable	Min	Max	Average	SD
Variables Of Interest				
FONCODES dep var	0	307.6	15.8	26.43
Ambivalence	0.334	0.962	0.776	0.099
Awareness				
Availability	0	1	0.551	0.251
Complexity	0	1.71	0.442	0.245
Radio Access Only	0.002	0.867	0.407	0.191
Social Econ.				
Population	5.081	13.708	8.478	1.34
Poverty	0.024	0.491	0.176	0.076
Employment	0	0.91	0.056	0.073
Perc Pop Rural	0	0.987	0.518	0.305
Migration				
Mother res.	0.223	0.999	0.797	0.164
5 year res.	0.258	0.934	0.807	0.071
Electoral				
Margin Of Victory	0.028	0.976	0.092	0.094
No Allocated Proj	0	1	0.514	0.5
Distr w/ History APRA sup	0	1	0.087	0.282
Lima	0	1	0.023	0.151
Arequipa	0	1	0.059	0.237
Effective Number of Parties				
ENPP (Golosov)	1.012	10.728	4.013	1.516
ENPP (Laakso)	1.024	10.332	4.456	1.48

Items in *italics* have alternative operationalizations

Please refer to figure 9.2 to examine how these variables correlate (casewise).

Chapter 10

Concluding Remarks

The overall goal of this manuscript has been to introduce a broad theory of political exchanges, which we termed the *marginal return theory of politics*. This theory is couched on the simple yet powerful premise that political agents focus their political capital in exchanges that give them the highest possible returns, shying away from exchanges where returns are poor. Here we have taken credit for unearthing and polishing this theory, but we recognize that the foundational elements that make up our theory have been present in Political Science, even if hidden, for over half a century. Evidence of this presence was shown in chapter 2, where our survey of an extensive literature highlights that a concern with returns is an unstated but prevalent issue in politics.

As introduced in chapter 3, our MRTP is powerful but very broad. In its unabridged version, the theory is too broad to be directly applied and operates more as a framework. To leverage its potential, this manuscript narrows the theory from its very broad state in order to explain two dimensions of a complex political phenomenon: the pursuit of votes.

Part II of the manuscript leverages the theory to account for the return of

actual votes, an examination that is based on the simple premise that while all votes are the same, they do not add to seats the same way. The main insight from part II is that different votes have different returns when it comes to their ability to secure new seats and political agents, in that case political parties, are well aware of these differences. These parties put noticeable efforts towards ensuring that the votes they secure advance their goals of ultimately gaining seats. To test the hypotheses that come out of the narrowed version of the MRTP, we use a cross country data set that includes six countries in Latin America. We find robust evidence that parties do indeed seek out votes with the greatest returns, despite the complexity involved in ascertaining these returns within the multi member district electoral structure that their host nations adopt.

Part III of the manuscript continues to leverage our broad MRTP. At that point the manuscript switches its focus away from the vote itself and focuses on the returns of voters. This focus emerges from an important assumption that is made in part II: voters all respond equally to resources delivered. In part III we do without this assumption, theorizing over the returns of three different profiles of voters, termed partisan, issue and consumer voters. Empowered by a typology of profile returns, we once again leverage our MRTP to produce expectations about how political parties invest their resources. To test these expectations, we continue with the choice to use poverty alleviation and development programs as our resource of choice. However, we focus on a single case of the Peruvian mayoral races of 2006. We find evidence that political parties pay attention to the returns of different groups of voters, focusing their resources in the groups with the largest returns to investment.

Overall, parts II and III provide specific evidence to a broad theory, evidence which stacks up alongside much of the evidence that has been already produce by literature that leverages the same concept, even if in less direct terms. The manuscript

sets out to unearth, polish and test a broad theory of politics. After two separate tests, we feel we have accomplished just that. We recognize, however, that this manuscript by no means covers all the angles and possibilities of the theory it introduces. Quite contrarily, it has only begun to scratch its surface.

In part II, while the robustness of the findings gives us confidence in the strength of our theory, there is still great room for further research to be carried. After examining the findings from part II, our attentions were immediately turned to parliamentary systems. That empirical test focused on presidential systems, which we felt adds to the robustness of the test. Parliamentary systems force political parties to place even larger a concern on securing legislative seats than do presidential systems. This heightened concern is a product of the executive's constant necessity to rely on a parliamentary majority in the legislative branch. Given this necessity, we should expect an even more pronounced concern for the returns of votes casted for legislative seats. Interestingly, some of the most stable parliamentary systems are found in Europe, a continent where the party system has been quite stable for roughly sixty years. A heightened sense of need for legislative presence combined with a very stable party system suggests that holding on to current seats and securing new ones is an incredibly important and complex task, making it a fertile ground for the application of the framework developed in part II. In addition to parliamentary systems, we feel that the framework should be put under the scrutiny of federal systems. Differences in the strength of federal systems place different importance to seats in lower and upper houses. While both British and Brazilian legislative branches have an upper chamber, the capacities of Brazilian senators far outweigh those of their British counterparts. Given these differences, we should expect that Brazilian parties will put considerably more efforts towards securing upper house seats than would

British parties.[1] If differences in types of seats will have different returns to political agents, our MRTP suggests that parties will put their resources in the seats with highest returns. We can also extend the upper/lower house seat return argument to gubernatorial and presidential seats. To the extent that overly federal systems empower governors over legislative members, we should expect that concomitant races push parties to prioritize resources towards races with the greatest returns. This is an avenue of research we feel warrants further attention.

In part III, we have literally only begun to leverage the power of our theory. As a starting point, research needs to produce more robust evidence. We feel that the most direct route to such evidence is to procure data that more directly speaks to the proportions of the three main profiles introduced in chapter 7. Here, the test faced limitations introduced by incongruencies in the level of analysis. Future research that is able to circumvent this challenge will shed further light on the findings introduced here. In addition, part III has an entire research opportunity whose potential we have only begun to leverage: that of issue voters. In chapter 7 we introduce a typology of returns to three different groups of voters. The overall argument echoes that of our marginal return theory of politics, which is that political agents invest their resources where returns are greatest. The returns of the three groups (partisan, issue and consumer) were a product of the types of resources that we used in the tests (PADs). We introduced a profile that was particularly attuned to ideological positioning, using them as a main parameter in its decision making process. As the test was conducted here, this profile had lower returns because it is not particularly responsive to PAD (consumption) resources. Future research can leverage this profile

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[1]We recognize that British upper house members are actually appointed for life. We merely use the two cases to highlight that different institutional arrangements will impact the value of seats and, consequently, what parties would do to secure them.

to extend the theory we introduced. Here, we theorized that issue voters respond to clear ideological positioning. Strategic parties can harvest the support of issue voters by showering them with resources they respond to, such as more ideologically charged speeches, more precise language that facilitates issue positioning and more universal policy writing.[2]. If our marginal return theory of politics is correct, parties should develop portfolios of resources that match the inputs of voters. Here, we have begun to take steps in testing relationships by focusing on one type of resource. Future research should focus on the other profiles, examining what parties do to maximize the returns when they engage in exchanges with each one of the discussed profiles.

It is also important to highlight that the decision to separate this manuscript into two separate tests, one focusing on vote returns and the other focusing on voter returns, was mostly dictated by research design concerns. Conducting a single test that simultaneously accounted for these two dimensions was likely to introduce a level of complexity that would certainly subtract from the clarity of our findings. In reality, however, we recognize that a concern for voter and vote returns may in fact happen simultaneously. That means that a political party might invest its resources in districts where voters are most responsive to its resources and whose votes are most likely to deliver new seats. To put it in the return terminology we have used so far, political parties might invest their resources in high return voters delivering high return votes. While identifying these voters might be a challenge, we believe that if such a scenario can in fact be identified, there should be little doubt that they would naturally become hot targets for party investment. It is intuitive that parties should favor high return voters casting high return votes, and that they should also avoid low return voters casting low return votes. It is not as intuitive, however, to understand

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[2]By universal, we mean that parties may choose to shy away from pork barreling legislation that clearly shows commitment to special groups that are in contrast to ideological stances

how political agents would react to conflicting scenarios. By conflicting scenarios, we speak of the possibility of investing resources in high return voters whose votes are low return; or investing in low return voters whose votes are high return. To elucidate these conflicts, we need clever theorizing and research design that can combine these multiple dimensions of return into an overall return rate. In politics, as in life, possibilities are rarely clear cut and obvious. We believe that parties face these complex choices more often than they face simple and intuitive ones and putting our efforts in research that helps elucidate these complex choices is a worthwhile way to advance the discipline.

As we can see, the manuscript has only begun to scratch the surface of the potential behind our proposed marginal return theory of politics. In the beginning 2011, the Brazilian legislative chamber begun to take direct action towards overhauling large segments of its electoral code. Up in the priority list is a concern with regulating campaign financing, with great consensus around the notion of publicly funded races. Concern with publicly funded races is by no means confined to Brazil, being a hot topic in pretty much any democratic race. As campaign funds become more regulated and transparent, parties may find themselves less able to collect and spend funds as they please. Part of the goal behind the restricting of how parties collect and spend their funds is to ultimately produce a leveled playing field between competing parties. Should this goal be achieved, it would mean that parties will have similar amounts of funds. If that were the case, making every penny count will become imperative for political parties that want to do well. When all parties have the same amount of funds, playing close attention to the return of investments might make the difference between the winners and the losers. Our marginal return theory of politics is ripe to become the backbone of a research effort that attempts to make sense of which strategies are most attractive to parties who are forced to compete in

publicly financed races. This is just one of many of the facets in which our theory can be put to use.

Chapter 11

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