Personal Vote and Proportional Representation in Unequal Societies*

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Abstract: The aim of this paper is to analyze the dynamics of the electoral connection in open list proportional representation systems. Our knowledge about the electoral connection comes from the study of vote choice in majority systems especially the United States and Great Britain. In these systems, representatives seeking reelection guide their legislative activities to answer their constituents' demands. I test the hypothesis that if open list electoral rules encourage the personal vote, proportional representation makes legislators engage in different kinds of parliamentary activities. Whether these activities focus on local targets or universalistic policies will depend on the socioeconomic characteristics of their electoral base and the legislator's party features. Using Brazil as a case study, I run multinomial logit models to test the probability a deputy will present a particularistic or programmatic bill using socioeconomic and institutional features as independent variables.

Introduction

Mayhew (1974) in his seminal work, *Congress: the Electoral Connection*, was the first to define the terms of the relationship between legislators and their electoral bases. The author argues that politics should be understood as the struggle for power. Congressmen, as political actors, have only one objective: to be reelected. To achieve this objective they act in the legislative arena focusing on activities that may improve their future performance in the electoral arena (Mayhew, 1974). Cain, Ferejohn and Fiorina (1987) explain that a large part of American and British legislators' work is to maintain a close relationship with their electorate individually or collectively, usually by engaging in casework activities or presenting pork-barrel legislation. To maintain a connection with their electoral bases, representatives in the United States and Great Britain try to cultivate a personal relationship with voters based on accessibility and trust.

Most research on representation, the electoral connection and legislative behavior focuses on majoritarian electoral systems with single-member district. However, we know little about the logics in proportional representation systems. The purpose of the proportional representation is to ensure that every group in a society, minorities and majorities, will be represented in the political system. This type of representation, combined with a closed list, reduces the overrepresentation of parties in the system by allocating seats in proportion to the votes that parties receive (Lijphart, 2003). Personal reputation is less important under this system which has the party as the central actor in the electoral arena (Carey & Shugart, 1995).

However, the proportional representation system with an open list has the same incentives to cultivate the personal vote as the majoritarian rule. Since the list is not pre-ordered by the party, candidates rest on their own efforts to achieve the electoral quota and guarantee a seat. Thus, we could expect that representatives elected in this system will develop the same electoral strategies and legislative activities as the ones described by Mayhew. The open list proportional representation is used in several developing countries in Latin America including Brazil, Chile, El Salvador, Ecuador, Panama, Peru and Suriname[1]. The analysis of this specific system will provide a broader understanding of the effects of the personal vote on the electoral connection and the

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[1] Other countries that use open list proportional representation are Cyprus, Denmark, Finland, Latvia, Luxembourg, Poland and Switzerland (Nicolau, 2012).

legislative activities in other social and political contexts besides the well-known cases of the United States and Great Britain.

In developing and unequal societies, the socioeconomic context is an important factor to understand the logics of the relationship between voters and representatives. Poorer life conditions create a propitious environment for clientelism and particularistic policies to flourish. On one hand, "poor people cannot wait for material rewards and therefore prefer target handouts to the distant benefits of policy change". On the other hand, "politicians will invest in clientelistic exchange under conditions of low development because citizens enjoy limited spatial mobility and are entrapped in rigid, durable social networks increasing predictability and inelasticity of the vote" (Kitschelt & Wilkinson, 2007, pp.25, 26). In developing countries where poverty is still an important social policy issue, the logics of particularism may generate a suboptimal production of public goods and an increase in public deficit which, in turn, may reproduce the status quo of inequality.

The aim of this paper is to analyze the effects of socioeconomic and institutional factors on representatives' parliamentary activities in open list proportional representation systems. The objective is to test whether the socioeconomic conditions of the representatives' electoral bases and the characteristics of the legislative organization has an effect on the policies that legislators propose. Despite the incentive to cultivate a personal vote in open list systems, I expect that under proportional representation candidates have more diverse possibilities of spatial movement in the district territory that enable them to develop different types of electoral strategies and connections. Thus, the hypotheses are that legislators who receive more votes in less developed and smaller cities will be more likely to propose particularistic policies while those who receive more votes in more developed lager cities will provide more programmatic policies.

I also expect that the legislative organization may have an influence over legislators' activities. In decentralized legislative structures, such the U.S. House of Representatives - in which parties and party leaders do not play an important role on the organization of the legislative work - legislators have more incentives to act independently and pursue particularistic benefits for their constituencies (Mayhew, 1974; Cain, Ferejohn & Fiorina, 1987). My hypothesis is that in legislative structures where parties have an important role in the organization of parliamentary work, representatives will face an institutional limit to act independently and focus only on particularistic policies. Thus, not only the electoral system influences the

representatives' behavior in parliament; the characteristics of the legislature's internal organization should also be considered.

I test these hypotheses with a case study in Brazil. This country is a good case because of its continental territorial dimension, diverse socioeconomic and demographic contexts and consolidated political institutions. I examine the effects of socioeconomic and institutional variables on the choice of the target audience of every bill introduced by elected representatives in the Brazilian Chamber of Deputies in 2009. The target audiences are classified as national, sectorial, regional, local or individual. Bills classified as regional and local have a target audience that is located in very specific territorial boundaries and assign well defined particularistic policy proposals. National bills target a broad audience while sectorial and individual ones target non-territorialized interest groups. All national, sectorial and individual bills introduce programmatic policy proposals. I use multinomial logit models to test the effects of these variables on the probability that a legislator will present a programmatic or a particularistic bill.

The next section debates the geographical and socioeconomic dimensions of the electoral connection and the different linkage strategies that can emerge between voters and representatives. It also briefly discusses the differences between distinct legislative organizations and how they can influence the legislators' parliamentary activities. In the second section I detail the Brazilian case discussing the institutional and socioeconomic features in which open list proportional representation operates. In the third and fourth section I point the hypotheses, explain the data treatment and the methods used. Finally, I present the results and provide final considerations.

Districts geographical dimensions, linkage strategies and institutional limits

The logics of the legislative organization described by Mayhew have the electoral arena as their main explanation. Congressmen's actions in the House have a defined objective: reelection. The majoritarian single-member district system creates well defined geographical electoral bases and incentives to cultivate a personal vote. The personal vote is defined as the portion of "candidates' electoral support which originates in his or her personal qualities, qualifications and record" (Cain, Ferejohn & Fiorina, 1987, p.9).

This type of vote encourages a more personal and particularistic relationship between the represented and representatives. Personal reputation is critical for electoral success. The literature associates the building of a personal reputation with legislative particularism – securing pork-barrel funding that benefits specific districts and solving constituents' problems with government bureaucracy (Carey & Shugart, 1995). Therefore, candidates act as brokers serving individuals and groups in their districts in a nonpartisan and non-ideological basis (Cain, Ferejohn & Fiorina, 1987).

Two characteristics explain the electoral strategy under this system: the geographical limitation of the electorate and congressmen's emphasis on the implementation of distributive and particularistic policies that answer the demands of their district clienteles. Thus, the legislative activities and organization – the production of laws, the structure of the committees and the behavior of congressmen and party leaders - will be all defined by this electoral strategy. A candidate-centered electoral system like this encourages strategies that strengthen the politician's image – advertising his personal reputation, taking position on relevant policies and credit-claiming for benefits intended for his constituency – over the party reputation (Mayhew, 1974).

In contrast, in proportional representation systems the party is a fundamental actor. It is responsible for presenting the list of candidates who will run in the elections. However, the distribution of the candidates on a list can be set in different ways. In the closed list the party defines the order of the names on the list before the election. The seats the party wins are distributed among the candidates according to their position on the list sequence. In the open list, the final order of the candidates is a result of the amount of votes received by each of them. The seats are distributed among the most voted candidates. In this type of list it is the electorate, and not the party, who decides which candidates will be elected[2]. Since in open list system the voters must choose between names and not parties we can expect that it will present the same characteristics as the majoritarian single-member districts rule; a candidate-centered election, the appreciation of legislators' over the party's reputation and incentives to seek particularistic benefits for the constituencies.

The allocation of seats in both systems, however, has major differences. In proportional representation systems the seats are distributed according to an electoral

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[2] A third option is flexible list in which the party pre-orders the list but the voters have the possibility to change it.

formula that guarantees that each party list will receive the number of seats proportional to the party voting. For example, a party that receives around 40 percent of the votes will obtain around 40 percent of the seats (Nicolau, 2012). In majoritarian systems, the candidate must receive a simple majority of the votes to get a seat. The central difference between the rules is that in the first case candidates need a portion of the district votes that is enough to achieve the electoral formula and win a seat, while in the second it is necessary to achieve a majority of the valid votes in the whole district.

This difference results on different electoral strategies. Under majoritarian rule candidates have to develop an electoral strategy that targets most voters in the whole district territory to guarantee a majority of the voting. In contrast, under proportional representation candidates need only a portion of votes in the whole district to get a seat. As a result, in this system candidates can focus their campaign and parliamentary work on specific parts of the district territory or on particular interest groups.

Despite the incentive to cultivate a personal vote in both systems, proportional representation provides candidates with a wider range of strategies that can embrace their spatial movement over the district territory and/or a close relationship with organized groups and minorities. In countries with great demographic diversity and high inequality, the electoral market can be quite diverse. Therefore, there are multiple possibilities to establish electoral connections. In an open list proportional representation electoral system there may be more varied legislative strategies than we observe in the U.S. and Great Britain.

Kitschelt and Wilkinson (2007) explain that programmatic or clientelistic linkages can be established between citizens and politicians. A programmatic linkage will be established where the behavior of the electorate is unpredictable and difficult to monitor. This happens with very large groups of voters in which only a fraction of them actually supports a candidate or party. In this case, the candidate will prefer to deliver public goods that will benefit everyone in the society and "from whose enjoyment no one can be excluded", for example, macroeconomic growth, full employment and low inflation (Kitschelt and Wilkinson, 2007, p. 11). Since it is difficult and costly to monitor voters in populous locations, candidates will try to deliver policies that benefit the greatest number of people in order to get as many votes as possible.

In contrast, clientelistic linkages will be established between politicians and individuals or small groups when there is an exchange promise. Politicians promise to deliver private goods such as public sector jobs, public housing, subsidized goods (e.g.

land), and even money, while voters promise to deliver their electoral support. Individual monitoring is more costly than monitoring larger groups, so it will be used only where the number of voters is small and geographically concentrated (Kitschelt & Wilkinson, 2007).

The authors also highlight the role of economic development on the type of citizen-politician linkage that will emerge. Programmatic politics will be attractive only to voters who have enough assets to be indifferent to private goods. Poor people have more immediate needs and will prefer targeted private goods rather than distant public policy change. Also, "poor people may have less education and therefore less capacity to understand and trace the lengthy causal process linking politics change to personal benefits". Finally, under conditions of low development, politicians will engage in clientelistic exchange since individuals are entrapped in durable social networks and enjoy limited spatial mobility. Programmatic linkages are created when mobility increases making the delivery of clientelistic benefits unreliable (Kitschelt & Wilkinson, 2007, p.26).

In this sense, we can expect that in highly unequal societies that use the open list proportional representation candidates will present different kinds of electoral connection, moving from more programmatic to more particularistic and clientelistic linkages depending on the socioeconomic and demographic conditions of their electoral base. However, the legislature's internal organization can be more or less permeable to the independent actions of the legislators. The American context that Mayhew analyzes is designed by political institutions that encourage legislators to develop a personal reputation and an independent behavior in Congress. The American Congress has a decentralized structure with legislative activities and power divided among various committees and subcommittees. Political practices have been developed in these "little legislatures" creating an "orderly accretion of power within them" (Cain, Ferejohn & Fiorina, 1987, p.12).

The resulting legislative organization is highly sensitive to the wishes of the ordinary member. Thereby, the higher the capacity that members of Congress have to build bases of personal support from their constituencies, the greater is their resistance to the efforts of national leaders to coordinate and control their behavior in the legislative arena. Congressmen who consider their own efforts as being responsible for their electoral success are less likely to accept government actions or institutions that deny them the means to exercise their individual influence than those who obtained

their seats through their party's action (Mayhew, 1974; Cain, Ferejohn & Fiorina, 1987).

In contrast to the United States, Britain's parliamentary regime concentrates the legislative labor in parties. There is a division of labor between front and back benches and legislative success depends on the indulgence of the front bench of the majority party. British parties have effective control over access to parliamentary offices. As a result, they also have control over elected members. Thus, the organization of the Parliament limits the legislators' attempts to act independently. However, as party members achieve a personal hold on their office they become more difficult for party leaders to control (Cain, Ferejohn & Fiorina, 1987).

The American and British cases show that not only the electoral system but also the legislative structure influences representatives' behavior. The type of electoral connection and legislative activities they will develop depend on the institutional context they will face. In this sense, in a more centralized legislative structure legislators may find limits to act simply in a particularistic and clientelistic way.

The Brazilian case

Institutional Features

Mainwaring (1999) argues that the open list proportional representation in Brazil creates an incentive to cultivate a personal vote.[3] This system encourages politicians to develop a personal reputation and engage in individualistic behavior. Party loyalty is low because politicians have few incentives to attend to party leaders' commands. Because of the open list they compete against members of their own party and give emphasis to local and state, rather than national politics. Parties do not have control over candidates' selection and their campaigns, so elected deputies owe their mandates to their own efforts. In this sense, parties have difficulty imposing discipline on their members.

Figueiredo and Limongi (1999), however, argue that despite the disadvantages that this system impose on Brazilian parties in the electoral arena, legislative work is highly centered on them. The authors analyze the Chamber of Deputies' internal rules

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[3] The method used for distribution of seats on the Brazilian Chamber of Deputies combines the Hare quota and dividers system for the distribution of the surplus seats.

and show that agenda power is centered in the president and the party leaders, which in turn induces deputies to cooperate instead of behaving in an individualistic manner.

Party leaders have the important role of organizing the legislative work and representing the members of their party. An urgency request (*requerimento de urgência*), for example, is awakened between party leaders and, as other legislative activities, only the signature of the leader is necessary to express the unanimous will of the entire party. Therefore, individual deputies have little capacity to influence the course of legislative work. The way the legislative activities are organized reduces the capacity of deputies to actively participate in the decision process, strengthening party leaders' role.

As a result, despite the candidate-centered electoral system, elected deputies in Brazil face institutional limits to act independently from their parties. Party members have to be disciplined since they need their party leader's support for their political proposals and resource requests. So, to get benefits to their constituencies deputies have to follow their party's instructions.

Socioeconomic Features

Brazil is a continental and unequal country. Its 27 districts present diverse socioeconomic and demographic contexts. The maps below show the socioeconomic differences between the electoral districts in Brazil in the years 2000 and 2010[4]. They present minimum and maximum values of the human development index (HDI) and the inequality index (Gini) for Brazil during those two census years[5].

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[4] In Brazil the states, administrative units defined by the Brazilian Institute of Geography and Statistics, are the electoral districts.

[5] Both indexes vary from 0 to 1. On the HDI scale, a completely developed society is scored with 1 while a totally undeveloped society is scored with 0. On the Gini scale, a totally unequal society is scored with 1 and a completely equal society is scored with 0.

Figure 1: Human Development Index – Brazil 2000 and 2010
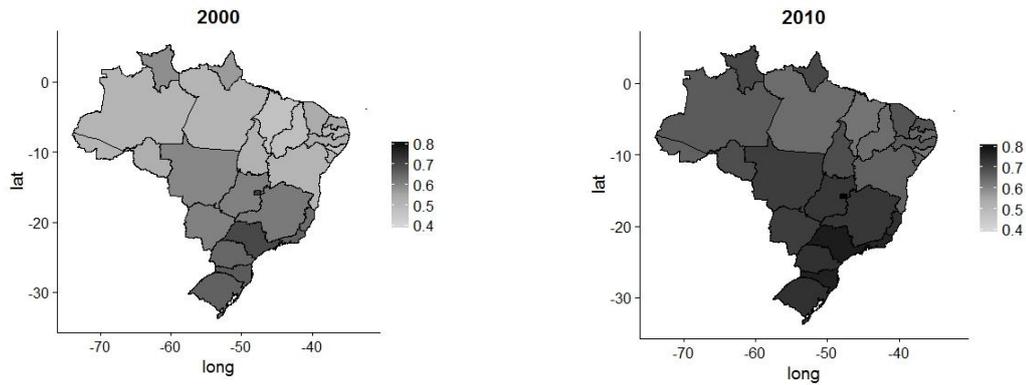
Note: Brazilian Institute of Geography and Statistics; United Nations Development Program.

Figure 2: Inequality Index (Gini) – Brazil 2000 and 2010
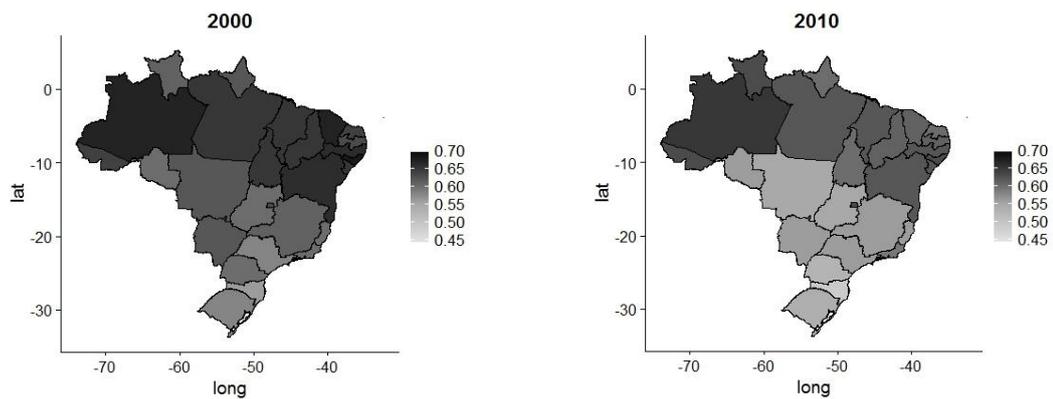
Note: Brazilian Institute of Geography and Statistics; United Nations Development Program.

The maps show a significant decline in inequality and an increase in development rates in Brazil during this 10-year period. In this decade, the country benefited from the resulting economic stability of the *Plano Real*, an economic plan implemented by former finance ministry and President Fernando Henrique Cardoso. In addition, the rise of commodities prices greatly benefited the growth of the Brazilian economy. This favorable economic environment enabled the creation of a guaranteed minimum income policy, *Bolsa Família*, by former president Luís Inácio Lula da Silva, which brought thousands of families out of extreme poverty[6].

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[6] Brazil is currently passing through an economic crisis that is causing high rates of inflation and unemployment. This is due to the international economic instability, the rise in petroleum prices and the

Despite the auspicious economic and social context, figures 1 and 2 show how development and inequality rates are unevenly distributed across the districts. In both years, the development index is lower in northern and northeastern districts comparing to those in the midwest, southeast and south. This pattern is also observed for Gini index: inequality is higher in northern and northeastern districts. It is important to highlight that most important economic, administrative and political centers are in the south and midwest regions of the country. The city of São Paulo, known as the economic locomotive of the country, is located in the southeast, as well as Rio de Janeiro. Brasília, the federal capital of Brazil is located in the midwest. This region is also the country's leader in agricultural business. In contrast, in the northeast, the dry weather considerably affects the economic activities that are mostly centered on agriculture.

Hypotheses

In the discussion above, I have tried to demonstrate the essential differences between majoritarian single-member district rule and open list proportional representation. Despite their common incentives to cultivate the personal vote, they present different electoral formulas that may result in different kinds of linkage strategies. In this sense, my general hypothesis is:

H: *Under open list proportional representation representatives engage in more diverse electoral connection strategies that vary from more programmatic to more particularistic policy proposals.*

I have argued that the proportional representation allows a wider range of electoral strategies since candidates need only a portion of the votes to win a seat. As Ames (2001) explain, in Brazil geographical space is an important factor on electoral competition. Candidates can limit their electoral connection to a specific territory on the district. They may also prefer to engage in a more universalistic strategy, that benefits the country as a whole, or build linkages with organized groups in society.

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various corruption schemes involving politicians, contractors and the major public oil enterprise *Petrobras.*

The type of electoral connection that will emerge and the resulting parliamentary behavior will depend on the characteristics of the electoral base. Poorer voters will prefer candidates that promise particularistic benefits to their locality while voters with higher income tend to vote for more programmatic candidates. We also know from the literature that it is more difficult to credit-claim for policies in larger cities. So, in more populous cities candidates will prefer to offer more universalistic policies while in less populous cities they may focus on particularistic proposes. Therefore, two subsidiary hypotheses arise:

H 1: Legislators elected under open list proportional representation rules will develop a programmatic linkage with their electoral base if it is constituted by a group of well-developed bigger municipalities. These municipalities will present high rates of income, education, population density and urban population, and lower inequality rates.

H 2: Legislators elected under open list proportional representation rules will develop a particularistic linkage with their electoral base if it is constituted by smaller less developed municipalities. These municipalities present lower rates of income, education, population density and urban population, and higher inequality rates.

The personal vote in majoritarian single-member district systems creates an incentive for legislators to pursue particularistic benefits for their constituencies. In the well-known American case, legislative work is highly decentralized in the committees and parties do not have control over members of Congress's actions. However, we could expect that in legislatures where the parliamentary work is centralized in particular institutional actors, representatives will not be able to act independently. So, despite the personal vote and the incentives to pursue particularistic benefits for constituencies in an open list proportional representation system, candidates will also have to take into account institutional factors if elected for a centralized organization. In the Brazilian case, the legislative work is highly centralized in parties and party leaders. In this sense:

H 3: The characteristics of the parties, as ideology and/or political status (government or opposition) will influence the legislators' parliamentary activities. Thus, despite the

incentives for particularism created by the personal vote, legislators will behave and act in more diverse way depending on their party's features.

If personal reputation is essential for candidate-centered electoral systems, in centralized legislative structures like those that exist in Brazil, the legislator must also strengthen his personal reputation inside his party. He will just be able to have his budget amendment executed or his bill voted on the Chamber of Deputies if he has the support of his party leader. Therefore, a representative will be able to deliver benefits to his electoral base only if he follows party guidelines.

Data and Methods

To analyze the type of policies that Brazilian representatives try to deliver to their electoral bases I classify all bills presented in 2009 by the 513 elected deputies in the 53ª Legislature (2007 - 2011) by their target audience[7]. I chose this legislature because it coincided with President Lula's second government, when opposition and government coalitions were well defined[8]. I decided to analyze bills from 2009 because it was a more productive year in the Chamber of Deputies; 2008 and 2010 were election years and deputies spent more time on campaigning[9]. The first year is usually less productive since it is a period of reorganization of the legislative structure: a new president of the Chamber is elected, the committees' seats are redistributed and the new government coalition depends on the redistribution of political positions[10].

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[7] This legislature was elected in the 2006 national election. In this occasion the voters cast their ballot for president, state governor, federal deputy and state deputy.

[8] Luís Inácio Lula da Silva, from the Workers' Party (PT), was the first left-wing candidate to win a presidential election in the current democratic period. He was elected in 2002 and reelected in 2006. He followed the right-wing government of Fernando Henrique Cardoso, from the Brazilian Social Democracy Party (PSDB). Lula's election in 2002 caused a turnover on Brazilian politics. Lula's first mandate was a period of realignment of the political forces. So, I considered that I would obtain more reliable results analyzing a legislature during Lula's second government since the political alliances would be better established. I decided for Lula's government because it was a period of economic and political stability.

[9] In 2008 there were municipal elections. Some deputies obtain a license to run for mayor elections. If they are not elected they come back to the Chamber of Deputies. If they are elected, they must renounce their seat. Federal deputies can also get a license to assume a position in a state or municipal executive at any time without losing their seat in the Chamber. They are replaced by a surrogate and can retrieve their seat if they renounce their executive position.

[10] This legislature finished on January 31st, 2011.

The bills are classified in five categories: national, sectorial, individual, regional and local[11]. National bills universally affect all individuals in the country. Sectorial bills target organized civil society groups, economic sectors and professional activity organizations. Bills are classified as individual if the target is a small group of people that does not constitute an organized civil society group but demands a really specific set of social rights[12]. Regional bills target states or regions of the country, while local bills benefit one or a small group of municipalities[13].

I decided to use five categories to test how diverse representation in a proportional system can be. To test the effects of socioeconomic and institutional variables on the deputies' legislative work I will run multinomial logit models using this classification of the bills as the dependent variable. It is important to highlight that regional and local bills benefit voters located in well-defined territories while national, sectorial and individual bills target groups of individuals (or the whole country) that are not spatially limited. Thus, following the linkage strategy dichotomy discussed above, I consider national, sectorial and individual bills as programmatic bills and local and regional bills as particularistic.

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[11] This classification was first used by Amorim Neto and Santos (2003) to analyze laws created between 1985 and 1999 and bills presented in 1995 in the Brazilian Chamber of Deputies.

[12] I consider an organized civil society group all groups that are mobilized by the Brazilian National Public Policy Conferences. These conferences are meetings organized by the Federal Executive to improve the discussion of social policies with the civil society. In these meetings, society is represented by non-governmental organizations. Some themes discussed in these conferences which I consider as organized civil society demands are: women's rights, disabled people rights, elderly people rights, gay rights, children rights, black people rights, native indian rights. In turn, I consider as individual bills those that target delimited groups that constitute a really small portion of the whole society. For example: pregnant military women and disabled former policemen. In the case of pregnant military women, they are represented by a bigger organized group that is the women's movement, however an individual bill that targets them – e.g a longer maternity leave for pregnant military women– will benefit only this specific group of women without affecting the rest of Brazilian women.

[13] It is important to highlight that the states are the electoral district in Brazil. The administrative regions are defined by the Brazilian Institute of Geography and Statistics: north (Acre, Amapá, Amazonas, Pará, Rondônia, Roraima and Tocantins), northeast (Alagoas, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte and Sergipe), south (Paraná, Santa Catarina, Rio Grande do Sul), southeast (Espírito Santo, Minas Gerais, Rio de Janeiro and São Paulo) and midwest (Distrito Federal, Goiás, Mato Grosso and Mato Grosso do Sul).

Table 1: Summary of the Dependent Variables: Count of Bills' Target Audience (2009)

Dependent Variable: Target	Total	Type of bill	Total
Sectorial	638		
National	595	Programmatic	1521
Individual	288		
Local	104		
Regional	19	Particularistic	123
n=	1644	n=	1644

Note: Chamber of Deputies. Classification done by the author.

The actual number of bills classified was 1570. However some of them were designed collectively; that means that they have more than one author. The dependent variable consists of all bills presented by each deputy, so the collective bills appear repeatedly for all their authors. That explains why there are more cases in the final dataset.

Table 1 shows how diverse are the bills' target audience. Most of them are sectorial and national. This means that, differently from what is expected of a candidate-centered electoral system, Brazil's federal deputies prefer to present programmatic bills rather than particularistic ones. Amorim Neto and Santos (2003) analyzed 1291 bills presented in 1995 and found similar results: 935 bills were national and 228 sectorial, against 54 local and 28 regional bills[14]. Eleven years and three legislatures later the pattern remains the same. This means that the particularistic linkage observed in in the British and U.S cases is not the rule in the Brazilian open-list proportional representation system[15].

To explain differences in the target audience I use the mean value of the socioeconomic data of each deputy's electoral base as independent variables. I define electoral base as the municipalities that contributed the most for a candidate's election. To identify a deputy's electoral base I first calculated the mean value of the votes he

[14] I adopted larger criteria for the sectorial category than Amorim Neto and Santos. The authors classify as sectorial only economic sectors and professional activity branches, not delimiting in which category are the organized civil society groups. They probably classified bills regarding these groups as national. This may explain why I find more sectorial bills than they do.

[15] I am analyzing here only one of the federal deputies' legislative activities. They also do visits to their electoral base, give speeches on the floor, present budget amendments, etc. This study analyzes just one activity, the presentation of bills, as a guide to understand the electoral connection between representatives and voters, thus, it is not conclusive of the actual behavior of the federal deputies. However it gives us some interesting results and insights for further research.

received in his district's municipalities during the 2006 elections.[16] Then I classified as part of his base those municipalities where he received more than this mean value. After that I calculated the mean value of the socioeconomic data for this group of municipalities. Thereby, for each bill classified by target audience I have the mean value of the socioeconomic data of the author's electoral base as independent variables. Table 2 present the summary statistics of these variables.

Table 2: Summary Statistics of the Independent Variables: Socioeconomic Data

Independent Variables	Mean	Standard Deviation	Min	Max
GDP per capita (R$)	498.89	204.3	166.43	1119.44
Education (%)	35.22	11.28	0.21	59.5
Urban Population (%)	68.87	15.19	37.98	99.89
Population Density (population/km²)	313.84	524.45	0.71	2585.27
Inequality Index (Gini)	0.52	0.04	0.44	0.64

Note: Brazilian Institute of Geography and Statistics; United Nations Development Program.
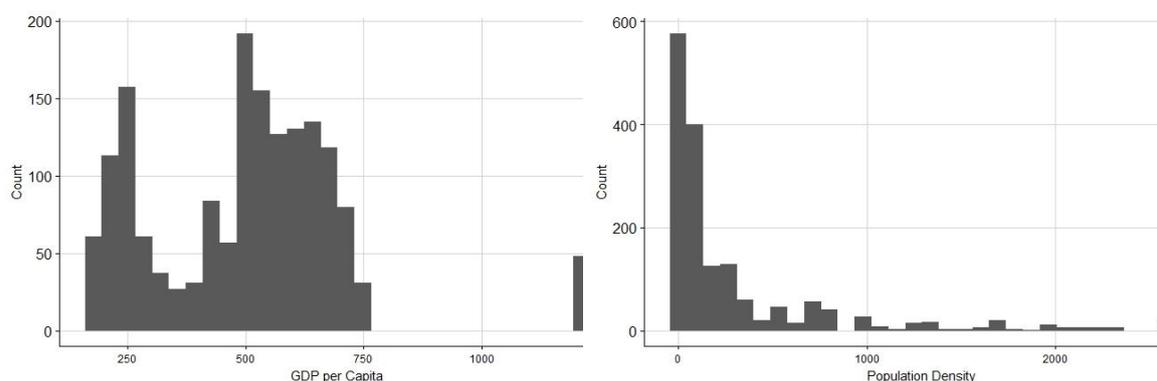
The Census is conducted in Brazil every 10 years and the United Nations Development Program uses this data to calculate the Gini index[17]. Since I am working with 2006 elections, I interpolated 2000 and 2010 census data to have more accurate data on the 2006 socioeconomic context. The GDP per capita value is in the local currency, the *Real*. Education is the percentage of people over 18 years who finished elementary school. Urban population is the percentage of people who live in urban areas. Population density is the number of residents per square kilometers.

We may expect that in an unequal country the income is not normally distributed. Taking into account that Brazil is a country with a continental dimension, we could also expect that population density is not normally distributed. Figure 3 shows the distribution of these two variables. They are clearly not normal. So, I use the log of GDP per capita and population density in the models.

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[16] Data from 2006 elections were gathered from the Electoral Superior Court website. Available at http://www.tse.jus.br/eleicoes/eleicoes-anteriores/eleicoes-2006/eleicoes-2006.
[17] Data available at http://www.atlasbrasil.org.br/2013/pt/download/

Figure 3: GDP per capita and Population Density Histograms

Note: Brazilian Institute of Geography and Statistics; United Nations Development Program.

The institutional independent variables control for the characteristics of the deputy's party. Party status is a dummy variable that distinguishes parties that are part of the government coalition and those that are opposition. Party ideology is a dummy variable that indicates the party position on the ideological spectrum. Table 3 presents a summary of these variables.

Table 3: Summary of the Independent Variables: Institutional Data

Independent Variables		Total
Party Status	Government	992
	Opposition	652
Party Ideology	Left	720
	Center	432
	Right	492

Note: Coalition data provided by Argelina Figueiredo.
Classification done by the author.

I decided to classify ideologically the parties in three categories because there are some cases that cannot be classify without including a center category[18]. For

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[18] I follow the ideological classification done by Zucco (2009) who classified parties using roll-call voting data, and Power & Zucco (2009) who classified parties using surveys with federal deputies. Parties that the authors did not classify but had representatives in this legislature were classified according to their manifesto's policy positions. Parties were classified as follow: Left – PT, PSOL, PSB, PV and PPS; Center - PMDB, PP, PTB; Right – PFL/DEM; PHS; PL; PRB, PSC; PSDB; PT do B; PTC.

example, the Brazilian Democratic Movement Party (PMDB) was part of the government coalition in the right-wing government of Fernando Henrique Cardoso and the left-wing Lula's and Dilma Rousseff's governments. This party is recognized as a center party by academia and the media. Since this party usually has strong representation in the Chamber of Deputies, classifying it as left or right would produce biased results.

Results

I ran three multinomial logit models. Model 1 tests only the socioeconomic data. Model 2 tests the institutional variables and model 3 tests all variables together. Table 4 below shows the results for the multinomial models.

The reference category for the dependent variable is the individual. In the first model we see that the statistics are not significant for most of the categories. However, it is interesting to notice that the ones that are significant are the categories that I consider as particularistic proposals: local and regional. GDP per capita is negatively related with the local category, meaning that as the income increases there is a decrease in the probability of a deputy presenting a locally targeted bill relative to presenting an individual bill. Urban population and population density are also negatively related with regional bills. The Gini index produced really interesting results; local and national categories are significant and present really high coefficients. The rise of a unit of Gini index increases the relative log odds of a deputy presenting a local bill by 3.3 while it decreases the log odds of a deputy presenting a national bill by 2.1. This means that the more unequal a deputy's electoral base, the greater the probability that he will present a local/particularistic bill.

Despite of the limited number of significant coefficients these first results follow the expected direction. It shows that deputies that have electoral bases with lower urban population and population density will have higher probability to present a regional bill and that in poorer and more unequal bases they will have higher probability to propose local policies.

Table 4: Multinomial Logit Models – Dependent Variable: Bills' Target Audience (2009)

	Model 1				Model 2				Model 3			
	Local	**Regional**	**Sectorial**	**National**	**Local**	**Regional**	**Sectorial**	**National**	**Local**	**Regional**	**Sectorial**	**National**
GDP per capita (log)	-0.933** (0.416)	0.961 (0.687)	0.146 (0.266)	0.406 (0.271)					-0.974** (0.424)	1.067 (0.773)	0.066 (0.268)	0.404 (0.274)
Education (%)	0.001 (0.017)	0.012 (0.048)	-0.005 (0.010)	-0.007 (0.010)					0.007 (0.017)	0.007 (0.051)	-0.004 (0.010)	-0.007 (0.010)
Urban Population (%)	0.013 (0.017)	-0.070** (0.028)	-0.008 (0.009)	-0.007 (0.009)					0.019 (0.017)	-0.066** (0.031)	-0.004 (0.010)	-0.006 (0.010)
Population Density (log - hab/km²)	-0.121 (0.084)	-0.375** (0.179)	0.024 (0.053)	0.007 (0.053)					-0.224** (0.089)	-0.583*** (0.200)	-0.001 (0.054)	0.002 (0.055)
Inequality Index (Gini)	3.367** (1.422)	0.309 (2.190)	-2.122 (1.481)	-2.537* (1.486)					1.204 (1.441)	-4.047* (2.301)	-3.202** (1.542)	-2.794* (1.552)
Party Status - Oposition					-1,338*** (0.315)	-2.047*** (0.700)	-0.441** (0.197)	-0.103 (0.200)	-1.281*** (0.323)	-2.292*** (0.764)	-0.492** (0.208)	-0.160 (0.211)
Party Ideology - Center					-1.011*** (0.345)	-1.079 (0.679)	-0.108 (0.188)	0.088 (0.192)	-1.115*** (0.351)	-1.335* (0.726)	-0.123 (0.192)	0.079 (0.196)
Party Ideology - Right					1.079*** (0.313)	1.026 (0.634)	0.160 (0.200)	0.154 (0.200)	1.058*** (0.317)	1.806** (0.747)	0.164 (0.202)	0.175 (0.202)
Constant	2.418* (1.404)	-3.353* (1.901)	1.619 (1.470)	0.246 (1.490)	-0.667*** (0.185)	-2.140*** (0.338)	0.956*** (0.127)	0.700*** (0.132)	4.060*** (1.437)	-0.650 (1.951)	2.628* (1.533)	0.351 (1559)
Akaike Inf. Crit	4,155.011	4,155.011	4,155.011	4,155.011	4,149.431	4,149.431	4,149.431	4,149.431	4,130.876	4,130.876	4,130.876	4,130.876

Note: *p<0.1; **p<0.05; **p<0.01

Table 5 below shows scenarios with the probabilities for the presentation of each bill category when GDP per capita, Gini index and urban population are in their minimum and maximum values holding other variables at their mean value.

Table 5: Probability Scenarios for Model 1

	Criteria	Individual	Local	Regional	Sectorial	National
Scenario 1	max Gini	0.20	0.10*	0.007	0.36	0.31*
Scenario 2	min Gini	0.15	0.03*	0.004	0.40	0.39*
Scenario 3	max GDP	0.14	0.02*	0.01	0.37	0.44
Scenario 4	min GDP	0.19	0.16*	0.002	0.37	0.26
Scenario 5	max pop density	0.17	0.03	0.001*	0.41	0.36
Scenario 6	min pop density	0.17	0.09	0.03*	0.34	0.34

Note: *criteria variable was statistically significant in the models.

Scenarios 1 and 2 show the probabilities for each bill when the Gini index is at the maximum and minimum value. Holding the other variables at their mean value, when the Gini index of an electoral base is at its maximum value the probability of presenting a local bill is 10 percent while it is only 3 percent at its minimum value. However, there is a higher probability that in both cases the deputy will present a national bill; 31 percent if the electoral base has a high Gini index and 39 percent if it is low. The probability will be lower if inequality is high, but even for very unequal electoral bases the deputy will have higher probability to invest in a national target bill.

Scenarios 3 and 4 show the probabilities for maximum and minimum values of GDP per capita. It shows that if the electoral base has the highest GDP per capita, the deputy has only a 2 percent probability of presenting a local bill while if it has the lowest value the probability increase to 16 percent. From scenarios 5 and 6 we note that for the most populous bases, deputies have only a 0.1 percent probability of presenting a regional target bill, while for the less populated ones the probability increases to 3 percent.

The statistical significance of the variables for the local and regional categories is probably due to the fact that it is easier to credit-claim for particularistic benefits targeted to voters located in well-defined spatial limits. The difference in probability between more and less populous bases is consistent with the literature: when the locality is less populous it is easier to monitor voters and it is less costly to distribute

particularistic benefits. Furthermore, representatives of poorer municipalities will have a higher probability of serving them with local proposals.

However it is important to highlight that Gini index demonstrates a preference to national rather than local bills. In this sense, the socioeconomic data do not show a clear preference, when it comes to presentation of bills, to a solely particularistic linkage strategy. It should be noted that these results are not controlling for the institutional variables yet, thus, even without the control of possible institutional limits deputies do not act exclusively in a particularistic way.

In the first six scenarios, I evaluated the impact of each significant socioeconomic variable on the type of bill the deputy will choose to present by holding other variables at their mean. Scenarios 7 and 8 in table 6 below show the probabilities for the less and more developed electoral bases. The less developed base has the lowest values of GDP per capita, education, urban population, population density and the highest value of the Gini index. The more developed base is the opposite situation; the bases present the highest values of GDP, education, urbanization and population density and the lowest value of the Gini index.

Table 6: Probability Scenarios for Model 1 – Less and More Developed Electoral Bases

	Criteria	Individual	Local	Regional	Sectorial	National
Scenario 7	less developed base	0.15	0.21	0.06	0.32	0.24
Scenario 8	more developed base	0.16	0.01	0.0005	0.37	0.43

The probabilities clearly show that deputies that receive more votes in less developed electoral bases have a higher probability of presenting a local particularistic bill (21%) than the ones that are supported by more developed bases. Representatives of more developed bases have a higher probability of presenting national bills (43%) than representatives of less developed ones (24%). However, in both situations deputies have a higher probability of presenting a programmatic rather than a particularistic bill.

Model 2 shows that institutional factors have bigger effects on the bills' target audience. Variables are not significant for all categories, but the model shows statistical significance and high coefficients for all variables for the local category. It indicates that there is a negative relationship between the presentation of local, regional and sectorial bills and affiliation with an opposition party. Deputy affiliation to an opposition party decreases by 1.3 the log odds that he will present a local or regional bill relative to an individual bill. The relationship is weaker for sectorial bills; it decreases the logs odds by 0.4.

The coefficient is not significant for national bills, but what these results are showing is that opposition deputies have a lower probability of engaging in particularistic electoral linkage. Some reasons can be listed. First, their party's role to confront the government may induce them to defend more programmatic policies that put into question government policies. Second, since in Brazil the Executive is responsible of planning and executing the federal budget, centering resources in its hands, opposition deputies may have more difficulty obtaining resources to serve their electoral base with particularistic benefits than government allies. Party ideology has a positive effect on presentation of local bills when the deputy is affiliated to a right-wing party and a negative effect when he is from a center party. Thus, Brazilian conservative deputies have a tendency to present particularistic bills.

Table 7 below presents the probabilities of a deputy presenting each category bill for combinations of party status and party ideology categories.

Table 7: Probability Scenarios for Model 2

	Criteria	Individual	Local	Regional	Sectorial	National
Scenario 1	Government/Left	0.16	0.08*	0.01	0.41	0.32
Scenario 2	Government/Right	0.12	0.18*	0.03	0.37	0.28
Scenario 3	Opposition/Left	0.21	0.02*	0.003	0.36	0.39
Scenario 4	Opposition/Right	0.18	0.07*	0.007	0.35	0.38

Note: *criteria variable was statistically significant in all models for this category.

Comparing all combinations of party status and ideology, deputies from right-wing government parties have the highest probability of presenting a locally target bill. Deputies affiliated to right-wing parties have the highest probability independent of their status; right-wing government parties have an 18 percent probability of presenting a local bill while right-wing opposition parties have a 7 percent probability of

presenting this type of bill. Deputies from left-wing government parties have a higher probability (8%) of presenting local bills than deputies affiliated with left-wing opposition parties (2%). Opposition party members have a lower probability of presenting local bills independently of their ideology, strengthening the argument developed above about the limited access these deputies have to resources centered in the federal executive.

Model 3 includes all socioeconomic and institutional variables. The results confirm the findings of the other models, showing better coefficients for the statistically significant variables. GDP per capita and population density are negatively related with the presentation of local bills; urban population has a negative relation with the presentation of regional targeted bills. These results confirm the previous findings: deputies that have poorer and less populous electoral bases are more likely to present particularistic bills.

Controlling for the characteristics of the deputies' parties, the Gini index is statistically significant for more bill categories, even though the local category becomes insignificant. As expected, the Gini index is negatively related with sectorial bills: the increase of one unit of Gini decreases the relative log odds that the deputy will present a sectorial bill by 3.2 compared to presenting an individual bill. The unexpected result was the negative relation between inequality and regional bills. When the parties' characteristics are taken into account, an increase of one unit of the Gini index decreases the log odds that a deputy will present a regional bill by 4.

The results for the institutional variables have the same tendency as in model 2. Model 3 confirms that there is a negative relation between affiliation with an opposition party and the presentation of local, regional and sectorial bills, and a positive relation between being affiliated to a right-wing party and presenting a local bill.

Table 8 shows probability scenarios for the less and more developed electoral bases and the combinations of party characteristics that showed higher and lower probability of presenting local bills in model 2.

Table 8: Probability Scenarios for Model 3

	Criteria	Individual	Local	Regional	Sectorial	National
Scenario 1	less developed/government right	0.06	0.33	0.3	0.17	0.11
Scenario 2	more developed/government right	0.12	0.05	0.002	0.43	0.38
Scenario 3	less developed/opposition left	0.24	0.11	0.01	0.32	0.3
Scenario 4	more developed/opposition left	0.01	8.7 e-03	7.3 e-05	0.03	0.04

The scenarios show that deputies from both right-wing government parties and left-wing opposition parties have a higher probability of presenting local bills to less developed than to more developed electoral bases. Comparing to left-wing opposition party members, deputies from right-wing government parties have higher probability of presenting local bills to any type of electoral base – 33 percent if it less developed and 5 percent if it is more developed. Left-wing oppositionist representatives, on the other hand, have virtually no chance of presenting a local bill to more developed bases.

Conclusions

The objective of this paper was to understand how the electoral connection operates in open list proportional representation systems. This system presents the same incentives to cultivate a personal vote as the majoritarian single-member district; thus, we could expect that representatives in both systems would engage in the same type of electoral connection, trying to send particularistic benefits to their constituencies.

However, I have argued that in proportional representation systems the electoral competition is different from majoritarian systems since candidates need just a portion of the votes on the whole district to get elected. They have more options to establish linkages with voters: they can choose a specific area of the district or a particular group

of the society to develop a connection. In this sense, the activities performed in the legislative arena will reflect the characteristics of the representative's electoral base.

Furthermore, representatives also have to take into account the characteristics of the political institutions they will have to deal with during their mandate. We already know from the literature that legislators in decentralized legislative organizations, such as the American Congress, have enough freedom of action to pursue particularistic resources for their constituencies. In turn, I have argued that more centralized legislative organizations like the Brazilian one impose limits on representatives' actions.

Using Brazil as a case study I demonstrated that deputies in open list proportional representation systems develop more diverse linkage strategies. Deputies that receives more support in poorer, less populous and more unequal municipalities have higher probabilities to present a particularistic bill. Institutions also matter; the probability of presenting particularistic bills increases if the deputy is affiliated with a right-wing government party. However, contradicting the literature that argues that deputies in Brazil tend to develop more particularistic linkages because of the open list incentive to cultivate a personal vote, most of the bills presented in the Chamber of Deputies in 2009 were programmatic. In this sense, institutional features also affect legislative activities at least when it comes to presentation of bills.

This study still needs to be improved. Future analyses have to include controls for the candidates' features (career, professionalization, etc), more years and other types of legislative activities. They will also need to test different models for robustness checks. However, these preliminary results already confirm the hypothesis developed in this research.

The main contribution of this paper is to show that candidate-centered electoral systems will not always induce particularistic linkages and individualistic legislative behavior. Linkages can be more diverse, depending on the electoral formula, the structure of the legislative organization and the socioeconomic conditions of the electoral base.

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