Partisan intergovernmental transfers: empirical evidence, political and economic effects, and the electoral rationale

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Abstract

This article discusses the stylized fact of politically motivated intergovernmental transfers, according to which a higher level of public administration (federal or state government) transfers greater resources to lower levels (states or municipalities) when the same party holds the Executive in both levels. First, it shows that it is a pervasive phenomenon in the world in general and in Brazil in particular. Then, it discusses its effects on subnational electoral equilibria and on the performance of the public administration. Finally, it builds a political economy model that explains the electoral rationale behind this stylized fact.

Key words: Partisan transfers, fiscal federalism, electoral competition

Motivação partidária nas transferências intergovernamentais: Evidência empírica, efeitos políticos e econômicos, e lógica eleitoral

Resumo

Este artigo discute o fenômeno das transferências intergovernamentais politicamente motivadas, segundo o qual uma esfera superior da administração pública (governo federal ou estadual) transfere maiores recursos às esferas inferiores (estados ou municípios) quando o mesmo partido ocupa os executivos de ambas as esferas. Mostra, primeiramente, que se trata de um fenômeno recorrente no mundo em geral e no Brasil em particular. Em seguida discute seus efeitos tanto no equilíbrio eleitoral subnacional, como no desempenho da administração pública. Finalmente, constrói um modelo de economia política que explica a lógica eleitoral por trás desse fato estilizado.

Palavras-chave: Transferências partidárias, federalismo fiscal, competição eleitoral

Motivación partidaria en las transferencias intergubernamentales: Evidencia empírica, efectos políticos y económicos, y lógica electoral

Resumen

En este artículo se analiza el fenómeno de las transferencias intergubernamentales con motivación política, según el cual un nivel superior de la administración pública (gobierno federal o provincial) transfiere mayores recursos a los niveles inferiores (provincias o municipios) cuando un mismo partido ocupa el Ejecutivo de ambos niveles. Primero, muestra que es un fenómeno resiliente en el mundo en general y en Brasil en particular. Luego analiza sus efectos tanto en el equilibrio electoral subnacional como en el desempeño de la administración pública. Finalmente, construye un modelo de economía política que explica la lógica electoral detrás de este hecho estilizado.

Palabras clave: transferencias partidarias, federalismo fiscal, competición electoral.

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1. Introduction

Since the publication of the first article in 1970 (Monteiro, 1970), Jorge Vianna Monteiro has displayed two characteristics that would permeate his academic career: constant search for theoretical and methodological updating and a concern with the country's economic development. After an initial emphasis on macroeconomics (Monteiro, 1971a, 1971b), Jorge Vianna focused in analyzing the role of the state in the economy, first concentrating on planning (Monteiro 1973, 1974), next, on public choice from the 1980s onwards (Monteiro 1980, 1981). Since then, Jorge Vianna has consistently contributed to the study of public choice in Brazil, in about 120 publications in academic journals. His continuous output has greatly contributed to consolidate a research area dedicated to the study of the functioning of the public sector, its failures, and the solutions to these failures. The line of research on politically motivated intergovernmental transfers presented here inherits from Monteiro's contributions the public-choice approach, the academic rigor, and the concern with the working of the Brazilian public sector.

Brazilian citizens are summoned to the polls every other year, either to elect their local mayors and councilors or to elect their state and national representatives, senators, governors, and the president. At each election, the media invariably reports that municipalities of the same party as the president or governor have been receiving additional intergovernmental grants[1]. The phenomenon, known as "partisan transfers," according to which the federal government (respectively, state) transfers more resources to municipalities of the same party as the president (respectively, governor), has been the focus of many academic studies in Brazil and worldwide. This article aims to discuss partisan transfers from three complementary perspectives.

First, section 2 presents a selective review of the empirical literature showing econometric evidence that this is a pervasive phenomenon in the world and in Brazil.

Next, section 3 describes the political economy model developed by Ferreira and Bugarin (2005 and 2007), which extends Rogoff (1990)'s original model to include the effect of partisan transfers. The extension shows that partisan transfers can undo the positive effect of the political business cycle, identified by Rogoff, of selecting competent politicians. Furthermore, it discusses the consequences for subnational voting behavior, for the functioning of the economy and public administration, and for the public finance goal of

[1] Bragon (2004), Bragon (2007), Brandt (2004), Portinari (2020).

equalizing the provision of local public goods.

Then, section 4 presents the original contribution of the paper: a political economy model that explains why it is optimal for a president or governor to bias the distribution of voluntary transfers in favor of aligned municipalities (the mayor belongs to the same party) in order to maximize his re-election prospects.

Finally, section 5 concludes and discusses the research road ahead.

2. The empirical evidence

2.1. The international evidence

The partisan transfers phenomenon came to light nearly 50 years ago when Wright (1974) showed statistical evidence that the distribution of resources from the US government's "New Deal" program favored regions where the president's party received more votes.

Ansolabehere and Snyder (2006), in a careful econometric study, find evidence that "the governing parties skew the distribution of funds in favor of areas that provide them with the strongest electoral support." More recently, Garofalo (2019) corroborated the previous results, but also found evidence of the phenomenon known as "Strategic partisan transfers[2]" whereby "the federal government increases funds to politically aligned local districts only when they are inside non-aligned states"

Popov (2004) with a cross-section model and Jarocińska (2010) with a panel model conclude that, from 1995 to 2001 in Russia, transfers from the central government to regions where President Yeltsin received the highest percentage of votes increased.

Kraemer (1997) analyzes national government transfers to states in Mexico in 1986 and 1992, concluding that "states loyal to the PRI (ruling party) received, *ceteris paribus*, more per capita funds than opposition strongholds."

Khemani (2007) builds a database of discretionary transfers from the national government to the states over the period 1972 to 1995 in India, and finds evidence, using several alternative models, that when the state government belongs to the president's party, the state receives larger transfers. It is worth noting that the article also concludes that funds distributed by independent agencies that implement constitutional transfers do not follow

[2] The term was coined in Bugarin and Marciniuk (2017) for the case of Brazil, as will be discussed later.

that pattern.

Solé-Ollé and Sorribas-Navarro (2008) use a database of voluntary transfers to municipalities in Spain from three different spheres of government: the national government, the regional governments, and the upper-local governments. Models of differences-in-differences and triple differences using data from 1993 to 2003 suggest that “partisan alignment has a sizeable positive effect on the amount of grants received by municipalities.”

For Portugal, Veiga and Pinho (2007) study a period spanning from 1974 to 2002 that involves a subperiod classified as “new democracy” from 1974 to 1988 and a second subperiod of “mature democracy” from 1989 to 2002. The authors find evidence that the “central governments distributed grants strategically among municipalities only in the new democracy period: municipalities ran by mayors affiliated with the party of the central government received more grants.”

According to Tamura (2010)[3], “previous research has insisted that the amount of LAT for each local government is calculated by very meticulous formula objectively.” Refuting that view, the paper shows that the “central government favors local governments with similar partisan characteristics to increase the amount of transfer, whereas central government dislikes local governments with different partisanship to decrease the amount of transfer.[4]”

2.2. The empirical evidence for Brazil

The first research to present econometric evidence of voluntary transfers to Brazil is Ferreira and Bugarin (2005). That paper uses a database of voluntary transfers from the Central government and the State governments to the municipalities from 1998 to 2003. The panel model with fixed effects indicates “a positive correlation between political alignment between mayors and governors with voluntary transfers from states to municipalities.”

[3] LAC for Local Allocation Tax.

[4] See also Grossman (1994), Levitt and Snyder (1995) for the USA; Worthington and Dollery (1998) for Australia, Glaurdić and Vuković. (2017) for Croatia, Gonschorek, Schulze and Sjahrir (2018) for Indonesia; Porto and Sanguinetti (2001) for Argentina; and Rozevitch and Weiss (1993) for Israel.

Next, Ferreira and Bugarin (2007) present an econometric study with voluntary transfers from the Central government and the States to the municipalities from 1998 to 2004. The study finds evidence of "a positive correlation between the political alignment of mayors with the coalitions that elected the governors and voluntary transfers received by municipalities; in addition, it also shows a positive correlation between the political alignment of mayors with the President of the Republic and voluntary transfers." Furthermore, the two studies highlight the "mid-term fiscal cycle," which asserts that voluntary transfers in Brazil follow a biannual cycle, increasing with each election year, be it national or local elections.

These studies were extended to the period 1997 to 2008 in Bugarin and Ubrig (2013) with several additional control variables. The paper finds evidence of partisan transfers in both the state-municipal relationship and the president-municipal relationship. However, the study suggests "a preponderance of party motivation at the highest level (i.e., from the president to the mayors) over the intermediate level (from the governor to the mayor)" (own translation). The article finds several additional results, such as an initial reduction in the volume of voluntary transfers with the change of party in the presidency in 2003, which was progressively recovered with steady growth in transfers over the subsequent years.

The issue was further addressed in Sakurai and Theodoro (2014, 2020) using a new triple-difference methodology applied to voluntary transfers over the period 1998-2008. The authors conclude that political alignment has little influence on the "Other current transfers" line; however, the methodology confirms the positive and significant effect of policy alignment on capital transfers.

The previous studies have greatly contributed to characterizing the stylized fact of partisan transfers in Brazil. However, they are all subject to the same criticism regarding the quality of the data they used. Indeed, the low level of disaggregation in the data provided by the National Treasury Secretariat and the lack of clarity at the time about what should be classified as voluntary transfers affected the confidence in the conclusions. To cite an example, one of the relevant headings was "Other capital transfers from the states and the Union," which neither allowed a disaggregation of transfers from the states and transfers from the Central government nor explained what exactly these "other transfers" were.

This problem was addressed in Brollo and Nannicini (2012), which reduced the scope of the study to transfers to infrastructure projects but gained precision as they worked with data extracted from grant agreements between the Central government and municipalities in the period 1999 to 2010. The authors used a regression discontinuity design (RDD) with municipalities that had close elections, in which one of the two (or at most three) main candidates belonged to the party government, comparing transfers in the last two years of each mayor’s term. The treatment was the political alignment with the same party or coalition of the president's party. The econometric study found evidence of a positive and significant effect of political alignment if the mayor's party belonged to the coalition supporting the president and not directly to the president's party. Furthermore, the econometric study suggests that there was a significant reduction, to levels close to zero, in transfers to municipalities where the opposition mayors beat the candidate aligned with the federal government by a small margin, suggesting an intention to weaken that mayor, perhaps to recover that city hall in a future election.

On May 16, 2012, Brazil passed the “Information Access Law”, which completely changed the paradigm for information handling in the country. From that date onward, information generally became public, and secrecy became limited to only well-justified cases. Then, the Brazilian Office of the Comptroller General decided to make all federal government grants to municipalities since January 1996 publicly available. This resulted in a database with 467 thousand contracts.

However, these contracts were not classified according to the type of grants. Aware of the limitations that the low quality of data entailed for understanding and monitoring voluntary transfers in the country, the federal government named a task force in 2014 composed of staff from the National Treasury Secretariat (STN), the Federal Budget Secretariat (SOF), the Secretariat of Logistics and Information Technology (SLTI), and Office of the Comptroller General to precisely classify the different categories of transfers from the Central government. The task force worked from June to November 2014, producing, in 2015, the Technical Note 14/2015 that presents the classification in Table 1.

Table 1. Classification of the Brazilian Federal government fiscal transfers according to their legal characteristics

Category	Type	Description
Mandatory	Constitutional	Required by the Federal Constitutions, regulated by law, made automatically to Members of the Federation (States and Municipalities).
	Legal	Required by a specific law and specific regulation, made to Members of the Federation and non-profit private organizations.
Discretionary	To civil society organizations	Direct resources to non-profit civil society organizations in the form of subsidies, support, or contribution for achieving public interest goals. Require a contract.
	Voluntary	Direct resources to Members of the Federation in the form of cooperation grants, support, or financial assistance that are not required by the Constitution neither specific law, and are not directed to the National Public Health System (SUS). Require a contract and, in general, matching local funds.
	By delegation	Direct resources to Members of the Federation or Public Consortia aiming at delegating the implementation of public projects or actions under the exclusive responsibility of the recipients. Require a contract.
	Specific	Direct resources in specific cases where the beneficiary is not required to comply with fiscal requisites. They are usually related to government programs. Require a contract and the budgetary execution in discretionary, even though some may be defined as mandatory or automatic transfers by law.

Source: Brazil. National Treasury Secretariat (2015) apud Bugarin and Marciniuk (2017).

Upon completing the classification of transfer types, the General Coordination for Analysis and Information of Intergovernmental Financial Transfers (COINT/STN) built a high-quality database on voluntary transfers from the Central government to municipalities, from 1997 to 2012. That database was used in Bugarin and Marciniuk (2017), the first study based on complete and accurate data on partisan transfers in the country.

Bugarin and Marciniuk (2017) used panel data for the period above, reaching the results highlighted below.

First, it confirms evidence of biannual cycles for transfers from the Central government to municipalities, both in federal election years and in municipal election years, with total amounts higher in federal election years, contrary to the findings in Brollo and Nannicini (2012) that focused on transfers to infrastructure projects.

Second, also contrary to that paper, there is strong evidence that when the mayor belongs to the same party as the president, the municipality receives higher amounts (per capita) of voluntary transfers with a caveat: this only happens when the governor of the corresponding state is not from the same party as the president. This stylized fact, according to which the Central government biases voluntary transfers in favor of municipalities of the same party as the president only when the state government does not belong to that party, was called the “Strategic partisan transfers hypothesis” and was also shown to be valid for the US in Garofalo (2019), as discussed earlier.

Other results in Bugarin and Marciniuk (2017) include greater transfers to municipalities more to the right when the PSDB held the presidency and greater transfers to municipalities more to the left when the PT held the national executive, in addition to several tests of robustness, including evidence that partisan bias does not exist in mandatory transfers (the Municipal Participation Fund), as Khemani (2007) found for India and contrary to Tamura (2010)’s evidence for Japan.

In addition to studies focused on the executive's political motivation in voluntary transfers, recent studies also analyze this phenomenon in the Legislative sphere. Marciniuk, Bugarin, and Ferreira (2020) use the Bendevid-Val (1991) location coefficient to determine the “informal electoral districts”[5], i.e., the regions of a state in which each federal representative holds the most significant number of votes, in other words, his electoral base. Based on this indicator, the paper finds evidence that there is also party motivation in the National Congress’s parliamentary amendments.

3. The effects of partisan bias on intergovernmental transfers

The stylized fact of partisan transfers worldwide raises questions on what effect this mechanism has on the national and local electoral balance, as well as on the quality of a

[5] See Ames (2003) or Diniz (2009).

country's public administration.

These issues were addressed in Ferreira and Bugarin (2005) and Ferreira and Bugarin (2007). To better understand these papers, it is convenient to discuss the issue of economic cycles associated with political processes. Such theoretical literature begins in the 1970s with the seminal contribution of Nordhaus (1975). This article presents a model for conducting monetary policy with the following characteristics: (i) the national government, seeking reelection, loosens monetary policy in an election year; (ii) the monetary easing causes an (artificial) growth of the economy in that year; (iii) voters observe this growth and, gratified, reward the ruling party with re-election; (iv) in the year following the elections, the artificial growth brings about inflationary pressure, which requires monetary tightening and recession. Therefore, the incessant search for re-election contributes to an artificial economic cycle of growth during electoral periods and recession after elections.

Although the model in Nordhaus (1975) is consistent from a mathematical point of view, it received criticism after the rational expectations' revolution [6], precisely for the equilibrium of the model where voters are constantly and predictably deceived by the ruling party; the ruling party uses monetary policy manipulation to stay in power although this does not result in real growth or social welfare improvement.

This criticism remained unanswered for almost 15 years, until Rogoff (1990) [7] presented an alternative model of economic cycles engendered by political motivations that were focused no longer on monetary policy, but on fiscal policy. That paper presents a modern model of positive political economy with the following characteristics: (i) the national executive incumbent may be a more or less competent/efficient manager[8]; (ii) the more competent agent can produce more public goods with the same amount of resources than the less competent one; (iii) competence is a stochastic phenomenon with a memory of a period, i.e., competence today corresponds to the sum of the realization of a random variable yesterday with the realization of the same random variable today; (iv) the politician observes the two components of his competence, the past and the contemporary, but voters only observe the past component; (v) voters are rational, and their only electoral motivation is to elect the most competent politician who will produce more public goods

[6] See Muth (1961), Lucas (1972), Lucas (1976) or Ferreira (2013).
[7] See also the companion paper Rogoff and Sibert (1988).
[8] We interchange the use of the words "efficient" and "competent" for the incumbent's ability to produce more public goods with the same budget.

with the same budget.

Credible communication between the representative and the voters is processed through the production of public goods, which can be of two types: fast-supply goods (which we will call consumption goods) whose consumption occurs in the same period as their expenditure, and investment goods, whose expenditure is made in one period, but whose consumption occurs only in the subsequent period.

Production is financed by local taxes. The friction in this model occurs due to the asymmetric information between voters and the incumbent. In fact, when observing a high production of consumption goods in a period in which there was a reduced tax burden, voters do not know if this occurred because the incumbent is a competent politician or because he is incompetent but has greatly reduced the production of investment goods, whose effect will only be felt in the post-electoral period.

Finally, an important feature of this model is the hypothesis that the politician is also a citizen (citizen-candidate model, Besley and Coate (1997), Osborne and Livinski (1996)), so that he dislikes the low production of public goods when he is inefficient. This feature of the model allows for a separating equilibrium of the game between the incumbent and voters, with the following properties: (i) the competent incumbent biases the policy in election years, reducing taxes, increasing the provision of consumption goods (observable), and reducing the production of public investment goods (not currently observable); (ii) the incompetent representative understands that if he adopts the same policy as the competent one and is reelected, then given his low productivity, there will be a significant reduction in social welfare in the following period; therefore, he prefers to follow a balanced fiscal policy even though he understands that voters will not reelect him; (iii) voters understand that only efficient representatives will dare to create this deviation in fiscal policy, so when they observe the reduction in taxes and the increase in the provision of public consumption goods, they understand that the incumbent is competent and reelect him; on the other hand, when observing a balanced fiscal policy, they understand that the incumbent is incompetent and do not reelect him.

Therefore, Rogoff's model (1990) explains political-budgetary cycles as a consequence of the equilibrium of the electoral game between citizens and rational incumbents, in which voters give up control of fiscal policy (admitting the suboptimal deviation generated by the efficient incumbent, a problem of moral hazard) to select the most efficient politician to lead the executive in the next electoral term (thereby solving the problem of adverse selection). In other words, there is a rational trade-off between moral hazard and adverse selection that engenders the political-budgetary cycles.

Having solved the problem of myopia in voter behavior associated with Nordhaus (1975), Rogoff (1990) suggests in his conclusion that "one can also look at data for state and local elections, instead of concentrating solely on the small number of observations available for national elections," since the variables now in focus are taxes and government expenditures. Ferreira and Bugarin (2005) and Ferreira and Bugarin (2007) followed this advice, adapting Rogoff's (1990) basic model to the subnational level. As a result, a new variable that was not present in the national model naturally emerges: the fact that local budgets are increased by intergovernmental transfers from higher levels of government. Therefore, these transfers will also affect the efficiency of the political incumbent as well as the local government's ability to produce public goods.

In turn, intergovernmental transfers are essentially of two types: mandatory transfers (for example, the municipal participation fund (FPM) in the case of municipalities, and the state participation fund (FPE) in the case of the states) and voluntary transfers. For the latter, as seen above, there is a strong partisan bias.

Ferreira and Bugarin (2005, 2007) incorporates both mandatory transfers and partisan transfers into the original model, requiring voters to make a more complex analysis. Indeed, when deciding who to vote for, a new trade-off emerges. On the one hand, a competent mayor can produce more public goods with the same budget; on the other hand, a mayor from the same party as the president will receive more voluntary transfers, softening the local budget constraint.

The expanded model shows that if the volume of resources obtained through partisan transfers is high, then the partisan effect will dominate the efficiency effect and voters will vote for a politician from the same party, regardless of his efficiency. Therefore, all benefits of political-budgetary cycles found in Rogoff (1990) may be offset if partisan transfers are in significant amounts. This is the main contribution of the extension.

The electoral consequences of partisan transfers now become clear: in those municipalities where transfers are high, instead of selecting the most efficient candidate, voters choose the "the king's friend." Furthermore, this preference for political alignment generates a certain inertia in the electoral behavior of citizens. In fact, if voters in a municipality elect a mayor from the same party as the president in the municipal elections, then two years later, when they vote for president, they will have a new incentive to vote for the same party to guarantee the continuity of partisan transfers.

On the other hand, if the incumbent president loses the election race, it is expected that, two years later, municipal voters will replace the mayor with another one aligned with the new executive incumbent. It is a kind of delayed "coattail effect" (Ferejohn and Carvert, 1984) that is created not due to the popularity of a candidate, but to the strategic behavior of municipal voters who seek to guarantee the return of partisan transfers to their municipality.

The effects on the quality of public administration are also clear: by keeping inefficient politicians in the administration of certain municipalities, partisan transfers induce a Pareto-dominated result. In fact, suppose that the same distribution of resources was maintained regardless of political alignment, then, by selecting the most competent politicians, the model in Rogoff (1990) increases the provision of public goods in general, increasing the corresponding social welfare.

The consequences to local economies and, as a result, the country's economy are also evident: each incompetent mayor in power generates a smaller amount of public goods than an efficient, alternative candidate. Therefore, by encouraging inefficient politicians to remain in power, the stylized fact of partisan transfers reduces the government's output as a whole, thus limiting the nation's economic growth.

Finally, it should be remembered that Public Economic Theory established the main normative objectives of intergovernmental transfers as: (i) reduce fiscal imbalances between municipalities, enabling all inhabitants of a nation to access an adequate minimum level of public goods and services; (ii) solve externality problems related to the production of public goods, increasing the efficiency of the provision of public goods and services; (iii) improve the overall performance of a country's tax system; (iv) support national macroeconomic stabilization efforts[9]. These objectives are associated with the meritorious character of the transfers, i.e., they must be defined according to the needs of each municipality. By skewing transfers towards aligned municipalities, another motivation is added, the partisan one. This, of course, tends to clash with the fundamental objectives of intergovernmental transfers, preventing transfers from achieving their main

[9] See Musgrave (1959) or Bugarin, Bugarin and Pires (2010).

purpose.

4. The partisan transfers rationale

The previous sections showed empirical evidence that partisan transfers are a stylized fact worldwide and discussed their negative effects on the local electoral equilibrium as well as on the quality of public management and economic growth in a country. Considering the negative effects of this phenomenon, why is it so widespread? This section presents an original contribution to the study of partisan transfers, by building a positive political economy model that explains the electoral logic behind this phenomenon, extending the models of electoral competition in Persson and Tabellini (2000, chapter 3), Portugal and Bugarin (2007), and Schneider, Athias, and Bugarin (2019).

4.1. Primitives of the model

Citizens

The society is composed of a continuum of size 1 voters, $\Omega = [0,1]$. Each citizen $i \in \Omega$ has a type $y^i \geq 0$, his income, and derives utility from private consumption c^i and the consumption of a local public good, which is measured in per-capita expenditure g. We assume that the citizen's utility takes the quasilinear form $w^i = c^i + H(g)$ where H is a twice continuously differentiable, strictly increasing, strictly concave function. Hereafter we use the notation H_g, H_g^{-1}, and H_{gg} for the first derivative, the inverse function of the first derivative, and the second derivative of H, respectively. Therefore, $H_g, H_g^{-1} > 0$ and $H_{gg} < 0$.

The country is divided into exactly two electoral districts, $J = I, II$, which we call municipalities, for simplicity. Note that this model abstracts from considerations involving an intermediate administrative level (the state) in order to focus on partisan incentives between the central government and the smaller subnational sphere.

In order to simplify the analysis even further, assume, without loss of generality, that all citizens of the same municipality $J = I, II$ have the same income[10] y^J.

Let $\alpha^J \in (0,1)$ be the percentage of the total population living in municipality J. Then,

[10] Alternatively, y^J can be seen as the average income in municipality $J, J = I, II$.

$\sum_J \alpha^J = \alpha^I + \alpha^{II} = 1$ and $y := \alpha^I y^I + \alpha^{II} y^{II}$ is the average income in the country.

Parties

Two parties $P = A, B$ compete for the top position in the national executive, the presidency, simultaneously announcing a political platform. Once elected, the ruling party implements the announced platform. Each party chooses its platform to maximize its chances of winning the elections. A political platform for party P consists of a three-dimensional vector $\kappa_P = (g_P^I, g_P^{II}, \tau_P)$ where g_P^J is the amount of local public goods to be provided in municipality J if party P wins the elections and $\tau_P$is the uniform income tax rate that will be charged to all citizens to finance the provision of local public goods.

Therefore, political platform κ_P must satisfy the government budget constraint[11]:

$$\alpha^I \tau_P y^I + \alpha^{II} \tau_P y^{II} = \tau_P y = \alpha^I g_P^I + \alpha^{II} g_P^{II}$$

Ideological components and stochastic factors affecting political preferences

Each voter i in municipality J has an ideological bias σ^{iJ} that reflects the additional gain/loss in utility if party B wins. This bias can be positive if the voter prefers party B over party A, or negative, indicating a preference of A over B. Each voter knows his personal ideological bias, but parties only know that σ^{iJ} is uniformly distributed over an interval $\left[-\frac{1}{2\phi^J}, \frac{1}{2\phi^J}\right]$, where $\phi^J > 0$ models the municipality's ideological uniformity: the larger ϕ^J, the smaller the difference among citizens' ideological positions.

Furthermore, during the electoral campaign, a shock of preferences ("looks shock") that affects the entire population is realized. The shock can be interpreted as a general benefit or a global loss that is beyond the control of the politicians. For example, a pandemic tends to reduce the ruling party's popularity; on the other hand, a country that relies heavily on a commodity, such as oil, tends to see its government's popularity increase when the commodity international prices increase. This shock is modeled as a random variable δ that is added to voter utility when party B wins and is assumed to be uniformly distributed over the interval $\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$, where $\psi > 0$ measures the sensitivity of society

[11] In the basic model there is no deadweight loss of taxation nor resource deviation. However, the model could easily be extended to incorporate such realistic frictions.

this type of shock: the greater ψ, the smaller the electoral effect of the shock.

Gratitude or feeling of indebtedness

The main friction of the model is that voters feel indebted to the president's party when it provides for the local public goods. This feeling of gratitude is reflected in an increase in the utility of the citizen of a municipality proportional to the amount of per capita investment, g_P^J, that the party makes in providing local public goods to that municipality. Let $h^J \in (0,1)$ be the corresponding proportionality factor. Then, different municipalities may have different proportionality factors. For example, a wealthier municipality may find that provision of local public goods is but the central government's obligation, given that this municipality contributes more to financing local public goods with its taxes than poorer ones. In this case, a small value of h^J is expected.

A fundamental aspect that is expected to affect the value of h^J is the understanding that the local public good is indeed provided through the party's effort in the national government. Suppose municipality J' mayor belongs to the same party as the president. Then, voters must clearly attribute to that the responsibility for the public good. So h^J must be high. On the other hand, suppose the mayor of the municipality belongs to an opposition party. Then the mayor works to make voters believe that his party is responsible for providing the public good, while the president's party will seek to make it its own. The dispute will tend to confuse voters, resulting in lower levels of recognition. Therefore, in this simplified model there will be four possible value levels for h^J: $h_{AA}^J, h_{AB}^J, h_{BA}^J, h_{BB}^J$ where the first underlined letter corresponds to the party that occupies the national executive and the second to the mayor's party. Therefore, the hypothesis made in this model translates into $h_{AA}^J = h_{BB}^J > h_{AB}^J = h_{BA}^J$.

4.2. Solution of the electoral competition game

We solve the political economy model by backward induction in four steps.

Step 1: The economic agent's problem

After all the political decisions $\kappa = (g^I, g^{II}, \tau)$ have been made, it remains for the citizen to decide how he will spend his income net of taxes. He will then decide to spend this resource entirely on private consumption, which will result in the utility below.

$$W(g,\tau;y^J)=(1-\tau)y^J+H(g^J)$$

Step 2: Economics and politics

The government's budget constraint links the provision of public goods to the tax levied.

$$\alpha^I g^I+\alpha^{II}g^{II}=\tau y\Rightarrow\tau=\frac{\alpha^I g^I+\alpha^{II}g^{II}}{y}\Rightarrow(1-\tau)y^i=(y-\alpha^I g^I-\alpha^{II}g^{II})\frac{y^i}{y}$$

Therefore, the utility of citizens can be written only in terms of their income and the provision of public goods.

$$W(g;y^J)=(y-\alpha^I g^I-\alpha^{II}g^{II})\frac{y^J}{y}+H(g^J)=:W^J(g)$$

Step 3: The political agent's preferences

Agent i from municipality J's preferred policy $g=(g^I,g^{II})$ is the solution to the problem:

$$\max_g\ W^J(g)=(y-\alpha^I g^I-\alpha^{II}g^{II})\frac{y^J}{y}+H(g^J)$$

Naturally, the provision of a public good to the other municipality, g^{-J}, is only a cost (in terms of taxes) for that voter of municipality J. Therefore, he prefers $g^{-J}=0$ and the solution of his utility maximization problem yields $g^J=H_g^{-1}\left(\frac{\alpha^J y^J}{y}\right)$. Therefore, his preferred policy is:

$$g=\left(g^J=H_g^{-1}\left(\frac{\alpha^J y^J}{y}\right),g^{-J}=0\right)$$

Since H_g^{-1} is strictly decreasing, the higher the percentage of municipality J's income in the national income, the lower the provision of local public goods preferred by its residents; that is, rich municipalities tend to prefer less state intervention while poor municipalities prefer greater national government intervention.

Step 4. Preference aggregation through elections

We now determine how individual preferences aggregate to determine the winning policy. For this purpose, the political components of individual preferences are added to the utility $W^J(g)$.

Suppose party A announces the political platform $g_A = (g_A^I, g_B^{II})$ and party B announces platform $g_B = (g_B^I, g_B^{II})$. Then, voter i of municipality J prefers party A over party B if and only if:

$$W^J(g_A) + h_{AJ}^J g_A^J > W^J(g_B) + \sigma^{iJ} + \delta + h_{BJ}^J g_B^J$$

where $h_{AJ}^J = h_{AA}^J$ if the mayor of municipality J is from party A and $h_{AJ}^J = h_{AB}^J$ if he is from party B. Similarly, $h_{BJ}^J = h_{BA}^J$ if the mayor of municipality J belongs to party A and $h_{BJ}^J = h_{BB}^J$ if he belongs to party B.

Given δ, a voter i from municipality J is indifferent between the two parties if his ideological bias σ^{iJ} is such that:

$$W^J(g_A) + h_{AJ}^J g_A^J = W^J(g_B) + \sigma^{iJ} + \delta + h_{BJ}^J g_B^J$$

$$\sigma^{iJ} = W^J(g_A) - W^J(g_B) - \delta + \left(h_{AJ}^J g_A^J - h_{BJ}^J g_B^J\right) =: \sigma^J$$

Therefore, voters from municipality J with an ideological bias lower than σ^J vote for party A, whereas voters with a bias higher than σ^J vote for party B. A voter with a bias σ^J is called a swing voter.

But then, the percentage of votes to party A is:

$$\pi^A = \sum_J \alpha^J \left[\sigma^J + \frac{1}{2\phi^J}\right] \phi^J = \frac{1}{2} + \sum_J \alpha^J \phi^J \sigma^J$$

$$\pi^A = \frac{1}{2} + \sum_J \alpha^J \phi^J \left[W^J(g_A) - W^J(g_B) - \delta + \left(h_{AJ}^J g_A^J - h_{BJ}^J g_B^J\right)\right]$$

Define $W(g_P) = \sum_J \alpha^J \phi^J\, W^J(g_P), P = A, B$, which corresponds to the average social welfare associated with policy g_P, weighted by the factor of homogeneity of classes ϕ^J. Then:

$$\pi^A = \frac{1}{2} + W(g_A) - W(g_B) - \sum_J \alpha^J \phi^J \left[\delta - \left(h_{AJ}^J g_A^J - h_{BJ}^J g_B^J\right)\right]$$

Furthermore, define $\phi = \sum_J \alpha^J\, \phi^J$ and $G(g_A, g_B) = \sum_J \alpha^J \phi^J \left(h_{AJ}^J g_A^J - h_{BJ}^J g_B^J\right)$. Then,

$$\pi^{A} = \frac{1}{2} + W(g_A) - W(g_B) - \phi\delta + G(g_A, g_B)$$

Hence, party A's victory probability is:

$$p_A(g_A, g_B) = \text{Prob}\left[\pi^{A} \geq \frac{1}{2}\right] = \text{Prob}\left[\delta \leq \frac{1}{\phi}[W(g_A) - W(g_B)] + \frac{1}{\phi}G(g_A, g_B)\right]$$

$$p_A(g_A, g_B) = \frac{1}{2} + \frac{\psi}{\phi}[W(g_A) - W(g_B)] + \frac{\psi}{\phi}G(g_A, g_B)$$

Then, to maximize his probability of victory party A solves the problem:

$$\max_{g_A} p_A(g_A, g_B) = \frac{1}{2} + \frac{\psi}{\phi}[W(g_A) - W(g_B)] + \frac{\psi}{\phi}G(g_A, g_B)$$

The concave objective-function yields the first order condition:

$$\frac{\partial W(g_A)}{\partial g_A^{J}} + \frac{\partial G(g_A, g_B)}{\partial g_A^{J}} = 0, J = I, II$$

Hence the solution:

$$g_A^{I} = H_g^{-1}\left(\frac{1}{\phi^{I}}\frac{\alpha^{I}\phi^{I}y^{I} + \alpha^{II}\phi^{II}y^{II}}{y} - h_{AI}^{I}\right)$$

$$g_A^{II} = H_g^{-1}\left(\frac{1}{\phi^{II}}\frac{\alpha^{I}\phi^{I}y^{I} + \alpha^{II}\phi^{II}y^{II}}{y} - h_{AII}^{II}\right)$$

And, similarly,

$$g_B^{I} = H_g^{-1}\left(\frac{1}{\phi^{I}}\frac{\alpha^{I}\phi^{I}y^{I} + \alpha^{II}\phi^{II}y^{II}}{y} - h_{BI}^{I}\right)$$

$$g_B^{II} = H_g^{-1}\left(\frac{1}{\phi^{II}}\frac{\alpha^{I}\phi^{I}y^{I} + \alpha^{II}\phi^{II}y^{II}}{y} - h_{BII}^{II}\right)$$

4.3. Conclusion: An electoral rationale for partisan transfers

Optimality of partisan transfers theorem

Suppose two distinct parties A and B are running for the national executive, and the country is made up of two municipalities, one administered by a mayor of party A and the other administered by a mayor of party B. Then, the equilibrium of the electoral game in which each party wishes to maximize its victory probability is such that:

(i) Party A announces higher amounts of transfers than party B to the municipality managed by a mayor of party A.

(ii) Party B will announce higher amounts of transfers than party A to the municipality managed by a mayor of party B.

Proof:

Define $y^{PT} = \frac{\alpha^I \phi^I y^I + \alpha^{II} \phi^{II} y^{II}}{\phi} = \frac{\alpha^I \phi^I}{\phi} y^I + \frac{\alpha^{II} \phi^{II}}{\phi} y^{II}$. Then, y^{PT} is a weighted average of the incomes in the country where the weights take into account the relative size (population) of municipalities as well as their ideological homogeneity.

Thus, the solution of the electoral competition game between the two parties becomes:

$$g_A^I = H_g^{-1}\left(\frac{\phi}{\phi^I}\frac{y^{TP}}{y} - h_{AI}^I\right)$$

$$g_B^I = H_g^{-1}\left(\frac{\phi}{\phi^I}\frac{y^{TP}}{y} - h_{BI}^I\right)$$

$$g_A^{II} = H_g^{-1}\left(\frac{\phi}{\phi^{II}}\frac{y^{TP}}{y} - h_{AII}^{II}\right)$$

$$g_B^{II} = H_g^{-1}\left(\frac{\phi}{\phi^{II}}\frac{y^{TP}}{y} - h_{BII}^{II}\right)$$

Suppose, without loss of generality, that municipality I's mayor belongs to party A, while municipality II is managed by a mayor from party B. Then:

$$h_{AI}^I = h_{AA}^I > h_{BA}^I = h_{BI}^I$$

$$h_{AII}^{II} = h_{AB}^{II} < h_{BB}^{II} = h_{BII}^{II}$$

Therefore,

$$\frac{\phi}{\phi^I}\frac{y^{TP}}{y} - h_{AI}^I < \frac{\phi}{\phi^I}\frac{y^{TP}}{y} - h_{BI}^I$$

$$\frac{\phi}{\phi^{II}}\frac{y^{TP}}{y} - h_{AII}^{II} > \frac{\phi}{\phi^{II}}\frac{y^{TP}}{y} - h_{BII}^{II}$$

Since H_g^{-1} is strictly decreasing,

$$g_A^I = H_g^{-1}\left(\frac{\phi}{\phi^I}\frac{y^{TP}}{y} - h_{AI}^I\right) > H_g^{-1}\left(\frac{\phi}{\phi^I}\frac{y^{TP}}{y} - h_{BI}^I\right) = g_B^I$$

$$g_A^{II} = H_g^{-1}\left(\frac{\phi}{\phi^{II}}\frac{y^{TP}}{y} - h_{AII}^{II}\right) < H_g^{-1}\left(\frac{\phi}{\phi^{II}}\frac{y^{TP}}{y} - h_{BII}^{II}\right) = g_B^{II}$$

Hence, the municipality whose mayor belongs to party A receives more voluntary transfers in party A's political platform than in party B's political platform. Symmetrically, the municipality whose mayor is from party B receives more voluntary transfers in party B's platform than in party A's platform.

Therefore, the theorem provides a theoretical rationale for understanding the widespread use of this political instrument in Brazil and worldwide.

5. Concluding remarks: An agenda for future research

This paper presented a selective literature review on the phenomenon known as "partisan transfers" according to which municipalities where the mayor is from the same party as the president tend to receive higher amounts of voluntary transfers from the national government. After reviewing international research that presents empirical evidence of this phenomenon, the paper turned to Brazil, showing that there is abundant statistical evidence for the country as well. Then, it described theoretical studies that showed the effects of partisan transfers on the subnational electoral equilibrium, the quality of public management, economic growth, and the capacity of public policies to provide a minimum level of homogeneous social welfare to all municipalities in a country. Finally, it presented the original contribution of the research, which consists of a political economy model that shows that there is an electoral rationale to this stylized fact.

By clarifying, the wide use of the mechanism of partisan transfers, motivated by electoral competition, and the negative effects on economic growth and on the equalization capacity of intergovernmental transfers, this work contributes to the discussion of how our federalism can be improved if we manage to establish institutional rules that, on the one hand, increase the efficiency of the allocation of scarce public resources and, on the other hand, make the electoral dispute more equitable, as discussed in Bugarin and Gadelha (2020).

This field of research, which officially started in Brazil almost twenty years ago with the publication of Ferreira and Bugarin (2005), still offers a wide range of venues for its extension, some of which are discussed below.

First, there is an opportunity to test the hypotheses arising from the theoretical models. Some of the testable hypotheses include: (i) Is there a higher reelection rate for mayors aligned with the president when they receive larger voluntary transfers? (ii) Is there a greater proportion of votes for the reelection of the president in aligned municipalities that received greater volumes of voluntary transfers? (iii) Is there a scale/size effect of municipalities that affects the decision to transfer larger volumes of voluntary transfers per capita?

Second, an attempt should be made to better understand what lies behind the "strategic partisan transfers hypothesis," according to which the president skews voluntary transfers to aligned municipalities only in states where the governor belongs to an opposition party. Therefore, it would be necessary to extend the model presented here to include three levels of government: the municipal, the state, and the national. Such an extended model would help bring an understanding of the relationship between transfers from the Central government to the states and municipalities. Is the Central government delegating, to the states, the task of distributing voluntary transfers to the municipalities? In this case, is the Central government biasing its voluntary transfers to the states instead of the municipalities?

A model involving the three different levels of government would also help bring an understanding of the competition for political influence between states and the Central government. In fact, the state to which a municipality belongs also makes voluntary transfers to its municipalities, and, as we have seen, there is also econometric evidence of partisan transfers in the relationship between state and municipality. Hence, the question arises: How do voters decide on their ballots when the governor is from a party opposed to the president's? Should they elect a mayor aligned with the president, as in the models studied, to ensure national transfers, or should they align themselves with the governor's party, to guarantee transfers from the state? This is still an open question, but there is a natural suggestion that incentives should depend on the size and fiscal strength of the state government since state governments with low fiscal capacity will not be able to compete with the federal government.

Also in the subnational context, there is a wide range of research to determine how strong the phenomenon of part transfers is within each state, as in Almeida (2019).

Partisan motivations may be investigated in spheres other than the direct executive branch, such as official banks, as in Paiva and Bugarin (2018).

A deepening of the current line of research must also consider the role of the Legislature, as in Marciniuk and Bugarin (2020), but also the role of the ministries, with the individual preferences of ministers, in partisan transfers.

Finally, considering the recent but not unique history of Brazil, it is important to understand how this phenomenon reacts to situations in which the president belongs to a small party or leaves a party during his term. In these cases, it is expected that the alignment with parties that support the president in Congress will play a more fundamental role in determining partisan transfers, as suggested in Portinari (2020).

These extensions are left here as suggestions for further research.

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