



ISSN: 1695-7253 e-ISSN: 2340-2717
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Investigaciones Regionales - Journal of Regional Research, 58, 2024/1

Asociación Española de Ciencia Regional, España

Available on the website: <https://investigacionesregionales.org/numeros-y-articulos/consulta-de-articulos>

Additional information:

To cite this article: Livert, F., Mogollón, R., & Herrera, P. (2024). Distributive politics and decentralisation in Chile and Peru. *Investigaciones Regionales – Journal of Regional Research*, 2024/1(58), 91-111. <https://doi.org/10.38191/iirr-jorr.24.004>

Distributive politics and decentralisation in Chile and Peru

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Received: 21 de diciembre de 2022

Accepted: 27 de julio de 2023

ABSTRACT:

The paper presents evidence that decentralisation increases partisan influence in the allocation of non-programmatic resources. The model employs a panel data and fixed effects analysis using data corresponding to intergovernmental transfers from the national level, passing through the regional level and earmarked for investment for local governments in Chile (2008-2018) and Peru (2004 - 2013). The results indicate political influence on the distribution of resources. The distribution of resources is used tactically in both countries in presidential election years. The implementation of laws increasing political decentralisation in Chile and Peru increased the political bias in resource distribution. The results have policy implications and provide a comparative perspective on the development of fiscal institutions in both countries. In a continental scenario, in which Latin American countries are undergoing a strong decentralisation process, it is suggested to advance in reforms that increase transparency, accountability and citizen participation. In addition, it is advisable to limit non-programmatic allocations and provide stability in the distribution of public resources.

KEYWORDS: Distributive politics; decentralisation; Pork barrel; Chile; Peru.

JEL CLASSIFICATION: P25; O54; P48; O43.

Política distributiva y descentralización en Chile y Perú

RESUMEN:

El artículo presenta evidencia de que la descentralización incrementa la influencia partidista en la asignación de recursos no programáticos. El modelo emplea un análisis de datos de panel y efectos fijos usando datos que corresponden a transferencias intergubernamentales provenientes del nivel nacional, que pasan por el nivel regional y que están destinadas a inversión para los gobiernos locales de Chile (2008-2018) y Perú (2004 – 2013). Los resultados indican influencia política en la distribución de recursos. La distribución de recursos es usada tácticamente en ambos países en los años de elección presidencial. La aplicación de leyes que aumentan la descentralización política en Chile y Perú aumentó el sesgo político en la distribución de los recursos. Los resultados tienen implicancias políticas y permiten obtener una perspectiva comparada del desarrollo de las instituciones fiscales en ambos países. En un escenario continental, en que los países de América Latina están experimentando un fuerte proceso de descentralización, se sugiere avanzar en reformas que incrementen la transparencia, la rendición de cuentas y participación ciudadana. Adicionalmente, es recomendable limitar las asignaciones no programáticas, y brindar estabilidad a la distribución de recursos públicos.

PALABRAS CLAVE: Política distributiva; descentralización; Pork barrel; Chile; Perú.

CLASIFICACIÓN JEL: P25; O54; P48; O43.

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1. INTRODUCTION

Peru has undergone a strong decentralisation process in recent decades. Between 2002 and 2005, specific procedures on the powers of regional and local governments were established. Subsequently, between 2006 and 2009, the country experienced the so-called "Decentralisation Shock", a period in which a decentralised management approach to government functions was introduced. In addition, the National Public Investment System was made more flexible (Contraloría General de la República - Perú, 2014). Chile, despite recent progress in decentralisation, is characterised as a highly centralised country among the OECD countries (OECD, 2016). In fact, in the period under review, the head of the regional government was appointed by the president. It was only in 2014 that the main measure of political decentralisation, the direct election of regional councillors, was implemented¹.

Decentralisation has several advantages. According to Pinilla et al. (2014), a closer implementation of public services and goods leads to better targeting of citizens, greater oversight, lower costs, and a better response to specific local needs. In this sense, decentralisation offers an interesting alternative that seeks to improve the efficiency of the allocation of public services and goods through better targeting.

On the other hand, some authors warn about certain risks of decentralisation derived from the political game. Firstly, there is the increase of discretionality in transfers and investments, which may generate losses in efficiency and equity (Lowry and Postoski, 2004). Secondly, there are concerns about increasing clientelistic practices (García-Guadilla and Pérez, 2002). These two risks may arise in a scenario where a minority group exerts pressure or control over local governmental capacities and resources (Prud'homme, 1995).

In this context, Enikolopov and Zhuravskaya (2003) mention that the success of decentralisation depends on the institutional characteristics of the policy implementation process and of each country. Specifically, control and monitoring mechanisms must be in place to promote an efficient and equitable distribution of resources (Weingast, 2014). Measures such as transparency, accountability, and greater citizen participation can reduce political influence on resource allocation (Livert et al., 2019). In addition, territorial autonomy should be accompanied by coordination and cooperation mechanisms between different levels of government to avoid conflicts of interest and duplication of functions (Weingast, 2014).

There is therefore a challenge in terms of governance of the decentralisation process in order to reduce threats from political interests. The debate on the consequences of political gamesmanship in the governance of countries has focused on the analysis of the manipulation of fiscal variables as an instrument for the pursuit of electoral gains (Rogoff, 1990). In theory, the allocation of public goods should be defined by decisions set out in government plans and subject to country-specific technical and normative issues (Alesina, 1987).

Despite this, there is empirical evidence in the field of distributive politics that shows that central government decisions regarding the allocation of public resources to local governments respond, at least in part, to political opportunism. (Letelier S. and Neyra, 2013) with the aim of achieving re-election (Travits, 2009). In this sense, Anderson and Tollison (1988) point out that, although the redistributive dimension is present in almost all aspects of the political process, the selection of specific beneficiary groups can be interpreted as a tactical or clientelistic redistribution strategy and even an attempt to buy votes from those who are willing to sell them.

With this in mind, the research question focuses on whether decentralisation deepens the problems of arbitrary allocation of public resources in Chile and Peru. Specifically, it seeks to identify whether there is partisan influence on non-programmatic allocations to local governments. Then, we analyse whether this type of allocation varies throughout the electoral cycle, intensifying during presidential election periods. Finally, evidence is sought on whether decentralisation, as a policy oriented towards the transfer of functions to regional and local governments, influences the strategic behaviour of the political game, increasing discretionality.

¹ In 2021 there was the first election for regional governors, i.e. head of regional government.

In order to carry out this research, information is used from the Ministry of Finance of Chile and the Ministry of Economy and Finance of Peru, which are the institutions that administer and distribute public resources from the central to the local level. In both countries, non-programmatic intergovernmental transfers for local investment are analysed. These transfers are distributed without a technical framework, which increases the likelihood that they respond to political influence. (Letelier and Neyra, 2013) as mayors may act as intermediaries. This contrasts with programmatic or formula-based transfers, which limit local capacity for political influence on resource allocation.

In the second section, the paper presents empirical evidence and theory on distributive politics and decentralisation. The third section describes the main institutional characteristics of Peru and Chile. The fourth section describes the main variables to be used in the analysis. The fifth section outlines the hypotheses and the models that will be used to test the hypotheses. The sixth section presents the main results, including the estimated equations. Finally, the seventh section deals with the discussion and conclusions.

2. EMPIRICAL EVIDENCE AND THEORY

2.1. PORK BARREL

By definition, *pork barrel* refers to the use of public resources to finance projects of local interest for electoral purposes. Evans (2011) indicates that this type of behaviour is an integral part of congressional political life and the legislative process.

In the case of Peru, evidence has shown that fiscal transfers to regional governments, which were initially intended to benefit national welfare, have been used as a political instrument, despite their high costs and inefficiencies. (Letelier and Neyra, 2013).. In the case of Chile, the works of Livert and Gainza (2017), Corvalan *et al* (2018), Lara and Toro (2019) show a scenario where intergovernmental transfers are subject to political gamesmanship.

The analysis of the political game in the distribution of resources has focused on identifying to whom these arbitrary allocations are targeted and what consequences this has on the welfare of society (Golden and Min, 2013). As for the beneficiaries of discretionary transfers, Cox (2010) identifies two types of voters as possible recipients: i) the so-called *core voters* and ii) *swing voters*.

CORE VOTERS

Cox and McCubbis (1986) point out that one of the reasons why politicians choose *core voters* is risk aversion. Under the assumption that politicians make their electoral promises on the basis of expected outcomes, the risk for this type of voter is lower, and therefore, a higher political return will be obtained.

Livert and Gainza (2018) show evidence of this behaviour in municipalities in Chile with respect to the allocation of the National Regional Development Fund (FNDR), while Schady (2000), in a similar analysis, concludes that aligned provinces in Peru are favoured in the allocation of the National Compensation and Social Development Fund (FONCODES).

Other works supporting this position include Solé-Ollé and Sorribas (2008) for Spain, Case (2001) for local governments in Albania, Kroth (2014) for provinces in South Africa, Calvo and Murillo (2004) for provinces in Argentina, Rodríguez-Pose *et al* (2016) for constituencies in Greece, Biswas *et al* (2010) in India, Travist (2009) for municipalities in the countries of Denmark, Finland, Norway, and Sweden, as well as Grosman (1994) and Ansolabehere and Snyder (2006) for federal transfers to states and local governments in the United States.

SWING VOTERS

Swing voters are chosen by politicians as recipients of public resources to maintain and expand their electoral base, as pointed out by Dixit and Londregan (1996). Letelier and Neyra's (2013) analysis for

Peru concludes that the central government directs these resources to areas where it has less support, transferring the costs of this political manoeuvre to aligned sectors. Similarly, Segura-Ubiergo (2007) and Graham and Kane (1998) show that, during Alberto Fujimori's second government as president of Peru, greater resources were transferred to areas that provided less support for the 1993 referendum modifying the political constitution. In Latin America, this position is reinforced by Brollo and Nanncini (2012), and Remmer (2007) for Brazil and Argentina, respectively.

On this position, Veiga and Pinho (2007) and Gonçalves (2010) find evidence for Portugal, Milligan Smart (2005) for Canada, Castells and Solé-Ollé (2005) in Spain, Wallis (1998) and Gamkhar and Ali (2007) on the allocation of federal transfers in the United States, while Dahlberg and Johansson (2002) and Johanson (2003) for Sweden. There is also literature supporting this hypothesis for the countries of Ghana (Banful 2011), Australia (Denemark, 2000), South Korea (Kwon, 2005) and England (John and Ward, 2001).

Finally, it is important to highlight the main works on distributive politics Kramon and Posner (2013) and Golden and Min, (2013), the first one, mentions the fact of not drawing general conclusions from empirical analysis, because who benefits from distributive politics depends on the institutional context and political motivations, which changes with the type of resource analysed. The second paper points out that it is not enough to analyse the political game, but that the relevance of the analysis should be focused on the consequences of this game on the welfare of the population, as it benefits one group or territory over another.

2.2. POLITICAL BUDGET CYCLE

Another type of distortion generated by the manipulation of fiscal variables throughout the legislature is the *Political Budget Cycle* (PBC). Theoretically, this distortion suggests that the magnitude of fiscal transfers (or taxes) are employed as tactical devices in years close to electoral elections (Rogoff and Sibert, 1988; Rogoff, 1990). Schady (2000) in Peru shows evidence that FONCODES expenditures increased in years prior to elections. In the case of Chile, Livert and Gainza (2017), Corvalan *et al* (2018), Lara and Toro (2019) show that PBC exists. Drazen and Eslava (2010) show that infrastructure spending increases in pre-election periods in Colombia.

There is evidence that in Portugal, taxes and expenditures on some goods were manipulated in periods close to election periods (Veiga & Veiga, 2007). In France, Foucault, Madies, and Paty (2008) report that local governments increased spending in all categories in pre-election periods.

As observed, partisan influence in the arbitrary allocation of resources does not seem to follow a pattern that allows us to define which contexts are more vulnerable to this behaviour. It occurs in settings with different electoral systems, levels of development, and under the administration of different fiscal variables. However, its effects are likely to be greater in settings where local autonomy is low, even when decentralisation policies aimed at devolving functions have been implemented.

2.3. DECENTRALISATION

Latin America and developing countries have experienced a decentralisation drive in recent decades, with a strong emphasis on the local or municipal level, which has made mayors increasingly the centre of political life and the provision of local public goods (Bardhan and Mookherjee 1998). The aim of decentralisation processes is to contribute to the comprehensive development of nations; in this respect, the evidence on their benefits is mixed and inconclusive. Positive effects such as improved macroeconomic management (Shah, 1998), improved governance (McKinnon and Nechyba, 1997), reduced corruption (Fisman and Gatti, 2002), and improved governance (McKinnon & Nechyba, 1997) are attributed to decentralisation.

However, it is also possible to find that decentralisation can generate macroeconomic imbalances (Prud'homme, 1995) promote lower growth in nations (Davoodi & Zou, 1998; Xie et al., 1999) and foster corruption, as well as the capture of the public sector (Bardhan & Mookherjee, 1998; Goldsmith, 1999). Aghon (1997) indicates that the implementation of most decentralisation processes is carried out

through the establishment of systems of fiscal resource transfers to local governments, which aimed to strengthen them as executors of public spending, and not as generators of their own revenues, maintaining their relationship of dependence with the central government. On the other hand, Bossert (2000) mentions that the success of decentralisation is subject to its implementation in strong local institutional environments, with clear and effective rules. In this regard, Bojanic (2018) identifies for Latin America that fiscal decentralisation has had no effect on economic growth and has increased inequality.

3. GOVERNANCE IN CHILE AND PERU

Chile and Peru share certain characteristics of local-level governance that are key to our empirical strategy, namely the electoral system and the degree of fiscal decentralisation. We will discuss each of these features before mentioning some important contextual differences that justify our case selection strategy.

In both countries, the most local level of government under study is the municipality. In Peru there are 1647 municipalities (*municipalidad distrital*), and a 2002 decentralisation law gave these units of government significant administrative autonomy to oversee local affairs. For example, municipalities are responsible for managing local public services such as water supply and irrigation, building schools and health centres, and managing rubbish collection, as well as granting business licenses, drafting municipal ordinances, and overseeing the annual district development plan. Similarly, at the most local level of government is the municipality, Chile has 345 municipalities. Mayors have local responsibilities like those in Peru, including planning and regulation, education and urban services.

Both countries have similar electoral systems at the local level. Municipalities are governed by mayors elected, along with a group of councillors (called *regidores* in Peru and *consejales* in Chile) who are allocated seats proportionally in the Municipal Council based on the party's share of votes. Mayors in Peru could be re-elected indefinitely until the 2014 elections (the last included in our dataset), although a 2015 law prohibited immediate re-election as of the 2018 election cycle. In Chile, there were no limits on the re-election of mayors during the period of our study (Argote, 2021), although a 2020 law began to limit mayors to three terms in office starting with the 2021 local elections. In Peru, voting is compulsory by law, with strong enforcement of fines for those who do not vote, leading to relatively high turnout rates (Carpio et al, 2018). In Chile, voting was previously compulsory, but became voluntary in 2012.

In both cases, municipalities rely heavily on central government transfers as a component of their local public budgets. In both countries, the central government distributes both the regular annual budget. In Peru, municipalities' budgets are determined by the Ministry of Economy and Finance (Loayza et al., 2014). Despite their administrative autonomy, little revenue is generated at the local level, making municipalities dependent on transfers from the national government for their functioning. In fact, only about 20% of local government budgets come from their own revenues, with 80% coming from the central government (Vega, 2008).

In Chile, local revenue generation is higher than in Peru, although transfers and subsidies at the national level still account for about 50% of municipal revenues (OECD, 2019). The OECD (2014) indicates that, in reality, local governments' fiscal and financial autonomy is limited. Municipal budgets are based on own revenues, a system of horizontal transfers and a grant scheme from central and regional government to local authorities. The central government allocates resources for investment to local governments, which represent on average 41% of central government investment and 0.9% of GDP.

When examining differences, it's evident that Chile boasts one of the most robust party systems in Latin America, as opposed to Peru, which possesses one of the weakest (Mainwaring, 2018). Furthermore, Chileans report a significantly higher level of trust in local government (55.4%) compared to Peruvians (36.4%), who have the second-lowest rate in all of Latin America (Cohen et al., 2017).

3.1. USE OF FISCAL RESOURCES

In Chile, the investment approval process is defined each year according to the budget law. In order for a project to be financed, it must be approved by the National Investment System (SNI), which establishes the rules and procedures governing the public investment process in Chile, and aims to improve the quality of public investment and increase the country's net efficiency. The SNI is headed by the Ministry of Social Development (MDS) and the Ministry of Finance (MH). The latter determines the budgetary framework, establishes the spending capacity of each institution, and allocates resources to investment entities. In order to allocate resources to a project, the MH must verify that the project has been approved by the MDS. Since 1988, all public investment initiatives must have an ex-ante evaluation, with the objective of guaranteeing the socio-economic merit of the different initiatives to be financed by the SNI. In this paper we analyse central government transfers mainly earmarked for investment. These transfers are decided and allocated by the Undersecretariat for Regional Development, which is part of the Ministry of the Interior and is in charge of managing regional public funds. These funds are given to municipalities to improve their local management, for infrastructure and improvement of specific neighbourhoods.

In Peru, local governments receive transfers from the central government, through the Ministry of Economy and Finance (MEF), mainly in the form of determined resources, ordinary resources, the Municipal Compensation Fund (FONCOMUN), etc. The allocation of funding sources is proposed by the MEF and approved by the Congress of the Republic through the public sector budget. The use of these sources of financing is determined according to what is established in their respective norms of creation or regulation. The variable of interest for the analysis is the Ordinary Resources (OR), which belong to the national government and finance operational expenditures and projects in charge of sectoral bodies. In the case of local governments, transfers of OR are used to finance social or productive infrastructure projects.

In Peru there is also the National Public Investment System (SNIP)², which checks whether investment projects achieve financing and are useful for society. However, the OECD reports some shortcomings of this process. The SNIP does not generate knowledge about the local reality of each sub-national government and does not prioritise projects. Thus, projects that are not the most important for the development of the region, especially decorative or popular ones, may pass through the SNIP (OECD, 2016).

4. DATA

In the case of Peru, we used data on Ordinary Resources (OR) transfers to local governments from the period 2004 to 2013, obtained from the Integrated Financial Administration System (SIAF) of the Ministry of Economy and Finance.

The electoral information was obtained from the Jurado Nacional de Elecciones (JNE- National Jury of Elections) and the Oficina Nacional de Procesos Electorales (ONPE - National Office of Electoral Processes), and used results from presidential elections, held between April and June, for the years 2001, 2006 and 2011, in which the winners were Alberto Fujimori, Alejandro Toledo, Alan García and Ollanta Humala, respectively; at the municipal level, we worked with data from the elections of 2002, 2006, 2010 and 2014, which are held between the months of October and November. We also used information from the National Institute of Statistics and Informatics (INEI) on the population and surface area of the districts for a similar period, as well as information from the same institution, but corresponding to specific characteristics at the municipal level from the National Registry of Municipalities (RENAMU).

In the case of Chile, the investment information comes from the Ministry of Interior and is allocated at the communal level between 2008 and 2018. From the Chilean Electoral Service (SERVEL), information was obtained for the presidential elections of 2009, 2013 and 2017, in which the winners of the elections were Michelle Bachelet and Sebastián Piñera on two occasions each. At the municipal level,

² Currently called the National System of Multiannual Programming and Investment Management (Invierte.pe).

the elections of 2008, 2012 and 2016 were considered. We worked with information from the National Institute of Statistics and SERVEL and the Ministry of the Interior on population, socioeconomic, municipal, and electoral variables.

5. HYPOTHESIS

Based on the existing empirical evidence on distributive politics, and the theoretical analysis of the realities of Chile and Peru, the following hypotheses are put forward:

- H1. There is partisan influence in the allocation of non-programmatic public resources.
- H2. The allocation of public resources to local governments is sensitive to electoral periods, being higher in presidential election years, and having an additional effect when belonging to the government coalition.
- H3. Partisan influence on resource allocation increases with the implementation of decentralisation-oriented policies, having an additional effect in election years.

The hypotheses seek to find out whether for both countries there is political manipulation in the allocation of transfers, and how decentralisation influenced this. It is likely that the political bargaining between the local and national level that accompanies the political re-election process considers the results of the last election. In turn, political bargaining between levels of government is likely to change political decentralisation and redistribution of power.

With the information described above, two panels are constructed with annual observations for the districts of Peru in the period 2004 - 2013 and the communes in Chile in the period 2008 to 2018. The following models are then proposed:

H1. EVIDENCE OF PARTISAN INFLUENCE IN THE ALLOCATION OF PUBLIC RESOURCES (*PORK BARREL*)

To test the first hypothesis, the preference of politicians to allocate fiscal resources for political purposes will be taken into account, as well as whether the allocations are directed towards *core voters* (electoral strongholds) or *swing voters* (undecided voters). For both countries, the dependent variable used is intergovernmental transfers for public investment from central governments, the OR in the case of Peru and the Urban Improvement Programme (PMU) in the case of Chile.

Equation (1) is applied for both countries, and the fiscal variables are collected in logarithm and at the per capita level, the variable is described as $\log(\text{fiscal_resource}_{it})$. For its part, the variable coalition_{it} will determine whether *pork-barrel* exists, and whether resources are directed to *core voters*. This variable is *dummy* and takes the value 1 when the government coalition won in the presidential election in the commune or district (i) in the period (t)

Control variables relating to geographical and socio-economic characteristics at the local level are grouped together at Z_{it} control variables relating to geographical and socio-economic characteristics at the local level are grouped. Information on population and density is used for both countries; for Chile, the variables poverty, budget execution and efficiency in the collection of commercial patents are used. For Peru, municipal employees and FONCOMUN transfers are included, as its distribution criterion is formula-based and considers socio-economic characteristics of the municipality.

$$\log(\text{fiscal_resource}_{it}) = \alpha + \beta 1 \text{coalition}_{it} + \gamma Z_{it} + \sigma_i + \tau_t + u_{it} \quad (1)$$

H2. TRANSFERS ARE HIGHER IN PRESIDENTIAL ELECTION YEARS (*PBC*)

The objective of hypothesis 2 is to verify that resource allocation is sensitive to a political budget cycle, specifically, to test whether allocations are higher during a presidential election year. To this end,

equations (2a) and (2b) use a *dummy variable* that is equal to 1 in the presidential election year ($yp0_t$) and is 0 for other years. In addition, the variable $coalition_{it}$ model variable (1) is used. In equation (2b), we incorporate the interaction ($coalition_{it} \times yp0_t$) to determine the effect of belonging to the government coalition in the presidential election year.

$$\log(fiscal_resource_{it}) = \alpha + \beta_1 yp0_t + \beta_2 coalition_{it} + \gamma Z_{it} + \sigma_i + \tau_t + u_{it} \quad (2a)$$

$$\begin{aligned} \log(fiscal_resource_{it}) \\ = \alpha + \beta_1 yp0_t + \beta_2 coalition_{it} + \beta_3 (coalition_{it} \times yp0_t) + \gamma Z_{it} + u_{it} \end{aligned} \quad (2b)$$

H3. DECENTRALISATION INCREASES ARBITRARY ALLOCATION OF RESOURCES

To determine whether partisan influence deepens after the implementation of decentralisation policies. The variable $dsct_t$ is a *dummy* that, in the case of Chile, takes the value of 1 from 2014 onwards, the year in which the first direct election of Regional Councillors takes place. While in the case of Peru, the variable $dsct_t$ takes the value of 1 from 2008 onwards, the year in which the Secretariat of Decentralisation was installed, and decentralisation policies were oriented towards the transfer of capacities. Equation (3a) seeks to identify whether there is partisan bias ($coalition_{it}$) in the distribution of resources given the decentralisation process. While equation (3b) jointly considers the electoral cycle, partisan bias and decentralisation process in the distribution of resources, equation (3b) seeks to identify whether there is a partisan bias in the distribution of resources given the decentralisation process.

$$\begin{aligned} \log(fiscal_resource_{it}) \\ = \alpha + \beta_1 dsct_t + \beta_2 coalition_{it} + \beta_3 (coalition_{it} \times dsct_t) + \gamma Z_{it} + u_{it} \end{aligned} \quad (3a)$$

$$\begin{aligned} \log(fiscal_resource_{it}) \\ = \alpha + \beta_1 dsct_t + \beta_2 coalition_{it} + \beta_3 (coalition_{it} \times dsct_t) \\ + \beta_4 (coalition_{it} \times yp0_t) + \beta_5 (yp0_t \times dsct_t) + \beta_6 (coalition_{it} \times yp0_t \times dsct_t) + \gamma Z_{it} \\ + u_{it} \end{aligned} \quad (3b)$$

In Chile, the election of Regional Councillors has had a direct impact on decentralisation and resource distribution³. First, it increased the legitimacy of Regional Councillors, second, it generated a direct link between citizens and regional government, third, it generated incentives for local politicians, either by seeking re-election and/or visibility for future political office.

At the end of 2007, Peru implemented the municipalisation of health and education, as well as the end of prefectures and sub-prefectures (Propuesta Ciudadana, 2006a). That same year, the government presented the "Decentralist Shock". This plan included measures such as the deconcentration of non-transferable central government functions and competences, and a law on competences that defines the role of each level of government to avoid duplication. Among the main proposals were the transfer of 185 sectoral functions to regional governments, along with their respective resources. In addition, the transfer of social and productive infrastructure projects and social programmes to local governments was proposed. The transfer of electricity distribution companies will also take place (Propuesta Ciudadana, 2006b).

³ The purpose of the regional council is to make the participation of the regional community effective and it has normative, resolute and supervisory powers. It can approve, modify or substitute the projects and proposals of the intendant regarding the following matters (Law 20.678)

6. RESULTS

The main results are in Table 1, the interpretation is for the total effect of the policy variables and not for the marginal effect, due to the work of Brambor et al (2006), which identifies that researchers do not correctly interpret the coefficients using the interaction of two variables. Additionally, papers from regional studies, which analyse political factors and resource distribution (e.g. Livert and Gainza, 2018; Luca and Rodriguez-Pose, 2016) have considered the total effect and not the marginal effect in their interactions.

H1. PORK BARREL

The results of equation (1) corroborate the hypothesis that *pork barrel* in Peru and Chile, indicating that transfers are subject to partisan influence. In the case of Chile, coalition municipalities receive on average 47% additional transfers. While in Peru, they receive on average 5.8% more transfers than non-coalition municipalities. The evidence indicates that, in Peru and Chile, politicians prefer to allocate more resources to aligned local governments (*core voters*) due to the positive sign of the coefficient, which is statistically significant.

Chile:

$$\log(\widehat{fiscal_resource}_{it}) = \hat{\alpha} + 0.47coalition_{it} + \hat{\gamma}Z_{it} + \hat{\sigma}_i + \hat{\tau}_t$$

Peru:

$$\log(\widehat{fiscal_resource}_{it}) = \hat{\alpha} + 0.058coalition_{it} + \hat{\gamma}Z_{it} + \hat{\sigma}_i + \hat{\tau}_t$$

H.2: POLITICAL BUDGET CYCLE

The results of equation (2a) confirm that in both countries there is a strategic behaviour with respect to the allocation of resources during presidential elections. The allocations from the central governments of Chile and Peru to local governments increase by 128% and 99%, respectively (coefficients of the variable $yp0_t$), relative to a non-election year.

Chile:

$$\log(\widehat{fiscal_resource}_{it}) = \hat{\alpha} + 1.28 yp0_t + 0.47coalition_{it} + \hat{\gamma}Z_{it} + \hat{\sigma}_i + \hat{\tau}_t$$

Peru:

$$\log(\widehat{fiscal_resource}_{it}) = \hat{\alpha} + 0.99 yp0_t + 0.05coalition_{it} + \hat{\gamma}Z_{it} + \hat{\sigma}_i + \hat{\tau}_t$$

Equation (2b) shows the effects of belonging to the coalition government during the presidential election year. In Peru, in presidential election periods, local governments in the coalition receive, on average, 96% (sum of the coefficients $yp0_t$ y $(coalition_{it} \times yp0_t)_{it}$). For Chile, the interaction $(coalition_{it} \times yp0_t)$ is not statistically significant.

Peru:

$$\log(\widehat{fiscal_resource}_{it}) = \hat{\alpha} + 1.09 yp0_t + 0.08 coalition_{it} - 0.13 (coalition_{it} \times yp0_t) + \hat{\gamma}Z_{it}$$

H3: DECENTRALISATION

Hypothesis (3a) considers an increase in partisan influence following the implementation of decentralisation policies. In Chile the results are significant for the political decentralisation reform (election of regional councillors), which is implemented from 2014 onwards, the increase in transfers is

73%. (sum of the coefficients $coalition_{it}$ y $(coalition_{it} \times dsct_t)_{it}$) for a municipality aligned with the government coalition with respect to a non-aligned one. Similarly for Peru, decentralisation increases transfers to electoral strongholds by 13% on average compared to other municipalities after 2008, the year of the so-called "decentralisation shock".

Chile:

$$\begin{aligned} \log(\widehat{fiscal_resource}_{it}) \\ = \hat{\alpha} - 1.42dsct_t + 0.30 coalition_{it} + 0.42 (coalition_{it} \times dsct_t) + \hat{\gamma}Z_{it} \end{aligned}$$

Peru:

$$\begin{aligned} \log(\widehat{fiscal_resource}_{it}) \\ = \hat{\alpha} + 0.87dsct_t - 0.04 coalicion_{it} + 0.18 (coalicion_{it} \times dsct_t) + \hat{\gamma}Z_{it} \end{aligned}$$

Hypothesis (3b), proposes an increase in intergovernmental transfers considering jointly partisan bias, the electoral cycle and an increase in decentralisation. In this context, the results are not statistically significant for Chile, probably because the presidential election is not relevant for intergovernmental transfers (Corvalan et al, 2018; Lara and Toro, 2019).

Peru:

$$\begin{aligned} \log(\widehat{fiscal_resource}_{it}) \\ = \hat{\alpha} + 0.92dsct_t - 0.01 coalicion_{it} + 0.70yp0_t + 0.16 (coalicion_{it} \times dsct_t) \\ - 0.24(coalicion_{it} \times yp0_t) - 0.4 \times 10^{-3}(dsct_t \times yp0_t) + 0.228(coalicion_{it} \times dsct_t \times yp0_t) \\ + \hat{\gamma}Z_{it} \end{aligned}$$

While in Peru there is an increase in transfers to *core voters* in election year after the "decentralisation shock" in 2008. The increase in transfers is 173% on average in municipalities belonging to the government coalition in the presidential election year after the increase in decentralisation (sum of the coefficients of the "decentralisation shock" in 2008). $coalicion_{it}$, $dsct_t$ ($coalicion_{it} \times dsct_t$), $(coalicion_{it} \times yp0_t)$, $(yp0_t \times dsct_t)$ and $(coalicion_{it} \times yp0_t \times dsct_t)$ with respect to a municipality not aligned with the government, prior to decentralisation in a year without a presidential election.

Whereas for a municipality not aligned to the government coalition, after the increase in decentralisation in an election year it is 161% higher than in a non-election year prior to 2008. In other words, being aligned to the presidential coalition after decentralisation implies 11.7% more resources, on average, in a presidential election year.

6.1. ANALYSIS WITH STANDARDISED VARIABLE

To dimension the magnitudes, Table 2 of the Appendix presents the results of Table 1, but with the dependent variable standardised, i.e. mean 0 and standard deviation 1. In this context, it is identified that the political influence is greater in the distribution of the transfer in Chile, since municipalities of the government coalition receive on average 0.19 standard deviation (S.D.), while in Peru it is 0.03 S.D. Similarly, it is identified that the transfers associated with electoral factors after the decentralisation reform is greater in Chile (0.16 S.D.) than in Peru (0.03 S.D.). Similarly, it is identified that transfers associated with electoral factors after the decentralisation reform are higher in Chile (0.16 S.D.) than in Peru (0.11 S.D.). In contrast, the effect of the presidential electoral cycle on the distribution of transfers is greater in Peru (0.69 SD) than in Chile (0.5 SD).

TABLE 1.
Results of the models presented

Variables	Model 1		Model 2a		Model 2b		Model 3a		Model 3b	
	Chile	Peru	Chile	Peru	Chile	Peru	Chile	Peru	Chile	Peru
coalition	0,475***	0,0586**	0,475***	0,0586**	0,462***	0,0872***	0,307***	-0,0430*	0,254**	0,0138
	(0,0936)	(0,0262)	(0,0936)	(0,0262)	(0,112)	(0,0294)	(0,101)	(0,0250)	(0,127)	(0,0288)
election (yp0)			1,281***	0,999***	1,266***	1,090***			-0,770***	0,696***
			(0,194)	(0,0400)	(0,197)	(0,0527)			(0,126)	(0,0327)
election x coalition					0,0403	-0,130***			0,147	-0,236***
					(0,170)	(0,0473)			(0,196)	(0,0517)
decentralisation							-1,421***	0,875***	-1,382***	0,918***
							(0,195)	(0,0522)	(0,198)	(0,0542)
coalition x decentralisation							0,424***	0,182***	0,469**	0,125***
							(0,159)	(0,0384)	(0,191)	(0,0436)
coalition x decentralisation x election									-0,124	0,228**
									(0,373)	(0,0931)
decentralisation x election									0,175	-0,000397
									(0,220)	(0,0700)
Constant	2,171***	6,159***	0,890	6,159***	0,892	6,221***	2,243***	6,148***	2,205***	6,243***
	(0,631)	(1,656)	(0,630)	(1,656)	(0,631)	(1,655)	(0,638)	(1,660)	(0,633)	(1,658)
Observations	3.447	16.515	3.447	16.515	3.447	16.515	3.447	16.515	3.447	16.515
R2 (within)	0,109	0,257	0,109	0,257	0,109	0,258	0,111	0,258	0,111	0,259
Id	345	1.836	345	1.836	345	1.836	345	1.836	345	1.836

Note: all estimates have two-way fixed effects and covariates. () Robust and clustered standard errors are shown in parentheses. ***p < 0.01, **p < 0.05, *p < 0.10 .

TABLE 2.
Comparative results: Standardised dependent variable

Variables	Model 1		Model 2a		Model 2b		Model 3a		Model 3b	
	Chile	Peru	Chile	Peru	Chile	Peru	Chile	Peru	Chile	Peru
coalition	0,190***	0,0370**	0,190***	0,0370**	0,185***	0,0551***	0,123***	-0,0272*	0,101**	0,00873
	(0,0374)	(0,0166)	(0,0374)	(0,0166)	(0,0447)	(0,0186)	(0,0403)	(0,0158)	(0,0506)	(0,0182)
election (yp0)			0,512***	0,632***	0,506***	0,690***			-0,308***	0,440***
			(0,0776)	(0,0253)	(0,0787)	(0,0333)			(0,0503)	(0,0207)
decentralisation							-0,568***	0,554***	-0,859***	0,581***
							(0,0780)	(0,0330)	(0,0743)	(0,0343)
election x coalition					0,0161	-0,0819***			0,0587	-0,149***
					(0,0678)	(0,0299)			(0,0782)	(0,0327)
coalition x decentralisation							0,169***	0,115***	0,187**	0,0792***
							(0,0634)	(0,0243)	(0,0762)	(0,0276)
coalition x decentralisation x election									-0,0496	0,144**
									(0,149)	(0,0589)
decentralisation x election									0,377***	-0,441***
									(0,101)	(0,0485)
Constant	0,224	-4,257***	-0,288	-4,257***	-0,287	-4,217***	0,253	-4,264***	0,545**	-4,204***
	(0,252)		(0,252)	(1,047)	(0,252)	(1,047)	(0,255)	(1,047)	(0,253)	(1,049)
Observations	3.447	16.515	3.447	16.515	3.447	16.515	3.447	16.515	3.447	16.515
R2 (within)	0,109	0,257	0,109	0,257	0,109	0,258	0,111	0,258	0,111	0,259
Id	345	1.836	345	1.836	345	1.836	345	1.836	345	1.836

Note: Dependent variable is standardised (mean =0, standard deviation=1) all estimates have two-way fixed effects and covariates. () Robust and clustered standard errors are shown in parentheses.
***p < 0.01, **p < 0.05, *p < 0.10.

6.2. ROBUSTNESS TESTING

GMM

Panel and fixed effects analysis can be potentially endogenous, for example, a higher or lower investment in election t can increase or decrease the votes given to the ruling party in subsequent elections (Luca & Rodríguez-Pose, 2015). To control for the potential robustness of the panel analysis and fixed effects results, equation (1) was estimated with lagged investment using GMM (Generalized Method of Moments). This equation was tested using the difference GMM ($X_{(t-n)} - X_{(t-(n-1))}$) and was calculated using the extension proposed by Roodman (2006) for Stata, as it provides a wider margin to treat the variables and shows Hansen's test for instrument validity. When using this methodology, variables should be treated as exogenous, predetermined or endogenous. Political and socio-economic variables were considered endogenous, as it is assumed that these characteristics could determine resource allocations. This modelling can be expressed as:

$$Y_{it} = \alpha Y_{i(t-1)} + \beta X'_{it} + \varepsilon_{it}$$

$$\varepsilon_{it} = \mu_i + \vartheta_{it}$$

with $E[\mu_i] = E[\vartheta_{it}] = E[\mu_i \vartheta_{it}] = 0$. Thus, the lags of the variables are considered as instruments, i.e. the instrument of $\log(\text{fiscal_resource}_{it})$ is $\log(\text{fiscal_resource}_{i(t-1)})$ and of $\log(\text{fiscal_resource}_{i(t-1)})$ is $\log(\text{fiscal_resource}_{i(t-2)})$.

To check for possible endogeneity, Table 3 presents the GMM results for equation (1). GMM consistency is based on two assumptions: instrumental variables should not be correlated with the error terms, and a negative first-order autocorrelation (AR1) can be observed in the residuals, but no second-order autocorrelation (AR2). The Hansen test indicates that the instrumental variables are valid, while the Arellano-Bond tests for AR1 and AR2 show no second-order serial autocorrelation, indicating valid GMM estimates. These results are consistent with the outcome of the panel and fixed effects analysis.

TABLE 3.
GMM Robustness Test

Variables	Model 1	
	Chile	Peru
log(fiscal resource) L1	0,2232***	0,1229***
	(0,0705)	(0,0426)
coalition (dummy)	0,3250***	0,1091***
	(0,1366)	(0,0480)
Control Variables	Yes	Yes
EF Municipality	Yes	Yes
EF Year	Yes	Yes
Constant	2,533***	8,140***
	(0,8182)	(1,549)
Observations	3.105	14.977
ID	345	1.836
Number of instruments	32	28
AR(1)	-5,57	-8,13
	(0,000)	(0,000)

TABLE 3. CONT.
GMM Robustness Test

Variables	Model 1	
	Chile	Peru
AR(2)	0,85	0,90
	(0,398)	(0,369)
Hansen Test	7,00	6,09
	(0.321)	(0.107)

Notes: GMM differs (Stata command xtabond2) Dependent, political and socio-economic feasible are considered to be endogenous.

Robust standard errors in brackets for GMM estimates, p-value in brackets for Hansen and Arellano-Bond tests. Statistical significance *** p < 0.01; ** p < 0.05; * p < 0.10.

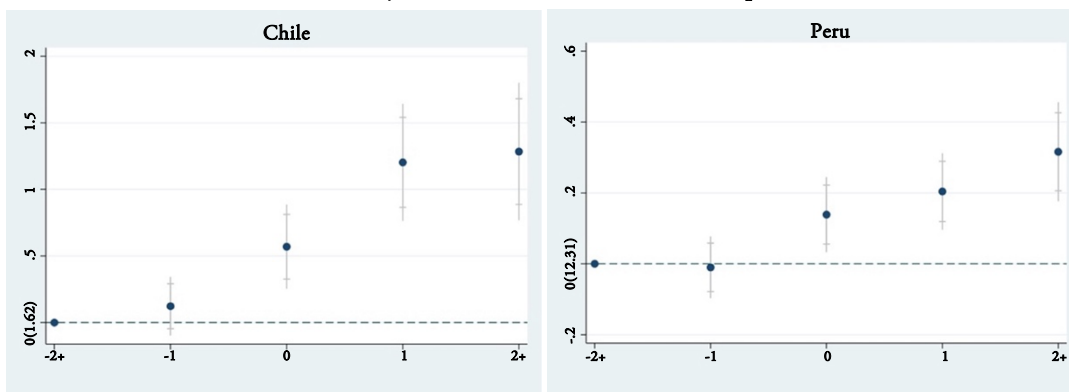
6.3. EVENT STUDY

The second robustness test seeks to test the sensitivity of the estimates, using an *event-study panel* design. This approach can be used as an extension of fixed effects and allows estimation of pre- and post-treatment periods, while controlling for fixed factors (commune and time). Event studies compare the impact of a treatment ($coalition_{it} = 1$) occurring in certain communes and year with counterfactual areas where the event did not occur ($coalition_{it} = 0$). By considering the variation in outcomes around the uptake of the event compared to a reference period, the causal impact of the event can be visually represented (Clarke and Tapia-Schythe, 2021). We implement the event study on the specification (1), to weight the temporal effect of being from the coalition. The specification is (Equation 5):

$$Y_{it} = \gamma_i + \gamma_t + \sum_{\tau=-q}^{-1} \gamma_{\tau} D_{it} + \sum_{\tau=0}^m \delta_{\tau} D_{it} + \theta X_{it} + u_{it} \tag{5}$$

Treatment occurs in election year, when the treatment and control group changes, q captures pre-treatment effects and m captures post-treatment effects. Figure 1 shows systematic differences between treatment and control groups. The pre-treatment coefficients are around the zero line (mean value). Figure 1 reveals that, when the municipality is not a coalition municipality, the transfers are around the transfer mean. However, when municipalities are in the coalition the transfer increases significantly with the average value being above the mean. The graphs consider the 95% confidence interval.

FIGURE 1.
Event study for Chile-Peru coalition municipalities



Source: own elaboration.

7. DISCUSSION AND CONCLUSIONS

The results show that, in Chile and Peru, the allocation of public resources is influenced, to a certain degree, by political factors (Hypothesis 1), and that in election periods transfers to coalition municipalities increase (Hypothesis 2) and that political discretionality is affected by the implementation of decentralisation policies (Hypothesis 3). In short, the existence of a *pork barrel* and *political budget cycle* is corroborated for Chile and Peru. Additionally, it is identified that decentralisation increases, to a certain degree, the options for discretionality.

Political decentralisation implies transferring power to regional and/or local governments, giving them a certain degree of autonomy to make decisions and manage their own affairs. This transfer of power reduces the concentration of power in the central government, which is a good thing in highly unequal societies such as those of Latin America (Genta et al., 2022). However, there are risks due to the possibility that greater regional or local autonomy may result in decision-making that favours certain interest groups (Prud'homme, 1995) to the detriment of others, which could lead to inefficiencies in resource allocation and territorial inequality.

In order for decentralisation not to be subject to the influence of local power groups, it is important to have good institutions, i.e. control and oversight mechanisms that promote an equitable allocation of resources. Specifically, political decentralisation must be accompanied by greater transparency, better accountability and citizen participation in decision-making (Weingast, 2014). In addition, territorial autonomy must be embedded in multilevel governance, which contains appropriate incentives for coordination and cooperation between different levels of government to avoid conflicts of interest.

Given these results, there is a need to proactively implement institutional mechanisms that somehow reduce political discretionality. The literature suggests that the distribution of resources should be done under a formula that uses objective socio-economic criteria or through independent agencies for this purpose (Banful, 2011). However, it is difficult to conceive of instruments that are not mediated by political factors. In this scenario, institutional reforms that increase transparency, accountability, citizen participation and limit non-programmatic allocations are proposed to bring stability to the allocation of public resources.

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ANNEX

TABLE 2.
Descriptive statistics of variables, Peru Model

Variable	Variable description	Obs.	Mean	Std. Dev.
Per capita transfer (fiscal resource)	Intergovernmental transfer of regional decision in per capita terms (currency, Peruvian soles 2017)	18.311	1.634	5.197
log (per capita transfer) (fiscal resource)	Logarithm of the intergovernmental transfer in per capita terms (currency, 2017 Peruvian soles)	18.311	12,889	1,581
coalition (dummy)	=1 if the municipality belongs to the coalition government	18.311	0,478	0,499
election year (yp0) (dummy)	=1 if presidential election year	18.311	0,200	0,400
Decentralisation (dummy)	=1 if it corresponds to the period of decentralisation, from 2008 period when the decentralisation shock is implemented.	18.311	0,501	0,500
density	It is the ratio between population and surface area, it allows to distinguish urban and rural areas, it is a good proxy for the shape of the territory.	18.311	424,979	2.308
Population	Estimated annual population	18.311	15.775,47	47.798.01
FCM (%)	FonComun territorial compensation programme, distribution of resources between municipalities that operates on a formula basis,	18.311	2.101	4.562
Emp	municipal employees, proxy for efficiency and size of municipalities	16.515	72.43	220.9543

Source: own elaboration.

TABLE 3.
Descriptive statistics of variables, Chile Model

Variable	Variable description	Obs.	Mean	Std. Dev.
Per capita transfer (fiscal resource)	Intergovernmental transfer of regional decision in per capita terms (currency thousands of Chilean pesos 2017)	3.450	19,416	51,518
log (per capita transfer) (fiscal resource)	Logarithm of intergovernmental transfer in per capita terms (currency thousands of Chilean pesos 2017)	3.450	1,61	2,503
coalition (dummy)	=1 if the municipality belongs to the coalition government	3.450	0,348	0,476
election year (yp0) (dummy)	=1 if presidential election year	3.450	0,3	0,458
Decentralisation (dummy)	=1 if it corresponds to the period of decentralisation, since 2014 period when regional councillors are directly elected.	3.450	0,4	0,489
density	It is the ratio between population and surface area, it allows to distinguish urban and rural areas, it is a good proxy for the shape of the territory.	3.450	874,026	2707,131
Population	Estimated annual population	3.450	51.354,52	84505,52
Poverty (%)	Percentage of the population below the poverty line	3.450	16,992	9,152
Execution (%)	Percentage of budget execution (%)	3.450	85,707	11,177
Efficiency (%)	Efficiency in the collection of patents or trade permits	3.447	82,755	13,126

Source: own elaboration.

