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# Poverty, Politics and Local Diffusion

## Resource Allocation in Boliva's Decentralized Social Fund

*Jörg Faust*

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social fund

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## Abstract

Social investment funds are prominent instruments in developing countries that aim at providing financial resources for social infrastructure projects to poor municipalities. In contrast to traditional, more centralised distribution mechanisms of such funds, the Bolivian Fondo de Inversión Productiva y Social was among the first that employed a self-selection mechanism: municipalities had to apply for funds through a decentralised allocation scheme embedded in the country's overall fiscal decentralisation process. This study tests several hypotheses regarding potential factors at the local level that might have shaped the distribution pattern among municipalities. It finds positive non-linear relations with diminishing returns between a municipality's level of poverty and alternative fiscal transfers that could be used for co-financing FPS projects, on the one hand, and the resources it received from the social fund, on the other. Moreover, local neighbourhood effects of FPS funding depended on a municipality's institutionalised cooperation with its neighbours and its proximity to provincial capitals, which hosted the regional offices of the FPS. Finally, there is no evidence that major traditional parties have over-proportionally profited from the FPS, but municipalities governed by Evo Morales' anti-system party were significantly disadvantaged.



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## Abbreviations

ADN	Acción Democrática Nacionalista
HIPC II	Heavily Indebted Poor Countries initiative
FIS	Fondo de Inversión Social
FPS	Fondo de Inversión Productiva y Social
FSE	Fondo Social de Emergencia
ISS	Institute of Social Studies
MAS	Movimiento al Socialismo
MIR	Movimiento de Izquierda Revolucionaria
MNR	Movimiento Nacionalista Revolucionario
PNC	Política Nacional de Compensación
SIF	Social Investment Funds
UBNI	Unsatisfied Basic Needs Index



## 1 Introduction

In many developing countries, Social investment funds (SIFs) are a widespread tool of governments and aid agencies in the struggle against poverty. As quasi-financial intermediaries, SIFs generally operate through channelling grants from the central government to local entities according to predetermined eligibility criteria (Fumo et al. 2000). Since their first appearance in Bolivia during the late 1980s, SIFs have nevertheless undergone several modifications. Originally aiming at emergency relief to counter negative social effects of structural adjustment programmes, today's SIFs are often geared towards a more long-term-oriented promotion of local services and infrastructure. Moreover, in parallel to decentralisation processes in many developing countries, SIFs have often shifted towards more decentralised allocation and implementation schemes.<sup>1</sup>

In this regard, decentralised project cycles are characterised by the participation of local actors in the identification, demand, design, implementation and maintenance of fund-financed projects. Thus, the allocation mechanism is based on the principle of self-selection, meaning that local entities can choose whether they want to apply for project funds or not (Conning / Kevane 2001). Thus, decentralised SIFs change the role of local entities, which traditionally have often been rather passive recipients of resources originating from a centralised organisation at the national level. With the decentralisation of the project cycle, local actors have been assigned the role of active participants in the local development process. Additionally, this decentralisation of project cycles has been accompanied by the requirement for local entities to co-finance SIF projects in order to increase ownership and governance of local actors (e.g. Carvalho / White 2004; Vermehren / Serrano-Berthet 2005).

Still, the principle of self-selection embodied in such a fund's allocation scheme has also been accompanied by controversies about the resulting distribution patterns, which cannot be defined by central agencies anymore but rather depend on a variety of local incentives. In this regard, one central concern about the targeting of decentralised SIFs has been whether poorer municipalities really profit from decentralised SIFs (Domelen 2007). Given the relative complexity of design, application and implementation procedures for local investment projects, poor municipalities might lack the capacities to fulfil the requirements necessary to successfully apply for funds from the national fund.

While previous studies have mostly analysed centralised allocation schemes of SIFs, this study is among the first to focus on allocation patterns in a decentralised SIF. More precisely, it investigates the driving forces behind the distribution pattern of one of the first and most ambitious decentralised SIFs; namely the Bolivian Fondo de Inversión Productiva y Social (FPS). The FPS was part of a national compensation policy (Política Nacional de Compensación, PNC) to flank neoliberal reforms. The national compensation policy, introduced at the beginning of the last decade, was an attempt to integrate different types of financial resources into a single approach for municipal development. While the PNC has been perceived as being too complex and too ambitious for Bolivia's highly unstable political environment at that time, the incentive structure of the FPS nevertheless

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1 For an overview on the structure and development of social investment funds, see e.g. Tandler (2000), Batkin (2001), Cornia (2001) and Jack (2001).

provides a highly interesting case for analysing the allocation patterns of a decentralised SIF.

The FPS and especially its allocation pattern have been controversially analysed by several qualitative studies providing valuable case study evidence (e.g. Avilés Irahola 2005; Isidoro Losada 2006). Still, no statistical analysis on this issue has been conducted to more rigorously test competing hypotheses. Based on a narrative description of the FPS' incentive structure, this study uses an original data set for the 2001–2004 period to identify factors at the municipal level that have significantly impacted on the varying amount of fund resources received by a municipality. Particularly, this study investigates the impact of a) municipal poverty, b) resources from alternative fiscal transfers, c) party affiliation of the local government as well as neighbourhood effects and mechanisms of policy diffusion on the fund's distribution during the period under investigation.

The findings of the econometric analysis can be summarised as follows. Despite incentives, which privileged poor municipalities in the fund's allocation scheme, the relation between poverty and received funds has taken a slightly inverse-u-shaped form. This result indicates that from a certain level of poverty, municipalities did not profit any more from the SIF, but were even slightly disadvantaged. Secondly, with regards to the effect of alternative fiscal transfers from the central government, there was also a slightly inverse-u-shaped relation. Alternative fiscal transfers were used as co-financing resources, but this effect diminished with the amount of alternative transfers at a municipality's disposal and – from a critical threshold – even turned into a negative effect. An increase in alternative fiscal transfers to a municipality had diminishing incentives for demanding additional funds via the SIF. Thirdly, no evidence was found that traditional political parties associated with the national government benefited over-proportionally from the FPS. However, the anti-system party of Evo Morales, Movimiento al Socialismo (MAS), was systematically disadvantaged by the fund's allocation mechanism. On the one hand, this finding suggests that the decentralised allocation fund provided some shelter from political capture by the central government. On the other hand, even in a context of party-system implosion, traditional political parties were able to exclude a common enemy from receiving FPS funds, namely the most prominent anti-system party, MAS.

Finally, this study explicitly takes into account potential channels of local diffusion often mentioned in the context of federalist and decentralised polities (e.g. Bailey / Rom 2004; Shipan / Volden 2008). In this regard, we find no evidence that the amount of FPS resources obtained by a given municipality is correlated to that received by its neighbours. However, neighbourhood effects were contingent on the proximity of a municipality to its provincial capital and to institutionalised cooperation schemes. Thus, while geography mattered, policy diffusion was not uniform. Instead, neighbourhood effects were dependent on specific geographic and institutional features of a municipality.

The analysis is structured as follows. After the introduction, Section 2 provides an overview on the development of SIFs, giving special emphasis to the design of funds with decentralised allocation schemes. Section 3 offers a description of the Bolivian context and the incentive structure of the FPS before portraying the controversies about the fund's distribution pattern. Section 4 conducts the empirical analysis, while Section 5 summarises the major findings and provides some recommendations for policy-makers.

## 2 Decentralised social investment funds

Social funds were first established in the late 1980s as emergency measures to mitigate the negative impacts of structural adjustment programmes by transferring resources directly to private households and by financing small-scale infrastructure projects for low-income communities. Over time, these funds transformed into more permanent organisations to finance rather medium and long-term local infrastructure projects (Jack 2001; Tendler 2000). SIFs focussed on community development and poverty reduction by attempting to increase public access to social infrastructure, especially in poorer local entities. However, since the 1990s, the centralised structure of most SIFs – with its top-down planning and financing approach – had been confronted with increasing criticism. The influence of the national executive on sector and territorial allocation of resources was considerably high, and it often came at the expense of active participation at the level of beneficiary communities and municipalities. Projects financed by centralised SIFs often did not match municipal priorities; especially in countries with authoritarian features, the allocation of resources could easily be captured by the central government for electoral reasons (Siri 2002, 7).<sup>2</sup> Moreover, the absence of participation was also associated with a lack of ownership at low levels of project maintenance.

Together with an increasing trend towards political, fiscal, and administrative decentralisation, this criticism led to changing organisational structures of many SIFs. Most importantly, in countries that already have undergone a transformation towards more decentralised state structures, greater responsibility was given to municipalities regarding the identification, planning and implementation of social infrastructure projects from SIFs. In accordance with participatory principles, local communities have to identify their priorities with regard to sector-specific projects, such as in the areas of water and sanitation, education and health. Ideally, these local demands are then integrated into participatory municipal development plans, linking the community with the municipal level. Based on such a bottom-up approach, local entities are then asked to develop a plan for project implementation and project maintenance before demanding financial resources from the SIF. If a concrete project meets the ex ante defined SIF, financial resources are allocated to the respective local entity, which then starts the implementation process.

Especially in countries with democratically elected municipal governments, such a close cooperation could not only promote the empowerment of marginalised local groups but also strengthen local administrations' governance capacities to cope with the demands of their citizenry (Vermehren / Serrano-Berthet 2005). Accordingly, an SIF at the national level does not allocate resources by centralist decision, but rather responds to local demands and condenses its function to develop a national framework, supervises the process of project implementation and, where necessary, directly or indirectly provides technical assistance. As such, the process of allocating financial resources becomes more flexible and responsive to locally identified needs. The process thereby aims at increasing local ownership, social control and sustainability of the project cycle (Siri 2002, 8).

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2 For instance, evidence from Peru suggests that the populist government of Fujimori used social funds for political purposes. Resource allocation often tended to bypass sector ministries and funds were intended to increase electoral support (Schady 2000). A more recent finding regarding Venezuela's Misiones Fund also suggests a clientelistic use of the social fund by the government of Hugo Chavez (Penfold-Becerra 2007).

In this regard, many SIFs have been adopting differentiated systems of project co-financing as a further incentive to strengthen local project ownership (cp. Faguet 2005, 15). Accordingly, local entities demanding financial subsidies from the SIF have to finance a certain percentage of the total project sum. This percentage can differ according to the local level of poverty or the sector in which the project is located. In this context, fiscal decentralisation reforms may enable poor municipalities to increase their effective demand for financing from SIFs by being able to hire technical assistance or provide greater counterpart resources through the usage of alternative fiscal transfers or own revenues (Domelen 2007, 20).<sup>3</sup>

Despite these potential virtues of decentralised investment funds, there are still major concerns about whether decentralised SIFs, with their ambitious procedures, may overextend existing capacities of poorer municipalities. For many local administrations, a decentralised allocation scheme can bring about new challenges as they have to identify, plan, supervise, sustain and even co-finance their projects in order to obtain subsidies from an SIF. Thus, decentralised SIFs might have to cope with a certain conflict of interests at the local level. On the one hand, decentralising the project cycle is supposed to promote demand-driven resource allocation, sustainability and local governance. On the other hand, decentralising the project cycle can stand in contrast to poverty orientation if poorer municipalities and marginalised communities are overstrained by the procedural requirements and fail to organise a successful application process for funds from an SIF (Faguet 2005, 15; Domelen 2007, 1–2).

What has been discussed to a much lesser extent regarding the distribution patterns of SIFs are the potential effects of local diffusion, which have been observed in such diverse policy fields as anti-smoking laws (Shipan / Volden 2008), local gun control (Godwin / Schroedel 2000) and education and health programmes (Bailey / Rom 2004; Borges Sugiyama 2008). As argued by scholars of policy diffusion and federalism, decentralised settings often work as catalysts for geographic spill-over induced through different mechanisms such as imitation, learning and competition (Bailey / Rom 2004; Shipan / Volden 2008). Therefore, under a decentralised allocation scheme, the distribution of an SIF's resources could well be driven by neighbourhood effects, leading to local clusters of resource allocation. Still, whether and how such geographic effects take place and to which extent they can undermine or reinforce existing incentives has not been an explicit issue in the literature on SIFs.

### **3 The case of the Bolivian FPS**

#### **3.1 The broader context of the FPS**

Since the mid-1980s, social funds have played an essential role in Bolivia and the country often was a precursor in developing social fund systems. Already in 1986, the government

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3 The use of fiscal transfers for co-financing SIF projects can also function as a means to link a social fund into existing institutional arrangements of fiscal decentralisation. Moreover, the co-financing incentives can also be linked to nationally defined sector priorities, thus helping to integrate the fund into established public policy arrangements (Helling / Serrano / Warren 2005, 56).

– with the support of the World Bank – launched the first social emergency fund ever, the Fondo Social de Emergencia (FSE). The FSE was intended to cushion the negative effects of neoliberal adjustment programmes such as unemployment and economic recession. Initially created as a short-term measure, the FSE was transformed into the Fondo de Inversión Social (FIS) in 1991, which aimed at promoting long-term-oriented poverty reduction through investments in education, health and basic infrastructure.

Both, the FSE and FIS were organised in a top-down manner and were confronted with an increasingly decentralised context. In 1994, the Ley de Participación Popular created the legal framework for municipal participation and self-government and restructured the Bolivian territory into nine departments and more than 300 autonomous municipalities.<sup>4</sup> The legal foundation of a vertical fiscal transfer system followed and the Coparticipación Tributaria defined that municipalities were to receive 20 per cent of national tax revenues, which had to be allocated according to the number of inhabitants without any reference to the entity's level of poverty. Additionally, municipalities received fiscal resources from the FIS, which – often used by international aid agencies as a financial intermediary – were converted into a crucial instrument for national social policies. Moreover, the government created the Fondo del Campesino (FDC) with the mission to promote development in rural areas (Isidoro Losada 2006).

During the 1990s, the FIS and FDC were increasingly accused of lacking transparency and effectiveness due to their centralised and highly bureaucratic structures, which led to immense administration costs and implementation delays (cp. Vermehren / Serrano-Berthet 2005, 102). Furthermore, political interests seemed to hamper a demand- and need-oriented fund allocation and several cases of corruption and fraud were detected. Demands for reforming the fund's organisational set-up grew louder when Bolivia qualified for the enhanced Heavily Indebted Poor Countries (HIPC II) initiative, which required a national participation process on how to use the resources from debt relief. The resulting consultations led to a National Dialog Law (Ley del Diálogo Nacional), which arranged the distribution of the HIPC II funds and cleared the way for the Política Nacional de Compensación, the Bolivian national anti-poverty policy. The PNC focussed on the rationalisation and pro-poor channelling of fiscal and international transfers to municipalities (Jatté 2004). Also, in accordance to the PNC, both existing funds were merged into the Fondo Inversión Productiva y Social in 2000, which became one of the most important instruments for the implementation of the PNC. The FPS received its legal mandate and operational model from the National Dialog Law. The Unified Funds Directorate (Directorio Único de Fondos) was created as an umbrella fund to control, approve and oversee the plans and budgets of the FPS and its minor partner – the municipal credit fund (Jatté 2004, 30).

Thus, the Bolivian FPS represented one of the first attempts to embed an SIF's decentralised allocation scheme into the overall decentralisation process and a country's anti-poverty strategy. Nevertheless, due to the highly politicised environment in the period under investigation, the FPS was confronted with the accusation of systematically disadvantaging poor municipalities. Under the new government of Evo Morales, the FPS

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4 On the decentralisation process and local participation in Bolivia during the 1990s, see for example Gray Molina (2002), Faguet (2002) and Hiskey / Seligson (2003).

partly lost its decentralised allocation scheme as central government agencies and centralised policies regained importance.

### 3.2 Set-up and incentives of the FPS

It is worth noting that the FPS did not allocate resources for local investments in a top-down manner. Instead, funds were given for concrete investment demands from the local entities, which were responsible for designing and implementing their projects. Funds were not earmarked, but instead the FPS followed a multi-sector approach to harmonise national sector priorities defined in the poverty reduction strategies with local investment decisions. The projects' municipalities could choose between eight different sectors, thereby responding to the increasing competences that municipalities had obtained during the process of administrative decentralisation.<sup>5</sup>

Each community in a municipality identified a list of priority projects. Those lists were then combined by the municipal administration – again in a participatory approach to ensure the transparency of the selection process. The resulting list of projects was then handed in for approval, together with first drafts of project designs, to the regional offices of the FPS, located in the capitals of the nine Bolivian departments. Once the regional offices of the FPS approved the final designs of the projects, the tendering process was launched in order to contract a construction firm. During the whole cycle, none of the local governments received cash, since contractors were all paid directly by the fund itself to avoid local corruption. Still, local authorities remained responsible for the project execution. They had to supervise and complete the construction and were also responsible for the maintenance of the projects.

Municipal co-financing played a crucial role in developing project ownership and combining national with local priorities. Each FPS project demanded by local entities required co-financing. However, these co-financing requirements differed with regard to three indicators (cp. Isidoro Losada 2006, 147; Dio 2002). First, poorer municipalities had to provide lower co-financing shares. Second, the co-financing share depended on the sector of the chosen project in order to concentrate funds in sectors defined as priorities by the national poverty reduction strategy. Third, co-financing requirements were lower for projects demanded in the context of supra-municipal agreements (the *mancomunidades*) in order to promote the willingness of local administrations to align to larger planning and administration units. Given the weak revenue-generation capacities of poor and small municipalities, resources for co-financing were meant to mainly derive from two alternative sources: namely resources from the HIPC II – which were earmarked for a range of anti-poverty measures – and non-earmarked resources from the Coparticipación Tributaria transfer scheme.<sup>6</sup>

While the allocation of FPS mainly responded to decentralised project demands, the incentive structure of the SIF nevertheless was an attempt to embody elements of poverty-

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5 These sectors were: education, rural development, health, rural energy, basic rehabilitation, environment, transport and institutional fortification.

6 Whereas the national transfers were only distributed according to the size of municipalities, HIPC funds were allocated according to a poverty and population-based formula.

orientation that went beyond pro-poor privileges for co-financing. More concretely, the first assignation of resources within the scope of the PNC in July 2001 foresaw the allocation of US\$ 100 million in fund entitlements to the 314 Bolivian municipalities. These funds, envisaged for a three-year period, mainly derived from resources provided by multi- and bilateral donors such as the World Bank, the European Union and German financial cooperation (Isidoro Losada 2006, 71).<sup>7</sup>

According to a population-based and poverty-oriented formula, the funds were assigned as potential subscription rights for each municipality. Each municipality received a potential volume for investments, which defined the upper bound for FPS resources that could be given to the local entity. Seventy per cent of the US\$ 100 million was assigned (as ceilings / upper bounds) directly to each of the 314 municipalities according to a special poverty and population-based formula, which delegated potential entitlements according to a community's rate of poverty and number of inhabitants. The remaining 30 per cent was assigned (as ceilings) in equal shares to the nine departments, and within each department, according to the same poverty and population-based formula. Poorer and more populous communities qualified for a higher percentage of the total fund. The indicator for measuring a municipality's poverty consisted in the Index of Unsatisfied Basic Needs Index (UBNI, Índice de Necesidades Básicas Insatisfechas). Municipalities were divided into five different poverty categories according to this indicator.<sup>8</sup>

Thus, the allocation scheme of the FPS was organised in a decentralised manner, while at the same time it set different ceilings for potential entitlements, allotting significantly more resources for poorer and more populated municipalities. Still, the incentive structure of the FPS was not undisputed. One school of thought critically interpreted the FPS approach as a central government instrument to constrain the municipalities' political manoeuvring space and called for more spending autonomy of local municipalities. Others interpreted the FPS as a threat to autonomous sector policies, as the PNC and the FPS represented attempts to integrate different sector policies into an integrated distribution mechanism (Isidoro Losada 2006, 73 ff.).

Despite the fund's well-elaborated incentive structure, these different perspectives on the FPS' role led to increasing criticism during the 2001–2004 period. One major origin of this criticism was that by 2004 only three-quarters of the entitled US\$ 100 million had been effectively transferred in the form of project approvals from the FPS to local entities.

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7 Whereas in prior periods, resources from international aid agencies were often earmarked to specific sectors or territorial entities, which were defined as priorities by the respective multilateral or bilateral aid agencies. However, in the course of reforming the Bolivian SIFs, the Bolivian government was able to commit donors to abandon their specific allocation interests in favour of a unified allocation scheme (Isidoro Losada 2006, 82).

8 The first category comprised persons whose basic needs were satisfied; the second was composed of persons living on the margins of poverty; the third category incorporated persons living in moderate poverty; the fourth category compounded fundless persons and the fifth category incorporated marginalised persons. Each municipality had certain amounts of people belonging to each of the five categories. By weighting each group, the population for each municipality was recalculated. The newly calculated population figures took into consideration the economic and social aspects of each community and provided the basis for the determination of the individual entitlements. The categorisation was conducted by the National Institute for Statistics and incorporated in the Ley del Diálogo Nacional, Art. 12°.

HIPC resources were also used in a limited way by local municipalities. Moreover, 5 per cent of the 314 municipalities did not make use of their fund entitlements at all. Concerns arose that poor and small municipalities were disadvantaged from the fund allocation scheme. Especially the complex and bureaucratic approval scheme was held responsible for the assumed exclusion of small and poor municipalities from the fund's resource allocation (ISS 2003; Jatté 2004, 32; Isidoro Losada 2006, 83). Although the FPS and its regional offices offered technical support throughout the project cycle, technical assistance in the period under consideration was often not delivered in a systematic way. Still, the accusation concerning the self-selection principle embedded in the fund's allocation scheme was not grounded on solid empirical evaluation but rather on descriptive and anecdotal evidence.

As depicted in Table 1, the allocation of FPS resources according to the fund's five poverty categories – with category 5 comprising the poorest municipalities – does not provide a clear picture. On the one hand, the average numbers suggest that allocation responded to municipalities' poverty levels. On the other hand, the large standard deviations show that an isolated look at those averages cannot be used as reliable indicators for assessing the poverty orientation of the FPS. For obtaining more robust evidence, one needs first to take into account the effect of the major incentive schemes of the fund, such as its co-financing arrangements or its preference for inter-municipality cooperation through the *mancomunidades*. Second, one should also take into account political factors that might have driven the allocation of funds – the FPS was embedded in a political context marked by extreme politicisation and political instability at the national level.<sup>9</sup> Not surprisingly, the leadership of the FPS was frequently changed and there were accusations that the fund was being captured by mighty party interests linked to the national governments. Finally, when testing the poverty orientation of the fund, one also should take into account non-intended diffusion effects that might have re-enforced or weakened the fund's original target goals.

	Category 1	Category 2	Category 3	Category 4	Category 5
FPS per capita	2.08	6.27	12.81	20.81	22.08
Standard deviation	0.161	3.13	8.89	20.01	18.11
Number of municipalities	3	18	97	102	94

#### 4 Empirical analysis

For identifying crucial factors that have shaped the resource distribution of the FPS, the following econometric analysis uses a new dataset that encompasses relevant data for almost all of the 314 Bolivian municipalities (at 2001) for the 2001–2004 period. The two major dependent variables were constructed from FPS sources: first, the per capita amount

<sup>9</sup> In the 2000–2006 period, the country had six different presidents, was confronted with the implosion of its traditional party system, faced serious conflicts about the revenue distribution from natural resources and witnessed several waves of social protests.

of money each municipality received from the FPS in the period under consideration, the mean value of this variable being 17.74 (USD in constant terms) with a standard variation of 16.56. To obtain a normalised distribution of the variable, the log term of this variable was used. Second, an alternative dependent variable includes the co-financing amount, so that the variable equals the overall per capita sum invested in FPS-sponsored projects in a given municipality.

The baseline model consists of four independent variables, out of which the first three are based on census data. First, the size of a municipality is measured by its *population* (log) in order to identify whether smaller municipalities have been systematically advantaged by the FPS due to their limited administrative capacities. Second, the *percentage of indigenous people* living in a given municipality is included as an independent variable because some observers have suggested that areas with more indigenous people were systematically disadvantaged by the distribution pattern of the fund. For measuring a municipality's *level of poverty*, we refer to the 2000 UBNI. The index follows a common approach for measuring local poverty in Latin America and reflects the percentage of a municipality's population whose basic needs are unmet, thus ranging from 0 to 1.<sup>10</sup> The fourth variable consists of the sum of alternative transfers from the national transfer scheme and the HIPC II initiative (in per capita terms), which represented the most important source for meeting the co-financing requirements of the FPS.

The preferred estimation technique consists of an OLS cross-section, where the dependent variable is the average amount of resources received by the FPS in per capita terms over the 2001–2004 period. Given the fact that some municipalities pile at zero because they did not receive resources from the FPS at all, the preference for OLS estimation merits some further explanation. Often it is recommended to use a Tobit corner solution or a Heckman two-stage selection model, where censored observation might cause a violation of the basic OLS assumptions (Gujarati 2002, 616; Kennedy 2003, 283). However, the standard OLS procedure should be preferred over Tobit regressions, if the number of censored observations is limited (Wilson / Tisdell 2002). Likewise, a Heckman selection does not perform well if the amount of censoring is small (Kennedy 2003, 186), among other reasons. Given that in the examined sample fewer than 5 per cent (15 out of 313 municipalities) of the observations are censored at zero, the analysis therefore stays with the OLS model.

Independent variables are calculated accordingly for the amount of alternative transfers but not for population, the percentage of indigenous inhabitants or the poverty level – data that only exist for point in time. The latter restriction of data availability is also the reason for not having employed a time series cross-section analysis. Because many important variables do not change over time, the use of a time series cross-section analysis controlling for potentially omitted variables via fixed-municipality effects becomes problematic, as such fixed-effects would have absorbed most of the sticky variables'

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10 Typically, such indices are reported for local administrative units as the percentage of households that have one or several basic needs unmet (Feres / Mancero 2001). The information normally stems from census data and, in Bolivia, includes data on housing, crowding, sanitation, safe water, school attendance, illiteracy, health, social security and electricity. The composite index is then constructed as a weighted index including four indicators (education, health, housing and basic services) compiled out of 13 variables.

variance. Finally, all models in Table 2 were calculated cluster robust (Rogers 1993), controlling for intra-group correlation by using the nine Bolivian departments as cluster variables.<sup>11</sup>

<b>Table 2: Regression analysis for FPS resource allocation</b>				
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
	FPS	FPS	FPS	ProjectSum
Population (log)	0.110*	0.125*	0.130*	0.134*
	(2.03)	(2.02)	(2.10)	(2.02)
Indig. pop. (%)	-0.283	0.185	0.152	0.326
	(-0.25)	(0.19)	(0.16)	(0.33)
Poverty level	0.0119***	0.0397**	0.0427**	0.0464**
	(4.54)	(2.70)	(2.96)	(3.10)
Sq. Poverty level		-0.00024***	-0.00026***	-0.00030***
		(-3.71)	(-4.00)	(-4.51)
Altern. transfers	0.0128***	0.0450***	0.0448***	0.0455***
	(5.11)	(3.62)	(3.55)	(3.57)
Sq. altern. transf.		-0.000076**	-0.000075**	-0.000076**
		(-2.57)	(-2.53)	(-2.54)
MNR mayor			-0.108	-0.110
			(-1.13)	(-1.06)
ADN mayor			-0.126	-0.113
			(-0.95)	(-0.78)
MIR mayor			-0.148	-0.108
			(-0.81)	(-0.54)
MAS mayor			-0.243***	-0.278***
			(-3.37)	(-3.49)
Constant	-1.056	-4.976***	-5.010***	-5.024***
	(-0.88)	(-6.69)	(-7.41)	(-6.50)
Observations	314	314	314	314
R <sup>2</sup>	.33***	.40***	.40***	.36***

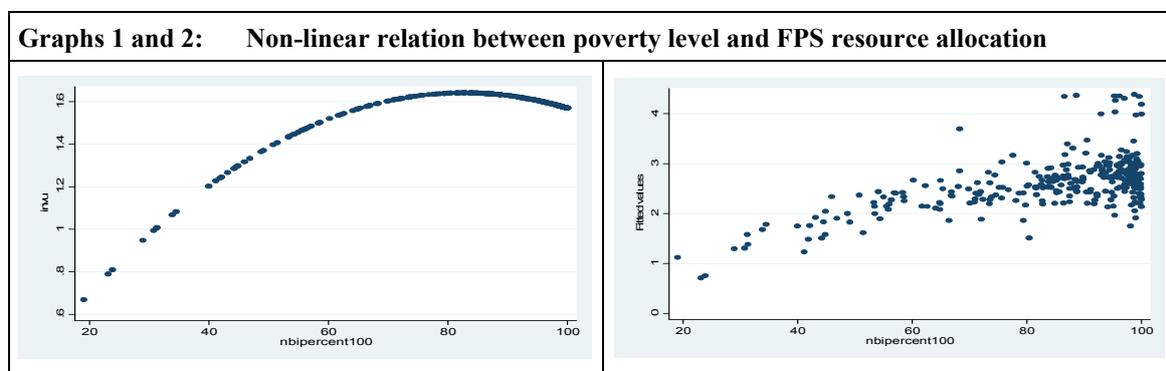
OLS models are calculated cluster robust, Tobit models are calculated robust. The table reports coefficients and t-values (in parentheses). Statistical levels of significance: \* → p < 0.10, \*\* → p < 0.05, \*\*\* → p < 0.01

11 Cluster robust estimates are commonly used when studying the local variance in country contexts, which are characterised by regional entities such as states, provinces and departments (e.g. Faust / Harbers 2012). Here, the procedure is used to control for the fact that the allocation of resources might have been driven by unobserved political, economic or historic factors at the departmental level.

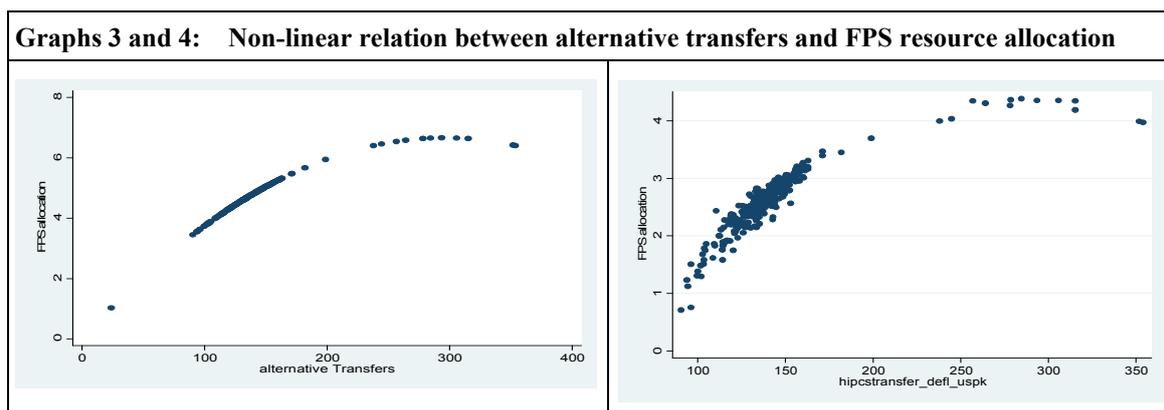
Model 1 in Table 2 provides the results of the baseline model. Accordingly, the coefficient of the population size is slightly significant, meaning that larger municipalities have over-proportionally profited from FPS allocations. In contrast, the percentage of indigenous inhabitants had no significant effect on the fund's distribution pattern. Most importantly, Model 1 suggests a significant and linear effect of a municipality's poverty level. A 1 per cent increase in UBNI – on average – had an effect of increasing FPS resources by 1.2 per cent. Moreover, the effect of alternative fiscal transfers is also positive and highly significant, suggesting that municipalities used alternative transfers as a co-financing instrument for FPS projects.

However, when testing for a non-linear effect of poverty levels and alternative fiscal transfers, Model 2 provides a much more fine-tuned perspective on the fund's distribution pattern. Model 2 includes the squared terms of the poverty and the alternative transfer variables. For both, the two terms are highly significant – the original variables have a positive sign, while the squared terms reveal a negative sign. This suggests diminishing returns of both variables, as the relation takes a slightly inverse-u-shaped form. Importantly, this non-linear relation was not caused by a boundary effect because fewer than 10 per cent of the municipalities reached their maximum earmarked allocation ceiling. Accordingly, a municipality's poverty level initially augmented the probability of receiving resources from the FPS. Yet, increasing levels of poverty diminished this effect and even turned it into a negative one.

This relation is illustrated in Graphs 1 and 2. Graph 1 shows the diminishing effect of a municipality's poverty level on FPS allocation by using the average coefficients of the poverty level and its squared term from Model 2. The interpretation of the graph indicates a threshold value of the UBNI at 85, around which the relation turns into a negative one. However, taking into account the fitted values in Graph 2 derived from Model 2, one should be cautious in interpreting this mild inverse-u-turn as a robust result for a negative effect of high poverty levels on resource allocation from the above-identified threshold. What one can say, however, is that municipalities with high levels of poverty were not over-proportionally profiting from the FPS allocation anymore. Taking into account that roughly two-thirds of Bolivian municipalities had poverty levels above a UBNI of 85, this finding is of substantial importance.



As depicted in Graphs 3 and 4, increasing alternative transfers initially also had a positive effect on resource allocation, but this effect diminishes with increased levels of transfers. A plausible explanation is that municipalities valued alternative transfers for co-financing FPS projects, but as the number of transfers increased, they did not find it necessary to seek extra money via the complex FPS application process. Again, one should cautiously interpret this non-linear effect. In contrast to the effect of a municipality's poverty level, the fitted values in Graph 4 show that the inverse-u-shaped effect is mainly caused by roughly 5 per cent of the municipalities that received substantially more HIPC resources than the average.



Model 3 of Table 2 takes into consideration the potential effect of party politics on the resource distribution of the FPS. A dummy variable is used, indicating whether a mayor from the 1999 municipal elections belonged to a specific party. More concretely, the model integrates four party variables. The first three measure whether a mayor has been affiliated to one of the three most important parties at the local level: the Movimiento Nacionalista Revolucionario (MNR), which won 101 municipalities; the Movimiento de Izquierda Revolucionaria (MIR), with 57 municipalities; and the Acción Democrática Nacionalista (ADN), with 59 municipalities. All three parties have been frequently considered as the three traditional Bolivian parties (e.g. Singer 2004, 174), which participated in various coalition governments and supported market-oriented policies throughout the 1990s and early 2000s. Finally, the model also includes the most important opposition party, Movimiento al Socialismo (MAS). This party strongly opposed neoliberal reforms and propagated an eclectic socialist reform model with indigenous and participatory elements. Its leader, Evo Morales, gained wide popularity prior to the 2002 presidential elections, but after the 1999 municipal elections, only 11 municipal mayors originated from the MAS.

According to the results of Model 3, the party variables for the three traditional parties were not significantly related to FPS allocations. Thus, the FPS did not favour municipalities with mayors of those parties. One could interpret these findings in the context of the specific Bolivian context, where from 2000 onwards, the traditional party system was in a process of erosion and traditional parties had lost most of their legitimation within the public sphere as they engaged in broad and ideologically incoherent coalitions and did not respond to increasingly broad criticism of the neoliberal reform agenda. In the course of this erosion process, the national leaders of traditional parties often lost their linkage to local party members, who were increasingly influenced

by local movements and participatory approaches rather than by decisions of national party elites. Thus, the statistically insignificant effect of the traditional party variables might not only mirror the advantage of the fund's decentralised allocation scheme but also Bolivia's eroding party system. Moreover, the inclusion of the MAS party variable reveals that municipalities governed by the most important opposition – namely the anti-system party – were systematically excluded from FPS funds: the variable has a negative sign and is statistically highly significant. This result can serve as an indicator that while the FPS did not systematically favour one of the traditional parties, the governing parties did manage to systematically disadvantage the most popular opposition party. Finally, Model 4 replaces the dependent variable and includes the co-financing amount, thus measuring the overall sum invested in FPS-sponsored projects in a municipality. Yet, this modification does not alter the results achieved in the previous models.<sup>12</sup>

After having analysed the municipalities in an isolated way, the analysis proceeds by including variables that relate to potential diffusion or neighbourhood effects. For this purpose, the 2000 poverty map of Bolivia was coded in order to identify a given municipality's neighbours. Based on this information, the average per capita amount of FPS-sponsored projects in neighbouring municipalities was calculated. Thus, one can test whether the amount of FPS resources allocated in the neighbourhood of a given municipality was related to the amount of FPS resources received by this municipality. Model 5 tests whether such a diffusion effect took place by including a variable that measures the per capita amount of FPS projects in neighbouring municipalities. Yet, while the coefficient has the expected positive sign, it is far from being statistically significant, suggesting that a potential geographic diffusion of FPS usage was not simply driven by the amount of FPS resources received by surrounding municipalities. To check this result, other measures were employed, such as the average or absolute sum of FPS resources obtained by neighbouring municipalities. Again, these measures were not significantly related to the dependent variable. Neither was a variable that measured the FPS resources obtained by neighbours with the same party affiliation of the mayor.

However, Model 6 identifies two alternative neighbourhood effects related to the specific institutional set-up of the FPS. First, as already mentioned, the FPS had regional offices in the departmental capitals that were responsible for channelling the demands from the municipalities to the fund's headquarters, as well as for providing technical assistance during the project cycle and advice on the fund's procedures to obtain resources. Thus, this important operational role of the regional offices might have led to a centre-periphery effect, giving those municipalities that were in closer proximity to the regional FPS offices a geographic advantage for successfully demanding projects. To test this argument, Model 7 includes a variable that identifies municipalities that directly neighbored departmental capitals. As expected, the coefficient of this variable has a positive sign and is statistically significant. On average, being a neighbour of a department's capital increased the resources received by a municipality from the FPS by 21 per cent. Stated differently, municipalities located at the periphery of a given department were substantially disadvantaged by the fund's resource allocation.

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12 Substituting the OLS model with a Tobit regression also does not alter the results (Table 6; Appendix) except for the effect of the MAS variable, which remains negative but is no longer significant. However, given the explained superiority of the OLS estimation, the OLS results should be preferred over the Tobit estimation.

<b>Table 3: Regression analysis for FPS resource allocation: testing for diffusion effects</b>			
	(5)	(6)	(7)
	OLS	OLS	OLS
	FPS	FPS	ProjectSum
Population (log)	0.127*	0.112*	0.115*
	(2.30)	(2.11)	(2.03)
Indig. pop. (%)	0.148	0.317	0.475
	(0.16)	(0.35)	(0.50)
Poverty level	0.0422**	0.0377**	0.0417**
	(3.13)	(2.85)	(3.03)
Sq. poverty level	-0.00026***	-0.00023***	-0.00027***
	(-4.23)	(-3.74)	(-4.34)
Altern. transfers	0.0445***	0.0436***	0.0443***
	(3.41)	(3.61)	(3.61)
Sq. altern. transf.	-0.000075**	-0.000073**	-0.000074**
	(-2.55)	(-2.67)	(-2.68)
MNR mayor	-0.108	-0.117	-0.118
	(-1.14)	(-1.40)	(-1.27)
ADN mayor	-0.126	-0.0984	-0.0888
	(-0.97)	(-0.75)	(-0.62)
MIR mayor	-0.148	-0.144	-0.104
	(-0.81)	(-0.81)	(-0.53)
MAS mayor	-0.243***	-0.177**	-0.218**
	(-3.38)	(-2.77)	(-2.98)
Project sum neighbour	0.00019	0.00019	0.00026
	(0.19)	(0.20)	(0.26)
Capital neighbour		0.230**	0.210**
		(3.12)	(3.02)
Member <i>mancomunidades</i>		0.120**	0.110*
		(2.49)	(2.04)
Constant	-4.943***	-4.881***	-4.874***
	(-7.72)	(-7.93)	(-6.99)
Observations	314	314	314
$R^2$	.40***	.42***	.37***

OLS models are calculated cluster robust, robust Tobit models. The table reports coefficients and t-values (in parentheses). Statistical level of significance: \*  $\rightarrow$   $p < 0.10$ , \*\*  $\rightarrow$   $p < 0.05$ , \*\*\*  $\rightarrow$   $p < 0.01$

While the latter neighbourhood effect was not intended by the fund's official incentive scheme, the FPS did include one incentive with a geographical dimension. It favoured projects from municipalities that had institutionalised formal cooperation agreements with their neighbours – so called *mancomunidades* – through requiring a lower co-financing share. In many Latin American countries, such supra-municipal arrangements are

perceived as a measure to counter the institutional fragmentation at the local level to craft larger administrative units that are able to implement local investment projects with greater economies of scale. Given this incentive, it seems plausible to assume that municipalities that were more engaged in this inter-municipal cooperation form profited over-proportionally from FPS resource allocation. Based on a USAID study (2006), which identified municipality membership in the Bolivian *mancomunidades*, Model 8 integrates a variable to measure the number of *mancomunidades* in which a given municipality was a member during the 1998–2004 period. This variable is also statistically significant, has the expected positive sign and reveals a substantial effect. Thus, institutionalised cooperation between municipalities had an economic payoff regarding the allocation of FPS funds. Finally, Model 9 provides very similar results when the dependent variable is changed and consists of the overall sum invested in FPS-sponsored projects in a municipality.<sup>13</sup>

## 5 Conclusions

As political, fiscal and administrative decentralisation is advancing in many countries, policy measures to combat poverty are adapting to these circumstances. Social investment funds, which are among the most popular instruments for promoting improved social infrastructure at the local level, are no exception to this trend. This study provides empirical evidence on the resource allocation of a decentralised investment fund, the Bolivian Fondo de Inversión Productiva y Social (FPS), by investigating potential economic, political and geographic factors that could have impacted on the allocation pattern of the fund.

Regarding the economic factors, the overall results identified two major, non-linear effects. First, while a municipality's poverty level initially had a positive effect on the FPS resource allocation, this effect vanished with increasing levels of poverty. Being a very poor (and small) municipality thus eroded the original pro-poor allocation effect. A similar effect was found regarding alternative financing resources from other national transfer schemes that could be used as co-financing resources for FPS projects. Again, the identified effect was slightly inverse-u-shaped, indicating that municipalities with very large alternative transfers did not use these transfers in the same proportion as municipalities with fewer transfers. These results fit nicely in the broader literature on fiscal decentralisation. On average, local municipalities prefer fiscal decentralisation over administrative decentralisation and capacity-building (Falleti 2005; Faust / Harbers 2012). But if successful, this can easily lead to a situation where decentralised resources are not (efficiently) used by local entities with limited capacities. Given the evidence – namely that especially very poor and small municipalities bear a higher risk of being disadvantaged by an instrument that was originally aimed at alleviating structural barriers to development – one can deduce a policy recommendation for improving decentralised SIFs. To increase the pro-poor allocation of a decentralised SIF, least-capable municipalities should be better targeted with specialised technical assistance, thereby providing them with the necessary capacity to demand and manage projects from the fund.

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13 As shown in Table 6 in the Appendix, when using the Tobit estimation instead of the OLS estimator, the identified geographic effects on the distribution of FPS resources remain unchanged.

From a political perspective, the results of this study show little evidence that the allocation scheme was captured by any one of the traditional Bolivian parties. Municipalities governed by mayors from traditional Bolivian parties did not over-proportionally profit from the FPS. Yet, while this result points to a decentralised SIF's potential advantage of shielding resource allocation against political capture through its municipal self-selection process, one should be cautious in interpreting these results. First of all, given the erosion of the traditional Bolivian party system during the period under investigation, the eroding party linkages between subnational governments and their national party elite could also be responsible for this effect. Secondly, the results show that municipalities governed by the most prominent anti-system party, MAS, were significantly disadvantaged by the FPS; this finding suggests that the different government coalitions might have prevented the fund from channelling resources to those municipalities. Overall, more evidence on decentralised SIFs is needed to clarify when such funds really do inhabit a firewall against political capture.

Finally, this study is the first to try to identify local diffusion and neighbourhood effects of a decentralised SIF. Given the bottom-up process of the fund's resource allocation, the FPS provides room for unintended and intended geographic effects. Again, the results fit nicely into the increasing body of literature on policy diffusion and neighbourhood effects. While diffusion and neighbourhood do matter, they do not happen uniformly but are mostly contingent on the institutional and geographic contexts that provide the incentives for policy measures to bypass political boundaries. In the case of the Bolivian FPS, the evidence shows that municipalities located in the periphery of a department were systematically disadvantaged by the fund's allocation scheme – a finding that underlines the necessity to carefully accompany a fund's financial allocation scheme using adequate technical assistance. Finally, the number of *mancomunidades* in which a given municipality was a member significantly and substantially increased the resources it obtained from the fund. Thus, this study has identified a positive effect of inter-municipal cooperation schemes, which are a well-known phenomenon in Latin America but so far have gained little academic attention.

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# **Appendix**



<b>Table 4: Description of variables and sources</b>	
FPS allocation in per capita terms	The overall per capita sum a given municipality received from the FPS divided by the number of its inhabitants, excluding co-financing sources. Source: Fondo Nacional de Inversión Productiva y Social
FPS project sum in per capita terms	The overall per capita sum invested in FPS-sponsored projects in a given municipality, including co-financing from other sources. Source: Fondo Nacional de Inversión Productiva y Social
Poverty	The poverty level in a given municipality is measured by using the index of unsatisfied basic needs (UBNI).
Population	The number of inhabitants of a given municipality. Source: Data are based on the 2001 census. Instituto Nacional de Estadística
Indigenous in %	The number of indigenous inhabitants living in a given municipality divided by the total number of inhabitants of this municipality. Source: Data are based on the 2001 Census. Instituto Nacional de Estadística
Alternative transfers per capita	The fiscal transfers from the central government to a given municipality divided by the total number of inhabitants of this municipality plus the resources from the HIPC initiative distributed by the central government to a given municipality divided by the total number of inhabitants of this municipality. Source: Ministerio de Hacienda de Bolivia
FPS resources received by neighbouring municipalities	The overall per capita sum the neighbouring municipalities of a given municipality received from the FPS in per capita terms. The data set on neighbouring municipalities was individually constructed by using the Bolivian poverty map of 2000.
Membership in <i>mancomunidades</i>	Measures the number of institutionalised inter-municipal cooperation schemes ( <i>mancomunidades</i> ) in which a given municipality is a member. Source: USAID (2006)
Mayor's partisanship	Measures the party membership of the mayor in a given municipality. Source: Corte Nacional Electoral ( <a href="http://www.cne.org">www.cne.org</a> ) and Singer (2005)

<b>Table 5: Summary statistics</b>					
Variable	Observations	Mean	Std. deviation	Min	Max
FPS allocation (per capita, log)	314	2.601098	.914409	0	4.79778
FPS project sum (per capita, log)	314	2.805973	.9442635	0	5.01813
Population (log)	314	1.257657	9.167858	5.39816	13.9426
Indigenous inhabitants (%)	314	.5895483	.0590439	.079532	.901768
Poverty level (UBNI%)	314	84.23405	17.88176	19.0795	100
Squared poverty level (UBNI%)	314	7414.114	2567.28	364.0273	10000
Alternative transfers	314	141.8178	35.82159	23.7561	353.811
Squared alternative transfers	314	21391.38	14699.48	564.3537	125181.9
ADN mayor	314	.1878981	.3912543	0	1
MNR mayor	314	.3216561	.4678574	0	1
MIR mayor	314	.1815287	.3860708	0	1
MAS mayor	314	.0350318	.1841538	0	1
Project sum neighbours	314	22.31952	14.40036	4.502347	108.0412
Neighbour of capital	314	.1719745	.3779606	0	1
Membership <i>mancomunidades</i>	314	1.347134	.8252455	0	4

<b>Table 6: Regression analysis for FPS resource allocation: robustness test</b>				
	(8)	(9)	(10)	(11)
	Tobit	Tobit	Tobit	Tobit
	FPS	FPS	FPS	ProjectSum
Population (log)	0.142*** (2.83)	0.146*** (2.73)	0.123** (2.35)	0.127** (2.24)
Indig. pop. (%)	0.215 (0.31)	0.394 (0.53)	0.391 (0.59)	0.555 (0.78)
Poverty level	0.0427** (2.53)	0.0466** (2.55)	0.0376** (2.26)	0.0416** (2.29)
Sq. poverty level	-0.00026** (-2.33)	-0.000302** (-2.50)	-0.00022** (-1.98)	-0.00027** (-2.18)
Altern. transfers	0.0458*** (3.49)	0.0466*** (3.50)	0.0447*** (3.58)	0.0455*** (3.56)
Sq. altern. transf.	-0.000077*** (-2.63)	-0.000078*** (-2.64)	-0.000075*** (-2.80)	-0.000076*** (-2.81)
MNR mayor	-0.106 (-0.95)	-0.107 (-0.90)	-0.115 (-1.05)	-0.116 (-0.98)
ADN mayor	-0.118 (-0.86)	-0.106 (-0.72)	-0.0886 (-0.64)	-0.0789 (-0.53)
MIR mayor	-0.150 (-1.29)	-0.110 (-0.86)	-0.145 (-1.27)	-0.106 (-0.83)
MAS mayor	-0.254 (-0.90)	-0.290 (-0.98)	-0.183 (-0.65)	-0.225 (-0.77)
Project sum neighbour	-5.276*** (-3.84)	-5.307*** (-3.62)	0.00014 (0.13)	0.00021 (0.17)
Capital neighbour	314 .17***	314 .14***	0.243*** (2.94)	0.223** (2.52)
Member <i>mancomunidades</i>			0.127*** (2.75)	0.118** (2.35)
Constant			-5.160*** (-3.53)	-5.171*** (-3.29)
Observations			314	314
Pseudo $R^2$			.18***	.15***

Tobit models with robust standard errors. The table reports coefficients and t-values (in parentheses). Statistical level of significance: \*  $\rightarrow p < 0.10$ , \*\*  $\rightarrow p < 0.05$ , \*\*\*  $\rightarrow p < 0.01$



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