



## **Electoral effects of intergovernmental fiscal transfers: An application to local elections in the province of Córdoba, 1995-2011\***

*Efectos electorales de las transferencias fiscales intergubernamentales:  
Una aplicación para las elecciones locales en la provincia de Córdoba, 1995-2011*

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### **ABSTRACT**

*We examine the impact of decentralized public policy in the form of intergovernmental fiscal transfers on local election outcomes –the probability of reelection. We assemble a new and unique dataset recording every local executive election in the period 1995-2011 and examine the electoral effect of various types of intergovernmental fiscal transfers. We find that the odds of reelecting local incumbents are increasing in the incumbency dummies for both major parties. Local governments which receive a positive discretionary transfer from the provincial government have also associated higher odds of being reelected. The probability of reelection is also increasing in the difference in the vote share between the winner and the runner up in the previous election. Finally we find evidence that the amount of discretionary transfers per capita affect positively the probability of reelection only in those governments aligned with the provincial government. Our results are robust to controlling for other potential explanatory variables.*

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Key Words: Reelection, Transfers, Fiscal Policy, Municipalities.

JEL Classification: H72, C23, C25.

## RESUMEN

*Analizamos el impacto de la política pública descentralizada bajo la forma de transferencias fiscales inter-gubernamentales sobre los resultados electorales a nivel local. Usando una base de datos especialmente compilada para este trabajo, examinamos el impacto de diferentes tipos de transferencias inter-gubernamentales sobre la probabilidad de reelección. Encontramos que la probabilidad de reelección de los incumbentes es creciente en las dummies de incumbencia para los dos principales partidos. Los gobiernos locales que reciben un monto positivo de transferencias discrecionales desde el gobierno provincial también poseen mayores probabilidades de ser reelegidos. La probabilidad de reelección también es creciente en relación a la diferencia en el porcentaje de votos entre el primero y el segundo en la elección previa. Finalmente, encontramos evidencia de que el monto de transferencias discrecionales per capita afecta positivamente la probabilidad de reelección sólo en aquellos gobiernos locales alineados políticamente con el gobierno provincial. Nuestros resultados son robustos a la inclusión de variables de control adicionales.*

Palabras Clave: Reelección, Transferencias Inter-Gubernamentales, Política Fiscal, Gobiernos Locales.

Código JEL: H72, C23, C25.

## I. BACKGROUND AND MOTIVATION

In many federal countries, a large proportion of local governments rely almost exclusively on revenues other than their own. This may be due to the fact that many local governments have expenditure levels which are far larger than the amount of taxes collected locally. It may also be the result of the specific features of the inter-jurisdictional financial arrangements in place. Either way, this form of financing local spending may generate an incentive structure that discourages local fiscal discipline and may have adverse effects on electoral competition. In this paper, we focus on the political (electoral) effects of inter-governmental cash transfers for a sample of over 2000 local elections in Argentina. Our study makes two related contributions. Firstly, it introduces electoral competition as a predictor of the

probability of reelection. Secondly, it assesses the impact of different types of transfers –automatic, discretionary- on the probability of reelection.

There is a vast literature addressing the relationship between cash transfers and economic and political outcomes [Levitt (1995), Khemani (2003), Sakurai and Menezes-Filho (2008), Litschig and Morrison (2009), Brollo et al. (2009), Arvate et al. (2010) Brollo and Nannicini (2011)]. Levitt (1995) shows that higher federal transfers to a constituency increases the congressional incumbent's vote share by a significant margin. Using data for Brazilian municipalities, Sakurai and Menezes-Filho (2008) show that higher public expenditures increase the probability of reelection of Brazilian mayors; more specifically, higher capital expenditures in the years preceding the election and higher current expenditures in the election year increase the probability of reelection. There are several studies exploring various aspects of the relationship between fiscal transfers and electoral results for Argentine municipalities. Porto and Porto (1999) suggest that fiscal performance during the election year and the previous year is a significant predictor of the probability of reelection of local mayors in the Buenos Aires province. Similarly, Porto and Porto (2000) find that capital expenditures are associated with a greater probability of reelection. More recently, a paper by Cingolani et al. (2009) finds that municipalities and townships which receive discretionary transfers in the election year increase their probability of reelection; another paper by Paniagua (2012) find that provincial transfers are distributed politically to municipal governments in her study of two Argentine provinces, Buenos Aires and Córdoba. Although the scholarly literature has found reelection rates of local mayors and governors (and legislators) to be rather high [Porto and Porto (1999), Porto and Porto (2000), Sakurai and Menezes-Filho (2008), Levitt (1995)], there are various differing explanations as to the variables that influence the probability of reelection.

The choice of local governments of the province of Cordoba is made on the basis of its significance as a politically decentralized constituency –the province with the largest number of local governments- and the availability of disaggregated transfer and electoral data. The period examined also allows us to explore whether aligned and swing districts have been targeted by the provincial government –which remains the same political color throughout the period- by the selective allocation of discretionary funds.

The theoretical presumption behind our hypothesis is that the vote share of the incumbent party at the local level is directly related with the

amount of money spent in the local jurisdiction. More precisely, in line with a long-standing literature, we argue that the vote share going to the incumbent party is a function of spending financed with resources that are collected without local political effort; in other words, *the larger the share of spending which is financed through resources not locally collected –resources collected in other jurisdictions, automatic and discretionary transfers from the provincial and national government, resources collected from local taxes designed to be applied to non-local taxpayers<sup>1</sup>–, the larger the vote share for the incumbent party*. Note that due to several data limitations obtaining vote shares, we use a proxy that has been widely used in the literature: the probability of reelection.

## II. LOCAL GOVERNMENTS IN ARGENTINA

As of 2010, there are 2259 recognized local governments in Argentina, half of which have the legal status of municipality.<sup>2</sup> Local governments elect their own representatives and receive transfers from both the provincial and national governments. In most provinces, a population of at least 10000 is required for a municipality to have the right of sanctioning their own municipal charter. Smaller local governments are not entitled to this. In many aspects, Argentine municipalities are afforded a great deal of autonomy by law. Due to the tax-sharing system, however, in practice municipalities are heavily dependent on both automatic and discretionary transfers from above. This is the case for the large majority of Argentine local governments where own-source municipal revenues amount to less than half of total revenues; in many cases, own-source revenues are less than 10% of total revenues. On av-

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1. There are several types of such resources applied in local governments such as the *Tasa de Abasto*, whose aim is to tax products entering the jurisdiction from other jurisdictions and has been levied by local governments in the Buenos aires province, the *Tasas de publicidad y propaganda*, which is levied on advertising in local trades especially in the provinces of Mendoza and Córdoba, and *Contribuciones sobre ventas de extraña jurisdicción*, which is particularly important in the province of Cordoba where most of the mid-size and large municipalities have gradually imposed taxes on sales which are carried out locally by non-resident firms.
  2. Each province has its own municipal regime which, among other things, specify the population criteria for being considered a municipality and provisions regarding their autonomy. The population requirements are usually higher in larger provinces –criteria range from 2000 to 10000 for Santa Fe, Córdoba and Salta– than in smaller provinces –criteria range from 500 to 1000 for Catamarca, Corrientes, Chaco, La Pampa, Neuquén and Santa Cruz. Several provinces define different types of municipalities according with population size; this often entails different fiscal and political autonomy regimes. The legal status for units not meeting the population requirement for a municipality varies between provinces –Comisión de Fomento, Comuna, Comisión Municipal, Delegación Municipal, Comisión Rural– although most of them face similar restrictions on their fiscal and political autonomy.

erage for municipalities in over half of the Argentine provinces, only around 3 out of 10 pesos –the local currency- are collected locally.<sup>3</sup>

Municipal governments in Argentina are heterogenous in several aspects. They differ in total population –three municipalities with over a million inhabitants while several municipalities in Chaco, Corrientes and other provinces have less than 1000 inhabitants-, economic status –from rich and resourceful agricultural and industrial districts with large tax bases to desolate and impoverished municipalities with little own-source revenues-, and the extent of their capacity and autonomy –municipalities providing a wide range of public services to municipalities providing only the most basic set of services. Figure 1 shows the average local government population and the total number of local governments by province. The five largest provinces –Buenos Aires (BUE), Mendoza (MZA), Córdoba (CBA), Santa Fe (SFE), and Entre Ríos (ERI) have very different distributions of local governments. While the first two have the largest average population by local government, local governments in the latter are amongst the least populated districts on average. For all the other provinces, however, a clear pattern emerges: there seems to be a negative association between total number of local governments and average local population size.

## II.1 The province of Cordoba: an ideal testing ground

The province of Cordoba boasts the largest number of local governments and is also among the provinces with the smallest average district size (7955 inhabitants). The average locality in the province of Córdoba has a population 12 to 14 times smaller than the average locality in the provinces of Buenos Aires and Mendoza.<sup>4</sup> According to its *Ley Orgánica de Municipios* which rules on all important organizational and fiscal municipal matters, local governments are of two types: municipalities (“municipio”), with a population larger than 2000, and townships (“comuna”), with a population below 2000.<sup>5</sup> This distinction between municipalities and townships is important since the tax-sharing scheme between the Province of Cordoba and the local governments has different provisions for both types of governments. The financial arrangements between the province of Cordoba and its local governments are laid out in the *Ley 8663 - Régimen de Coparticipación de*

3. This includes the sale of public assets and capital resources which are highly volatile.

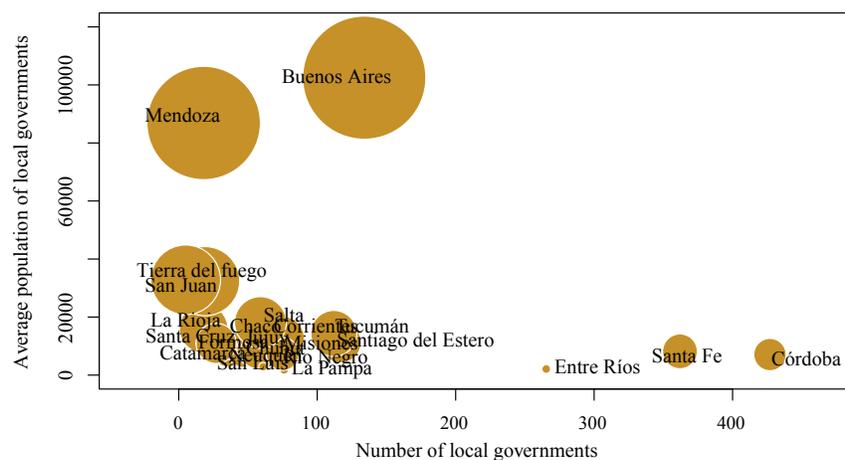
4. This ratio is even smaller if we exclude the capital cities in each of the provinces.

5. All municipalities with a population larger than 10000 are considered cities (“ciudades”) and are granted the right to sanction their own Carta Orgánica which is the equivalent to the local Constitution.

*Impuestos entre la Provincia y sus Municipalidades y Comunas.* According to this tax-sharing law, the total amount of transfers that the provincial government distributes to the lower level –known as primary distribution- is made up of 20% of the provincial sales tax, 20% of the housing tax and 20% of the amount that the province itself receives from the National government as transfers from the national tax-sharing fund. This total is split between local governments to form the secondary distribution in the following manner: 80.5% goes automatically to municipal governments; 3% goes automatically to local townships and other local communities; 12% goes to local governments which run their own public health services through the *Fondo para el Financiamiento de la Descentralización*; 1.5% are selectively assigned to struggling governments –these are usually known as *Aportes del Tesoro Provincial*–; and 3% goes to pay for general and infrastructure investment in selected municipalities and townships through the *Programa de Asistencia Municipal*. The latter are, in practice, highly discretionary.<sup>6</sup>

For a large majority of local governments in the province of Córdoba, public spending is financed by transfers from the provincial level.<sup>7</sup>

**Figure 1:**  
Number of local governments and average population by district size  
(total population)



6. It is relevant to note that more than 83% of this fund is allocated automatically to local governments depending on population and government type –devolution and population criteria–; while only around 4.5% and 16.5% are subject to more political discretion in their allocation –redistributive and political criteria.

7. They also receive non-automatic transfers from the Federal level.

Local tax bases are virtually non-existent in most local governments below 2000 inhabitants and represent only a small fraction of total revenues in municipalities with less than 5000 inhabitants. However, municipalities with populations above 10000 inhabitants –only around 10% of total local governments- often collect local taxes and other revenues to meet their expenditures. On the other hand, local debt levels have been falling markedly relative to transfers throughout the period under examination. As Table 1 shows, the average ratio of total debt relative to total transfers went from 0.90 in 2001 to less than 0.20 in 2010.<sup>8</sup> Larger municipalities tend to have debt-to-transfers ratios above 1 while smaller municipalities and townships show ratios below 1.<sup>9</sup>

Although we do not have data on the structure of local government revenues, the available information suggests that in 80% –328 out of 427- of the local jurisdictions the level of public spending is by and large financed by transfers from above.<sup>10</sup> Although these jurisdictions represent only around 13% of the population of the province, they are electorally relevant on two fronts: they contribute votes to both the executive –proportional representation elected in a unique district- and legislative provincial election –mixed-member district with around two-thirds of the Legislature elected through proportional representation in a unique district (Province) and around one-third elected in single-member district plurality voting (where districts are lower level provincial administrative divisions known as *Departments*).<sup>11</sup>

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8. This only includes municipalities as we could not obtain the total debt for townships and villages for 2010.

9. Due to the limited availability of data on public debt holdings, we are only able to get a rather sketchy picture of the importance of public debt as a source of local government financing. However, since total transfers are largely automatic and follow a population and devolution criteria it is clear that public debts have either fallen or grown at a much slower rate than total transfers. During this period, the evidence shows, transfers appear to have been by and large the main source of local government financing.

10. If debt is a significant local government resource then it may be the case that this had an impact on the probability of reelection. Unless local governments were able to issue as much public debt as they wanted at a negligible cost, a higher public debt position implies a lower spending levels for a given tax rate and/or higher tax rates to maintain a given spending level –both diminish theoretically the probability of reelection through a higher cost of raising local taxes and/or lowering local public spending. In the empirical analysis below, we include the public debt position to control for this possibility.

11. It is interesting to note that since each Department elects a legislator for the provincial legislative assembly, population size is hardly a good indicator of political relevance. In other words, small municipalities and townships often play a critical role in regional politics due to their alignment with the provincial government and/or due to strategic political reasons. In fact, a relevant proportion of provincial legislators in recent decades have previously held office as mayors in small local governments.

**Table 1: Local government debt relative to total transfers**

Year	Local government population						
	Total	less 2000	2000- 5000	5000- 10000	10000- 25000	25000- 50000	over 50000
2001	0.90	0.64	0.85	1.09	1.70	1.15	1.52
# govts	249	106	62	47	22	7	5
2010	0.18	0.10	0.12	0.22	0.23	0.36	1.09
# govts	254	93	62	52	33	9	5

Note: Since we only have complete debt data for municipalities –the debt information for townships and villages is missing for 2010– for both years, we include only municipalities for the calculations above.

### III. DATA AND METHODOLOGY

Data on transfers come from the annual release of the *Cuenta de Inversión Ejercicio Financiero* by the Ministry of Finance of the province of Cordoba.<sup>12</sup> We group transfers into automatic and discretionary.

#### III.1 Automatic transfers: COPA and FOFINDES

The *Co-Participación a Municipios* (COPA) is by and large the most important transfer that local governments receive. It is non-earmarked and is distributed according with both a devolutive –population- and redistributive – minimum provision- criteria. Significantly smaller, the *Fondo para el Financiamiento de la Descentralización* (FOFINDES) is also non-earmarked although it compensates those local governments running their own health services.<sup>13</sup>

#### III.2 Discretionary transfers: ATP, ATN, and PAM

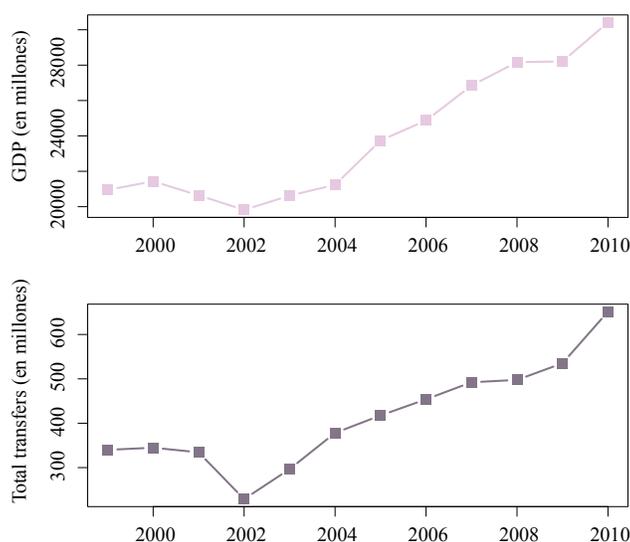
These transfers are neither automatic nor allocated on the basis of any devolutive or redistributive criteria. Two of these are given out at the will of the Provincial government –*Fondo para Emergencias y Desequi-*

12. We have adjusted all the financial data for inflation using the regional GDP deflator. We also adjust for government size by using constant-prices transfers per capita in all cases.

13. The provision of basic and low-level healthcare services were transferred (continued on next page) (continued from previous page) to municipalities and townships by National law starting 1989. Between 1989 and 1995, local governments initially were paying for non-personnel costs and capital expenditures. After the provincial economy went into a deep economic crisis in 1995, both personnel and other running costs were transferred to the local governments which eventually caused an increase in debt levels of local governments. See Cingolani (2001) for more details.

*librios Económicos (ATP) and Programa de Asistencia Municipal (PAM). The third fund –Aportes del Tesoro Nacional (ATN)- consists of discretionary transfers from the National government.*

**Figure 2:**  
**GDP and total transfers to municipalities and townships**  
**of the province of Córdoba, 1999-2011 (in millions of constant 1993 pesos)**

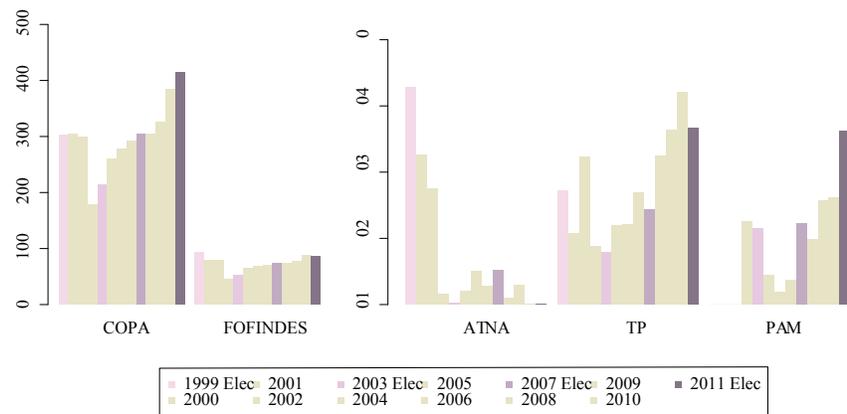


There are no official accounts or estimates for local economic activity.<sup>14</sup> However, since decentralized automatic transfers are highly correlated with the evolution of provincial economic activity, they can be used as a first-hand proxy of local economic activity. Therefore, we use the automatic transfer variables to capture at least part of the effect of local (regional) economic conditions on the probability of reelection. Contrarily, discretionary transfers (ATN, ATP, PAM) are better suited to capture political influence on the probability of reelection. Figure 3 presents the evolution of both types transfers for the period 1999-2011. On the left panel, we can see that both automatic transfers closely match the evolution of provincial GDP per capita. The right panel shows that discretionary transfers –ATN, ATP and PAM- are only loosely associated with the evolution of provincial economic

14. The only available information on regional economic activity is the series on departmental GDP estimations produced by the province of Córdoba that we use as a control variable in the econometric section.

activity and are prone to sharp variations from one year to another. National transfers tend to be rather unimportant after 2003 but provincial transfers have grown in size in recent years. More importantly, some of these transfers seem to increase sharply in election years.

**Figure 3: Average transfers per capita by type, 1999-2011**



### III.3 Election data

Local government elections in the province of Córdoba are held regularly every 4 years. During the period under study, there were local executive elections in 1995, 1999, 2003, 2007 and 2011. All 427 mayors and council chiefs are elected throughout the election year. We collected electoral data from the *Justicia Electoral de la provincia de Córdoba* and *Justicia Federal Electoral*. However, since data are only available for those local elections concurring with the provincial election, we gathered data from both selected local jurisdictions and from secondary sources –regional and local newspapers and radio stations.<sup>15</sup> We obtained three types of data on elections characteristics and outcomes. Firstly, we recorded information on both winning parties and mayors to construct incumbency dummies and re-election dummies.<sup>16</sup> Secondly, we collected data on vote shares for each

15. Obtaining data directly from the local electoral councils is often difficult due to poor record keeping thereby we resorted to many secondary sources. We are aware that errors and inaccuracies may be present in our data.

16. We end up with a balanced panel with 427 cross-sectional units and 5 time periods, 2135 observations in total.

of the major parties in each election year and data on margin of victory.<sup>17</sup> Finally, we also recorded election dates to create dummies and “distance” variables between local and provincial/national dates.

### III.4 Data modelling and estimation

Table 2 summarizes the electoral data. The reelection rate of parties and mayors stands at around 76% and 61% respectively for all years. Mayors have lower reelection rates due to a number of different reasons such as primary elections, deaths, resignations and removals. The reelection rate is increasing throughout the period going from 73.07% and 54.57% respectively in the 1999 election to 78.45% and 69.55% respectively in the 2011 election. Also, the reelection rates for municipalities are slightly lower than for townships, specially if we look at reelection of mayors.

Our estimation approach follows a two-step procedure. Firstly, we test whether the probability of reelection is affected by the amount and type of transfers that local mayors receive. We use a logistic regression approach. The main independent variable is the amount of per-capita transfers from the national and provincial government to the local governments. We also include additional controls such as dummies for incumbent parties. Our baseline specification is:

$$REELEC_{i,t} = \beta_0 + \beta_1 TRF_{i,t} + \beta_2 PJINCPRE_{i,t} + \beta_3 UCRINCPRE_{i,t} + \varepsilon_{i,t} \quad (1)$$

where  $REELEC_{i,t}$  is a dummy recording whether the incumbent party was re-elected (1) or not (0) in the locality  $i$  for the election year  $t$ ;  $TRF_{i,t}$  is a variable that captures per capita transfers to locality  $i$  in the election year  $t$ ;  $PJINCPRE_{i,t}$  and  $UCRINCPRE_{i,t}$  are party incumbency dummies for locality  $i$  and period  $t$  for PJ and UCR parties.

We run the regressions for both reelection of parties and mayors using a logistic regression with pooled observations. We do not use a fixed-effects

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17. The two major nationwide parties in Argentina are the Partido Justicialista (PJ) and the Unión Cívica Radical (UCR). Both have widespread presence at sub-national levels: in fact, only 12% of the total number of elections have been won by parties other than the UCR and PJ. We also recorded vote shares obtained by three other parties: the Partido Nuevo, later renamed Frente Cívico formed in 2003; a local grassroots party known as the Unión Vecinal and the Frente para la Victoria, the ruling party at the National level. The reason we include the latter is that the PJ at the national level is fragmented in two blocks: the Frente para la Victoria and the Peronismo Federal.

**Table 2:**  
**Re-election of parties and mayors**

All four elections								
Group	Parties				Mayors			
	Reelect	Change	Total	RR	Reelect	Change	Total	RR
Full sample	1295	413	1708	75.82	1044	664	1708	61.12
Municipalities	759	246	1005	75.52	596	409	1005	59.30
Townships	536	167	703	76.24	448	255	703	63.72

1999 Election								
Group	Parties				Mayors			
	Reelect	Change	Total	RR	Reelect	Change	Total	RR
Full sample	312	115	427	73.07	233	194	427	54.57
Municipalities	182	67	249	73.10	132	117	249	53.01
Townships	130	48	178	73.03	101	77	178	56.74

2003 Election								
Group	Parties				Mayors			
	Reelect	Change	Total	RR	Reelect	Change	Total	RR
Full sample	316	111	427	74.00	238	189	427	55.74
Municipalities	185	64	249	74.30	136	113	249	54.62
Townships	131	47	178	73.60	102	76	178	57.30

2007 Election								
Group	Parties				Mayors			
	Reelect	Change	Total	RR	Reelect	Change	Total	RR
Full sample	332	95	427	77.75	276	151	427	64.64
Municipalities	196	53	249	78.71	156	93	249	62.65
Townships	136	42	178	76.40	120	58	178	67.42

2011 Election								
Group	Parties				Mayors			
	Reelect	Change	Total	RR	Reelect	Change	Total	RR
Full sample	335	92	427	78.45	297	130	427	69.55
Municipalities	196	62	258	75.97	172	86	258	66.67
Townships	139	30	169	82.25	125	44	169	73.96

The column RR in each block denotes the reelection rate for each category. It is calculated as the number of reelections as a fraction of the total number of elections. There are 249 municipalities and 178 townships during 1999 and 2007; and 258 municipalities and 169 townships during 2007 and 2011. Source: Own elaboration based on data from the Justicia Electoral and other sources.

logistic regression due to the incidental parameter problem, which may be really important in our case due to the small T and relatively large N, thus increasing the the number of nuisance parameters (Abrevaya, 1997).<sup>18</sup> In such cases, there are three alternative approaches: the traditional random effects (RE) logit model, the conditional fixed-effects logit and the Mundlak-Chamberlain approach. The first two approaches require to some extent that the individual effects are not correlated with the explanatory variables –an assumption that is not valid for our data-; while the third approach does not require independence between explanatory variables and individual effects, it does require explicit functional forms. Since there is little advantage to the random effect model as compared to a pooled model, we decided to run pooled logit models.

Table 3 shows models for reelection of parties. We include two variables for automatic transfers –*copapc* and *fofindespc*; *copapc* is our main proxy local economic activity. It comes out as not significant in any of the models. The same applies to *fofindespc*. Incumbency dummies –*pjincpre* and *ucrinpre*- are both statistically significant and with the expected sign: incumbency gives an advantage to parties since it is positively associated with the probability of reelection for the main two parties. The models represent a reasonably good fit of the data given the log-likelihood ratio statistic and the residual deviance. The last column reports odds ratios for the last model: localities where the incumbent party is the PJ and UCR are 3.16 and 1.94 times more likely to gain reelection respectively compared to incumbents from other parties. Interestingly, the *pjincpre* variable doubles also as a dummy for political alignment with the governor: since the *Partido Justicialista (PJ)* was the incumbent party at the provincial level from 1999 to 2011, all local governments ruled by the PJ are considered party-aligned with the provincial level.

The amount of discretionary transfers have little (if any) effect on the probability of reelection: although the coefficients for *atppc*, *atnpc*, and *pampc* are all positive, they are not statistically significant. However, including a dummy for a locality receiving (1) or not-receiving (0) each type of discretionary transfer in the election year changes the results somewhat. The coefficients associated with *atpd* and *atnd* –transfers from the provincial and national government respectively- are not statistically significant; however, the coefficient

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18. Additionally, the nature of our data means that the main independent variables change little over time so most of the variation is explained by the between-unit variation. In these cases, the standard errors of the fixed-effects coefficients are often too large.

**Table 3:**  
**Reelection of parties, pooled logistic regression, 1999-2011**

	(1) reelecp	(2) reelecp	(3) reelecp	(4) reelecp	(5) reelecp	(6) reelecp	(7) reelecp	(Odds) Model 7
<i>copapc</i>	-0.0002 (0.0002)	0.99						
<i>fofindespc</i>	0.001 (0.001)	1.00						
<i>pjincpre</i>	1.424*** (0.181)	1.391*** (0.182)	1.409*** (0.185)	1.430*** (0.182)	1.411*** (0.182)	1.394*** (0.183)	1.279*** (0.186)	3.16
<i>ucrinpre</i>	0.736*** (0.175)	0.732*** (0.175)	0.730*** (0.176)	0.746*** (0.175)	0.721*** (0.175)	0.751*** (0.175)	0.743*** (0.176)	1.94
<i>atppc</i>		0.004* (0.002)						
<i>atpd</i>			0.052 (0.120)					
<i>atnpc</i>				0.001 (0.002)				
<i>atnd</i>					0.194 (0.149)			
<i>pampc</i>						0.003 (0.002)		
<i>pamd</i>							0.469*** (0.132)	1.60
Constant	0.167 (0.164)	0.162 (0.165)	0.145 (0.171)	0.156 (0.164)	0.139 (0.165)	0.153 (0.163)	0.049 (0.168)	
Observations	1708	1708	1708	1708	1708	1708	1708	
Log Likelihood	-914.613	-912.417	-914.517	-913.895	-913.744	-913.519	-908.180	
Akaike Inf. Crit.	1.839.225	1.836.835	1.841.035	1.839.789	1.839.487	1.839.038	1.828.361	

Note: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01. Standard errors in parentheses. All transfer variables are measured in per capita terms. Transfer variables ending in "d" are transfer dummies. Odds-ratios above 1 imply a positive effect on the reelection probability

for *pamd* –discretionary transfers belonging to the Programa de Asistencia a Municipios (PAM)- is positive and highly statistically significant.<sup>19</sup>

Table 4 shows the regression results for the reelection of mayors. The results are somewhat different to those for the reelection of parties, particularly with respect to the party incumbency dummies. Neither *pjincpre* or *ucrinpre* are statistically significant as predictors of the probability of reelecting the mayor. Although this may be against the incumbency advantage theory, we think it may be due to the large number of cases where party and mayor reelection do not coincide –there are over 300 instances where party gets reelected while mayor does not and nearly 70 instances where mayor gets reelected but running for a different party.<sup>20</sup> The automatic transfer variables are not statistically significant but some of the discretionary transfers are. This is the case of *pampc* –amount of per capita transfers– and *pamd* –dummy for receiving a transfer or not in the election year.

The coefficient is statistically significant in both cases and the odds-ratios are shown in the last column. This evidence supports the results from Table 3 regarding the positive association between discretionary PAM funds and the probability of reelection. In particular, the evidence up to this point would seem to suggest that the probability of reelection is related to whether a local government receives or not the PAM transfer. However, although the amount of (discretionary) transfers per capita do not affect the probability of reelection, it may have an effect on the margin of victory.<sup>21</sup>

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19. The *pam* or *Programa de Asistencia a Municipios (PAM)* was created in 2002 and it was specifically oriented to assisting municipalities and townships meet extraordinary expenditures arising due to fast population growth, the need for basic public infrastructure and the improvement of basic public services. Although these funds are meant to complement the automatic transfers, the provincial executive has significant power over the allocation of these funds since they are non-reimbursable. Cingolani et al. (2005) argue that these transfers are loosely regulated thereby leaving ample room for using political criteria in their allocation. The authors cite anecdotal evidence on several scandals concerning the arbitrary distribution of these transfers in 2005.

20. It is quite common at the local level to have candidates switching from grassroot parties to one of the major parties, usually the Unión Cívica Radical (UCR), and also candidates switching between the two major parties. Additionally, the Partido Justicialista (PJ) has a history of factionalism, the most recent version separating the Kirchner's flavour of Peronismo from the Peronismo disidente –or Peronismo federal.

21. As was noted above, we have limited information on the vote shares variable. For this reason, we will not compare the same models but with different dependent variables –i.e. reelection/non reelection vs margin of victory.

**Table 4:**  
**Reelection of mayors, pooled logistic regression, 1999-2011.**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(Odds)
	reelecm	reelecm	reelecm	reelecm	reelecm	reelecm	reelecm	Model 7
<i>copapc</i>	0.0000 (0.0002)	0.0001 (0.0002)	0.0000 (0.0002)	0.0000 (0.0002)	0.0001 (0.0002)	0.0000 (0.0002)	0.0000 (0.0002)	1.000
<i>fofindespc</i>	0.0009 (0.0008)	0.0005 (0.0008)	0.0011 (0.0008)	0.0010 (0.0008)	0.0009 (0.0008)	0.0012 (0.0008)	0.0012 (0.0008)	1.001
<i>pjincpre</i>	0.2384 (0.1735)	0.1987 (0.1744)	0.1786 (0.1762)	0.2330 (0.1737)	0.2303 (0.1738)	0.1762 (0.1751)	0.0986 (0.1780)	1.104
<i>ucrincpre</i>	-0.1093 (0.1736)	-0.1155 (0.1739)	-0.1342 (0.1743)	-0.1166 (0.1740)	-0.1180 (0.1739)	-0.0905 (0.1738)	-0.1097 (0.1743)	0.896
<i>atp</i>		0.0038** (0.0016)						
<i>atpd</i>			0.2107 (0.1044)					
<i>atn</i>				-0.0002 (0.0003)				
<i>atnd</i>					0.1036 (0.1250)			
<i>pam</i>						0.0053*** (0.0020)		
<i>pamd</i>							0.4178*** (0.1111)	1.518
Observations	1708	1708	1708	1708	1708	1708	1708	
Log Likelihood	-1134.56	-1.131.148	-1.132.627	-1.134.387	-1.134.314	-1.130.276	-1.127.526	
Akaike Inf. Crit.	2.275.600	2.271.000	2.273.900	2.277.100	2.276.600	2.267.900	2.263.000	

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ . Standard errors in parentheses. All transfer variables are measured in per capita terms. Transfer variables ending in “d” are transfer dummies. Odds-ratios above 1 imply a positive effect on the reelection probability

Table 5 presents the results of including additional control variables to the baseline model. The first three models –models (1), (2 and (3)- are for the reelection of parties while the last three models are for the reelection of mayors. Models (1) and (4) include the degree of electoral competition in the jurisdiction in the previous election –diff12<sup>22</sup>. This means we lose one

22. This variable measures the difference in vote shares for the winner and the runner up.

**Table 5:**  
**Reelection of parties and mayors, additional controls, 1999-2011**

	reelecp			reelecm		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>copapc</i>	-0.0004 (0.0003)	-0.0003 (0.0003)	-0.0004 (0.0004)	-0.0001 (0.0003)	-0.0002 (0.0003)	-0.0002 (0.0003)
<i>fofindespc</i>	0.0017 (0.0015)	0.0016 (0.0015)	0.0023 (0.0018)	0.0013 (0.0013)	0.0015 (0.0013)	0.0017 (0.0015)
<i>pjincpre</i>	1.3642*** (0.2940)	1.3632*** (0.2945)	1.3633*** (0.2947)	0.2557 (0.2761)	0.2342 (0.2770)	0.2350 (0.2771)
<i>ucrinpcpre</i>	0.8309*** (0.2964)	0.8342*** (0.2969)	0.8245*** (0.2974)	0.0683 (0.2832)	0.0474 (0.2841)	0.0432 (0.2845)
<i>pamd</i>	0.5571*** (0.1799)	0.5777*** (0.1927)	0.5559*** (0.1944)	0.4554*** (0.1538)	0.5090*** (0.1662)	0.4998*** (0.1681)
<i>diff12</i>	5.4304*** (0.7074)	5.4572*** (0.7116)	5.4913*** (0.7121)	4.3374*** (0.5277)	4.2262*** (0.5309)	4.2439*** (0.5332)
<i>year2003</i>		-0.1331 (0.3330)	-0.0976 (0.3324)		-0.1672 (0.2987)	-0.1546 (0.2979)
<i>year2007</i>		-0.0615 (0.3045)	-0.0210 (0.3086)		0.0863 (0.2758)	0.1017 (0.2791)
<i>year2011</i>		-0.1444 (0.2979)	-0.1209 (0.2997)		0.2790 (0.2715)	0.2886 (0.2729)
<i>muni</i>			0.1677 (0.2119)			0.0652 (0.1816)
Constant	-1.0560*** (0.3108)	-0.9692** (0.3851)	-1.1191*** (0.4308)	-0.8663*** (0.2876)	-0.9151** (0.3574)	-0.9743** (0.3941)
Observations	916	916	916	916	916	916
Log Likelihood	-4.450.267	-4.448.560	-4.445.399	-5.685.093	-5.658.685	-5.658.039
Akaike Inf. Crit.	9.040.534	9.097.119	9.110.798	1,151.0190	1,151.7370	1,153.6080

Note: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01. Standard errors in parentheses. All transfer variables are measured in per capita terms. Transfer variables ending in "d" are transfer dummies. Odds-ratios above 1 imply a positive effect on the reelection probability

election period, hence the reduction in the number of observations.<sup>23</sup> This variable is highly significant in both regressions –parties and mayors– and has the expected sign: lower electoral competition is positively associated with the probability of reelection. Incumbency dummies are only significant for the reelection of parties echoing the previous results. However,

23. Additionally, there is a significant drop in the number of observations since our data on vote shares is incomplete.

the dummy for discretionary transfers *-pamd-* is still positive and highly significant.<sup>24</sup> Models (2) and (5) include year dummies with the year 1999 as benchmark; the results suggests that localities in the 2007 election are around two times more likely to gain reelection than in 2003 –there is no such significant effect for the 2011 election. Finally, models (3) and (6) include a dummy for the size of municipal government –we assign a 1 to larger, municipal governments; a 0 to smaller, townships. The results show that municipalities are no more likely to gain reelection of parties. Interestingly, the variables capturing the incumbency advantage *-pjincpre, ucrincpre-*, the resource advantage *-pamd-* and the degree of electoral competition in the district *-diff12-* preserve their sign and significance throughout most of the models.

Table 6 shows regressions for the reelection of parties including controls for the concurrence of local with provincial and national elections. We have alternative measures for these variables: *provelecalign* and *natelecalign* are dummies recording whether the local election is held on the same day as the provincial and national election, respectively. Similarly, *daystoprovelec\_va* and *daystonacelec\_va* measure the number of days (in absolute value) between the local and provincial and national elections data. These variables are often used to give a sense of “distance” between executive elections at different levels of government. These variables are almost never significant in any of these models. It does not seem that having local elections concur with provincial/national elections bear any effect on the probability of reelection of parties.

Thus far, we have ruled out possible interactions between the explanatory variables. If there are reasons to expect that the level of transfers –or, the decision to grant a transfer– may be dependent on the partisan alignment or the degree of political competition in a given district, then we must include these potentially relevant interactions. We are interested in one key interaction, the relationship between discretionary transfers and the political alignment of the local mayor. The results of these models are given in Table 7. All the models are run using the full sample except for the last two models which run the regressions for sub-samples. The incumbency dummies remain strongly significant as in the previous tables. The variable *pampc* –the amount of discretionary transfers per capita– does not seem to affect

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24. There appears to be a relatively high correlation between positive PAM funds and the magnitude of electoral competition in the districts, measured as the difference in vote shares between the winner and the runner up.

**Table 6:**  
**Reelection of parties, additional controls, 1999-2011**

	reelecp							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>copapc</i>	-0.0004 (0.0004)	-0.0004 (0.0003)	-0.0003 (0.0003)	-0.0004 (0.0003)	-0.0004 (0.0004)	-0.001 (0.001)	-0.0004 (0.0004)	-0.0003 (0.0004)
<i>fofindespc</i>	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.003 (0.004)	0.003 (0.003)	0.003 (0.004)	0.002 (0.004)
<i>pjincpre</i>	1.399*** (0.313)	1.302*** (0.308)	1.323*** (0.309)	1.334*** (0.309)				
<i>ucrinpre</i>	0.751** (0.312)	0.821*** (0.311)	0.808*** (0.310)	0.796** (0.311)				
<i>pamd</i>	0.616*** (0.191)	0.519*** (0.183)	0.577*** (0.191)	0.511*** (0.183)	0.785*** (0.237)	0.771** (0.332)	0.767*** (0.257)	0.756*** (0.246)
<i>diff12</i>	5.802*** (0.741)	5.647*** (0.739)	5.743*** (0.739)	5.679*** (0.737)	5.989*** (1.106)	6.535*** (1.244)	6.152*** (1.129)	6.159*** (1.126)
<i>provelecalign</i>	-0.371* (0.207)							
<i>natelecalign</i>		-0.208 (0.470)						
<i>daystoprovelec_va</i>			0.001 (0.001)				0.002 (0.002)	
<i>daystonacelec_va</i>				0.002 (0.002)				-0.007** (0.003)
Constant	-0.943*** (0.331)	-1.043*** (0.326)	-1.155*** (0.340)	-1.194*** (0.350)	0.053 (0.264)	-0.431 (0.272)	-0.083 (0.299)	0.480 (0.331)
Observations	864	864	864	864	552	293	515	515
Log Likelihood	-423.442	-424.977	-424.505	-424.443	-232.978	-57.881	-223.764	-221.582
Akaike Inf. Crit.	862.884	865.953	865.011	864.886	475.956	325.763	459.528	455.164

Note: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01. Standard errors in parentheses. All transfer variables are measured in per capita terms. Transfer variables ending in "d" are transfer dummies.

the probability of reelection. None of the interacted terms are statistically significant. The last two models test the effect of the amount of discretionary transfers per capita on the probability of reelection. Model (5) includes only districts where the incumbent party is the PJ, while model (6) only includes observations where the incumbent party is the UCR. One interesting result

comparing these two models is that the coefficient of *pampc* is positive and statistically significant for the PJ-incumbent sample while is not statistically different from zero for the UCR-incumbent sample. This suggest that the larger the discretionary transfers per capita to districts aligned with the provincial government, the larger the effect on the probability of reelection.

**Table 7:**  
**Probability of reelection: Models with interactions**

	reelecp					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>copapc</i>	-0.0002 (0.0002)	-0.0002 (0.0003)	-0.0002 (0.0002)	-0.0004 (0.0003)	-0.0003 (0.0003)	0.0007 (0.0006)
<i>fofindespc</i>	0.0012 (0.0009)	0.0008 (0.0010)	0.0010 (0.0010)	0.0016 (0.0011)	0.0003 (0.0016)	-0.0007 (0.0016)
<i>pjincpre</i>	1.1829*** (0.1927)	1.2681*** (0.1821)	1.1888*** (0.1939)	1.1257*** (0.3111)		
<i>pampc</i>	0.0033 (0.0062)	0.0027 (0.0024)	0.0032 (0.0063)		0.0099** (0.0041)	-0.0045 (0.0032)
<i>muni:pampc</i>		0.0024 (0.0062)				
<i>pamd</i>				0.1824 (0.5620)		
<i>ucrinpre</i>	0.6994*** (0.1805)	0.6779*** (0.1746)	0.7033*** (0.1811)	0.5613** (0.2573)		
<i>pjincpre:pampc</i>	0.0060 (0.0074)		0.0060 (0.0074)			
<i>pampc:ucrinpre</i>	-0.0069 (0.0070)		-0.0068 (0.0070)			
<i>muni</i>		-0.0809 (0.1442)	-0.0378 (0.1392)			
<i>pjincpre:pamd</i>				0.5875 (0.6581)		
<i>pamd:ucrinpre</i>				-0.1265 (0.6777)		
Constant	0.2457 (0.1681)	0.2998* (0.1791)	0.2672 (0.1856)	0.3119 (0.2336)	1.4998*** (0.1250)	0.8205*** (0.1288)
Observations	1,708	1,708	1,708	703	819	709
Log Likelihood	-9.102.319	-9.137.200	-9.101.949	-3.640.465	-3.693.903	-4.169.797
Akaike Inf. Crit.	1,836.4640	1,843.4400	1,838.3900	7.440.929	7.467.806	8.419.595

Note: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01. Standard errors in parentheses. All transfer variables are measured in per capita terms. Transfer variables ending in "d" are transfer dummies.

#### IV. CONCLUDING REMARKS

In this paper, we have studied the impact of decentralized public policy in the form of intergovernmental transfers on the probability of reelection of local governments in the province of Córdoba for the period 1995-2011. Our regressions show that there are two sources of variation in the probability of reelection of local mayors. Firstly, there is what is often called as the incumbency advantage or incumbency effect. This effect is strong and it may be due to a number of factors which we were unable to measure (number and quality of challengers; incumbent advertising and publicity; etc). Secondly, there is what we call a “resource effect”. This effect is somewhat smaller but still significant throughout most of our models and involves increasing the odds of being reelected for those local governments which receive a positive amount of the main type of discretionary transfer that the provincial government distributes among local governments. Furthermore, we find that the higher the amount of transfers per capita –pampc- the higher the odds of being reelected for those local governments which are aligned with the ruling party at the provincial level. This relationship is not present when we consider the subsample of local governments not aligned with the party.

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## VI. APPENDIX

Table 8: Summary statistics for the main variables

Variable	Description	Min	Max	mean	n
<i>muni</i>	Dummy for municipal status	0.0	1.0	0.6	5551
<i>pop</i>	Total population	0.0	1322467.0	7090.7	5551
<i>idm</i>	Index of local development	13.0	77.9	49.8	249
<i>copapc</i>	Automatic transfers due to the Co-participación	25888.0	559689381.0	1708108.0	5551
<i>fofindespc</i>	Transfers to finance health decentralization	0.0	45083704.0	235502.7	5551
<i>atnpc</i>	Non-automatic transfers from the National government	0.0	14733000.0	17297.0	5495
<i>atppc</i>	Non-automatic transfers from the provincial government	0.0	950000.0	30250.8	5548
<i>pampc</i>	Non-automatic transfers for extraordinary situations	0.0	1280000.0	31994.2	3845
<i>ffspc</i>	Fondo federal solidario	0.0	1192027000.0	1203978.1	1263
<i>fcomppe</i>	Fondo compensador	0.0	29365551.0	38231.9	1093
<i>ucrvts</i>	Total votes obtained by the UCR	10.0	126263.0	1085.3	536
<i>pjvts</i>	Total votes obtained by the PJ	6.0	73347.0	1002.9	676
<i>vecvts</i>	Total votes obtained by localist parties	14.0	100356.0	1447.9	141
<i>fcivvts</i>	Total votes obtained by the Frente Cívico	5.0	264442.0	1855.0	198
<i>othvts</i>	Total votes obtained by other parties	0.0	227149.0	2125.8	159
<i>totvts</i>	Total valid votes	25.0	623562.0	4000.6	700
<i>winsh</i>	Vote share of the winner party	0.2	1.0	0.5	700
<i>runsh</i>	Vote share of the runner-up party	0.1	0.9	0.3	670
<i>thirdsh</i>	Vote share of the third party	0.0	0.4	0.1	401
<i>diff12</i>	Vote share difference between winner and runner-up	0.0	0.9	0.2	670
<i>diff23</i>	Vote share difference between runner-up and third	0.0	0.5	0.2	401
<i>reelecp</i>	Dummy for reelected incumbent party	0.0	1.0	0.7	583
<i>ucrinpre</i>	Dummy for incumbent party UCR	0.0	1.0	0.3	3855
<i>pjincpre</i>	Dummy for incumbent party PJ	0.0	1.0	0.6	3855
<i>othincpre</i>	Dummy for incumbent party Other	0.0	1.0	0.1	3854