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ECONOMIC POLICY AND ELECTORAL OUTCOMES

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This paper studies the connection between economic policy and electoral outcomes. In particular, it analyzes the impact of the conflict between the agro-manufacturing sector and the national government on the congressional elections for national deputies in the 134 municipalities of the province of Buenos Aires — a conflict which stemmed from the increase in taxation and the imposition of quantitative restrictions on the sector's production and exports. The municipalities differ greatly in their productive structures; therefore, a policy that is detrimental (beneficial) to a certain sector of activity may be expected to have a greater negative (positive) impact on the election results for the governing party in those municipalities where that sector is quantitatively important. The estimations show that the relative importance of the agro-manufacturing sector, controlling for economic, social and political variables, had a positive impact on the party in office in 2007 and a negative one in 2009.

JEL classification codes: D72

Key words: electoral outcomes, congressional elections, economic policy

I. Introduction

Fiscal theory evolved from the vision of a benevolent government which took decisions (e.g., on tax rates) with passive adaptation on the part of producers and consumers, towards models that incorporated the economic reaction from those

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agents by modifying their tax behavior as a response to the variables set by the government (changes in the taxable base according to the elasticities of supply and demand, tax avoidance through loopholes, and evasion). At a further stage, politicians and bureaucrats came on scene with their own interests, as well as consumers and producers reacting economically (modifying their tax base) and politically (voting).¹ This study focuses on this last group, observing how economic policy decisions may influence electoral results and how the government may appeal to fiscal instruments to compensate for presumably negative reactions on the part of voters.

The case under study is the connection between election results and fiscal policies in the 134 municipalities of the province of Buenos Aires. The results of the 2007 congressional elections for the partial renewal of deputies at the National House of Representatives were compared to those of the 2009 elections. The municipalities differ greatly in their productive structures, so that a policy that is detrimental (beneficial) to a certain sector of activity may be expected to have a greater negative (positive) impact on the election results for the governing party in those municipalities where that sector is quantitatively important. The policy under consideration in this study is the one related to the agri-food chain (AFC), which has been affected by high and increasing tax rates over exports and by quantitative restrictions which deteriorated the prices paid to the producers (selling quotas, prohibitions on exporting, etc).²

The results suggest that voters take into consideration the effects of public policies at the time of voting and that they change according to whether the policies are for or against their interests. The relative importance of the AFC had a positive impact on the party in power in 2007 and a negative one in 2009. The government, foreseeing a negative reaction on the part of voters, appealed to increases in the conditioned transfers to the municipalities, which had a positive impact on the votes for the ruling party, but could not compensate for the negative impact of the policy on the AFC.

¹ Hettich and Winer (1999).

² See, among others, Nogués and Porto (2007), Bisang (2008) and Foro Agroindustrial (2009).

The study is organized as follows. In section II a simple model of the connection between election results and economic and fiscal variables is developed. Section III presents the context of the conflict between the agro-manufacturing sector and the national government prior to the 2009 elections. In section IV the productive structure of the municipalities of the province of Buenos Aires is described and an index is constructed to measure the importance of the sector for the empirical analysis. In section V econometric results are presented and in section VI a conclusion is arrived at. An online appendix details methodological aspects in the calculation of the gross geographic product generated in the AFC (online appendix A), and the data on the 2007 and 2009 election results and the significance of the AFC in each municipality (online appendix B).

II. Electoral outcomes and economic and fiscal variables

The connection between election results and economic and fiscal variables has been the subject of studies, both theoretical and empirical.³ Theoretically, there emerge several questions of interest, the answer to which depends on how political markets work. One of them is whether citizens decide their votes according to the evolution of fiscal and economic variables (for which they must be informed); another one is whether they consider information about a short period of time (they are short-sighted) or they use all the information available; a further question is whether, when voting, they distinguish which governmental level is responsible for which policy (for instance, not to punish a Mayor or Governor for the wrong development of some variable which is mainly responsibility of the National Government). An additional line of research involves inquiring not only whether voters take into consideration the governments' performance, but also whether governments make decisions knowing that election results depend on them. In this case, one is inquiring into the possible interdependence between voters' decisions and those taken by politicians.⁴

³ Among others, Besley and Case (1995), Downs (1957), Peltzman (1987, 1990, 1992 and 1998), Stigler (1973). For the case of our country there are several studies, among others Porto and Porto (2000), Lema (2008) and Streb et al (2008).

⁴ Besley and Case (1995).

The 2009 Argentine elections for the partial renewal of the legislative bodies at the three levels of government, framed within a prolonged conflict between the government and the agro-manufacturing sector, is a case in point. Specifically, this study focuses on the connection between the votes obtained at the level of municipalities of the province of Buenos Aires by the political party in power at the national and provincial governments, and the relative importance of the AFC. Votes correspond to the elections for the partial renewal of the representatives of the province of Buenos Aires in the National House of Representatives.⁵ The results are compared to those of the 2007 elections, previous to the conflict.

In the literature two dependent variables have been used, namely the percentage of votes obtained in year t by the political party which is in power because of having won the previous elections or, alternatively, the probability of change of the ruling party in year t elections. The explanatory variables refer to economic and fiscal conditions, apart from certain control variables. For instance, it is believed that the better fiscal performance is, the greater the percentage of votes will be or the lesser the probability of change of political party in power. Fiscal performance is measured with variables such as the variation in total public expenditure, in capital expenditure, in tax pressure, in fiscal deficit, etc. In the same way, it is believed that the better the global development of economy has been, the greater the percentage of votes will be or the lesser the probability of change. In this case, the relevant variables are changes in the gross domestic product, in the inflation rate, in unemployment, etc.

The starting point is the model developed by Peltzman (1987, 1990, 1992 and 1998) which connects the percentage of votes for the ruling party (Z) with the economic-fiscal performance (P) in the period during which it has been in power. It is assumed that a citizen has a normal probability of voting for the party that is in power (K) and that he/she deviates from such a probability according to the impact (actual or estimated) of the ruling party's policies on the variation in his/her utility (U). For the entire group of voters a linear relationship is assumed between the percentage of votes and the impact of the government's performance on their utilities,

⁵ Every two years half of the seventy representatives of the people of the province of Buenos Aires at the National House of Representatives is renewed. The province is considered as a single electoral district so that in all of the municipalities people vote for the same lists.

$$Z_t = K + mU_t, \quad (1)$$

It is assumed that P affects U according the function

$$U_t = (1 - w)P_t + wU_{t-1}, \quad 0 \leq w \leq 1, \quad (2)$$

which conveys the idea that voters remember their evaluation of the performance in the previous elections (U_{t-1}) and they give some weighting (w) to it when calculating U_t . If $w = 0$, the voter calculates the impact on his/ her income referring only to information about the fiscal and economic performance as from the last elections. The greater w , the greater the weighting of the evaluation of the political party's performance carried out in the previous elections. Replacing (2) in (1) the following is obtained:

$$Z_t = (1 - w)K + m(1 - w)P_t + wZ_{t-1}, \quad (3)$$

where m and w are constants.

In this study, estimations of the percentage of votes are presented following the ideas in Peltzman's model, with some modifications according to the availability of information. The main variable included in P_t is the importance of the AFC in the municipality, measured with the percentage of the total gross product of the municipality that is generated in this chain. This variable is representative of the actual or potential damage (benefit) to the sector and to the municipality resulting from the national policies supported by the provincial government.⁶ The variations in the local per capita expenditures, in the per capita transfers received from the

⁶ Alternatively, one could use the condition of net producer or net consumer –difference between the production and consumption of goods from the chain- of that municipality. The condition of net supplier or demander can be calculated by comparing the percentage of gross geographic product generated by the AFC in the municipality to the percentage represented by expenditure in food and drinks in the consumers' income. If the difference is positive (negative) the municipality produces more (less) than it consumes in goods from the AFC. Or, seen from another point of view, the income (output) generated in the chain is more (less) than the cost of the consumption of the goods originated in the chain. See online appendix B.

provincial and the national governments, and in the per capita local own revenues are added as further performance variables. Two dummy variables are added which refer to the political party in power at the municipality. There are also controls in relation to the social and demographic characteristics of the municipalities.

An important related body of scholarly literature (both theoretical and empirical) investigates the connection between trade and trade policies and income distribution. The starting point is the Stolper-Samuelson theorem (1941) that shows how commercial flows are determined by comparative advantages and, in turn, these comparative advantages are determined by the factor endowment in each country. Some of this work investigates the impact of trade on the prices of capital and skilled and unskilled labor in the context of different models. One important recent contribution is from Galiani, Heymann and Magud (2010), who consider economies which produce three goods, one of them being a non-tradable good. Other studies have investigated the reactions of individuals or groups that benefit from trade and trade policies, or lose from them. These studies have also researched how these people urge governments to adopt a determined policy (through, for example, different forms of ‘pressure’, contributions to political campaigns and/or votes). Several scholars such as Mayer (1984), Alesina and Rodrik (1994), Grossman and Helpman (1994), Dutt and Mitra (2002), and Scheve and Slaughter (2001) have shown that depending on their objectives, political agents adopt their decisions looking at the distributive impact instead of efficiency or general welfare.

III. Context

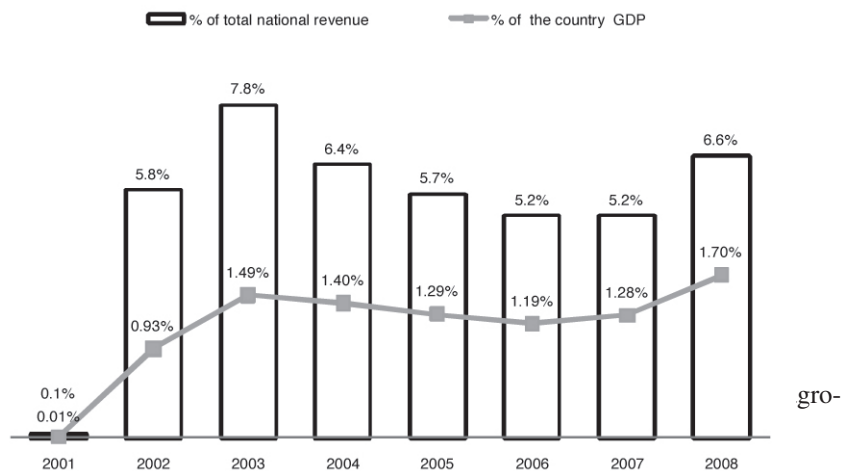
In this section the circumstances in which the 2009 elections took place are briefly referred to, beginning with the evolution of taxes and quantitative restrictions on exports from the AFC and moving on to the impact on production.

In March 2008, when Resolution 125 was passed by the National Ministry of Economy — later rejected by the Congress —, a conflict between the agro-manufacturing sector and the national government reached a crisis point. The conflict had been developing for some time, provoked by the high and increasing tax pressure on the sector’s production, and by the introduction of different policies

of market intervention – mainly quantitative restrictions on exports.⁷

Development in time was as follows. The taxes on exports that were practically non-existent during the nineties were re-introduced by Resolution 11 in 2002 by the Ministry of Economy of the Nation in the context of a serious socio-economic, fiscal, financial and political crisis.⁸ Tax rates fluctuated between 5% and 20%, depending on the product, and were modified over time, reaching values between 5% and 27.5% by the middle of 2007. At that moment, the ad-valorem tax rates implicit in the quantitative restrictions were around 14% for wheat and 10% for meat. A new rise in tax rates occurred in November 2007, after the elections, which increased those corresponding to soybean and sunflower from 27.5% to 35%, those on wheat from 20% to 28%, and those on corn from 20% to 25%. In Resolution 125, which manifestly led to the conflict, a significant rise was established in the tax rates on soybean and sunflower and a small drop in those on wheat and corn.⁹

Figure 1. Taxes on agro-manufacturing sector exports as % of total revenues and GDP



Source: Foro de la Cadena Agroindustrial Argentina (2009).

⁷ Quantitative restrictions reduce the prices paid to producers and to a lesser extent the prices paid by consumers. They do not provide the government with revenue, but instead generate rents to the favored sectors. The restrictions were placed mainly on wheat, cow meat and some dairy products. These interventions are equivalent to a tax on the sector and, additionally, they cause uncertainty in producers and exporters.

⁸ In the Resolution 11/2002 it was claimed that it was necessary to fight against the “...serious deterioration of fiscal revenue, which in turn is concomitant with a growing demand of assistance for the most vulnerable sectors of our country”, and implement policies... “to reduce the effect of exchange rate variations over domestic prices, especially as regards basic items of the food basket”.

⁹ The tax rates introduced by Resolution 125 were adjustable, according to international prices. At the time of passing the tax rate on soybean was 44%, that of sunflower 39%, that of wheat 27% and that of corn 24% (Nogués 2009).

manufacturing sector is presented in Figure 1. They dropped from 2003 (7.8% of the total national revenue and 1.49% of the gross domestic product of the country) to 2006-2007 (5.2% and 1.28%, respectively), rising significantly in 2008 (6.6 and 1.7%, respectively).¹⁰

Public policies had a strong impact on the AFC. The sector had a remarkable expansion starting from the nineties.¹¹ “The growth of Argentine agriculture was further stimulated in the nineties as a result of the stability of domestic prices and the liberalization of the economy, which promoted important advances in technology and in production organization... Human resources’ high quality, massive incorporation of technology (zero tilling, latest generation machinery, incorporation of transgenic soya and of chemical fertilizers, increasing use of agrochemicals, and incipient use of auxiliary irrigation in the Pampa region), as well as the use of new forms of management have sustained this profound change in the organization and growth of Argentine agriculture” (Reca 2008: 5). Such growth extended to a great part of the economy as a result of the strong backward linkages — derived demand for inputs — and forward linkages — demand for goods generated by the income from the AFC.¹² The taxes and quantitative restrictions on exports affected agricultural and livestock producers’ incentives. The results of the 2008/2009 campaign clearly show this, aside from the influence of the drought. Derived demand for inputs —among others, fertilizers, combine harvesters, tractors and seeders— dropped significantly since the end of 2007 (Onofri 2009).

In this context the 2009 election took place.

IV. The agro-food chain in the municipalities of the province of

¹⁰ The agro-manufacturing sector embraces 41 agricultural activities and their related manufactures. The agri-food chain embraces a subset of these activities. At the level of municipalities the only data available to estimate outputs (GDP) is that of the activities included in the AFC. See online appendix A.

¹¹ Taking into account corn, wheat, soybean and sunflower, sown field extended from 11.4 million hectares in the seventies to 14.8 in the eighties, 18.2 in the nineties, amounting to almost 30 million in the 2007/2008 campaign. Production grew, between those same dates, from 17.8 million tons, to 29.0, 43.6 and 89.2 tons. Yields per hectare practically duplicated in this period. These increases in the sector’s activity implied a rise in the demand of goods and services from the rest of the economy.

¹² For example, derived demand for fertilizers and pesticides represents 74% of the total production, packs made of plastic materials 61%, transport of loads 37%, etc. For further details see Porto et al. (2007).

Buenos Aires

The geographical area chosen for the case study is the province of Buenos Aires, which presents stark demographic and social contrasts and a great productive heterogeneity among its municipalities. Although the manufacturing sector is the one with the greatest participation in the Gross Geographic Product (GGP) of the province, in 100 of its 134 municipalities the most important economic activity is agriculture and cattle farming.

Leaving aside the steady growth of services in the productive structure (whose contribution to GGP rose from 32% in 1964 to 54% in 2008), common to all geographical areas, the contribution of the branches of agriculture and cattle farming fell from 31% of the goods production in 1964 to 10% in 1993, rising back to 16% in 2008. All throughout the period there was a change in the composition of the agriculture and cattle farming sector's GGP in favor of agriculture, which in 1964 contributed with less than half of the sector's production, rising to 74% by 2008. This profound change reflects the multiproduct nature (agriculture and cattle farming) of exploitations in the province, which make it possible to alternate agriculture with cattle farming, and vary within agriculture, according to their relative profitability.¹³

These changes were reflected geographically. The group of "Inner" municipalities came to produce 41% of the provincial GGP in 2008, compared to 36% in 1993.¹⁴

In order to evaluate the weight of agriculture and cattle farming activities in generating the gross geographic product in each municipality it is not sufficient to restrict oneself to primary production. It is more adequate to work with the concept of Chain. Due to the availability of information the study is based on a sub-group of activities which constitute what in this paper is called AFC.¹⁵ The AFC involves, in the first place, the *direct contribution* to the GGP from the agro-

¹³ According to the 2002 Agriculture and Cattle Farming Census (*Censo nacional agropecuario 2002*), 80% of the soybean producers had cattle.

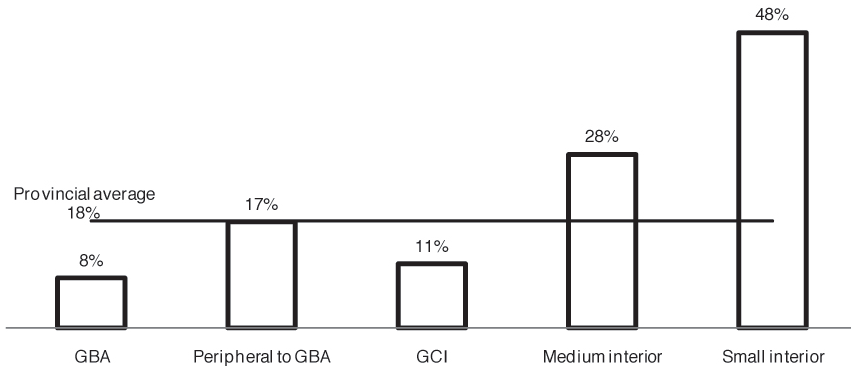
¹⁴ Following the classification proposed by Nuñez Miñana and Porto (1974), we distinguish between the municipalities of the Great Buenos Aires (GBA) and the "Inner" municipalities. Inner municipalities are the groups of Great Centers of the Interior (GCI), Medium Centers of the Interior and Small Centers of the Interior. The peripheral municipalities of the Great Buenos Aires form a separate group due to their special evolution.

¹⁵ Based on Lodola, Brigo and Morra (2010).

manufacturing food production (agricultural crops, stockbreeding, agricultural and stock farming services, fishing and food and drink production); it also involves the main *backward linkages* (derived demand for inputs) and *forward linkages* (demand coming from the income and expenditure of the factors involved in the activity). The list of activities and the criteria of assignment to the AFC are detailed in online appendix A.

Figure 2 shows the estimated importance of the AFC in the GGP of each group of municipalities.¹⁶ Although the average contribution of the chain to the gross product of the province is 18%, at one extreme for the small inner municipalities it amounts to 48% of the GGP (there exist municipalities where the contribution exceeds 70%), while for the Great Centers of the Interior such proportion is around 11%. In the municipalities of the Great Buenos Aires (GBA), the contribution of the AFC is 8%.

Figure 2. Contribution of agro-food chain by groups of municipalities in 2008 (% of GGP)



Source: see methodological appendix.

Comparing the contribution of the AFC to the GGP with the average expenditure on food and drinks in each municipality, in online appendix B they are classified as net producers (NP) or net consumers (NC) of goods originated in the AFC. In this way 33 municipalities of the province, where 67% of its population lives, can be classified as net consumers, the remaining 101 being net producers.

These marked contrasts among the municipal productive structures suggest

¹⁶ For the disaggregation by municipality see online appendix B.

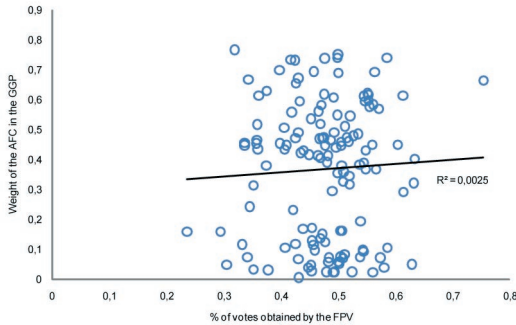
that the responses (acceptance or rejection) to certain national-provincial policies will not be homogeneous in the provincial territory. In the following section the results of the 2007 and 2009 elections, framed within the farmers-government conflict, are studied.

V. Estimations

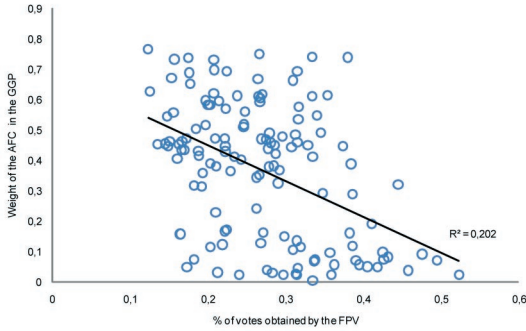
Figures 3A and 3B show the simple relationship, at the level of each municipality, between the relative importance of the AFC in the GGP and the votes obtained by the official party (*fpv*: Frente para la Victoria) in the 2007 and 2009 elections. The first is positive and the second negative, suggesting a change in the sector's voting behavior. This change is most clearly seen in Figure 3C, which relates the importance of the sector with the difference of votes for the FPV in each municipality: the higher the difference, the higher the importance of the AFC.

Figure 3. Relation between weight of the AFC and votes for the FPV

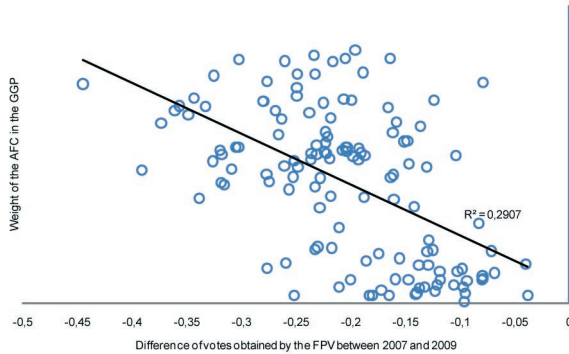
A. 2007 elections



B. 2009 elections



C. Difference between 2007 and 2009 elections



These relations could be spurious because of the lack of control variables. In order to take them into account, this section presents the results of the econometric estimates for the 2007 and 2009 elections following the lines of the model in section II. The cross-section estimating equation is

$$fpv_j = \alpha_0 + \alpha_1 cadagro_j + control\ variables_j + u_j, \tag{4}$$

where $j = 1, \dots, 134$ (municipalities), u_j = error term assumed independent across municipalities.

The variable to be explained is the percentage of votes obtained by the list of national deputies of the governing party (*fpv*).^{17,18} The main explanatory variable, representative of the impact of the economic policy (*P*), is the share of the AFC in the gross product of each municipality (*cadagro*). The control variables included are the percentage of the population having unsatisfied basic needs in the municipality (*nbi*) and variables which represent the demographic characteristics and fiscal performance. The variable *nbi* is justified in that the party in power (Frente para la Victoria), as a major sector of the Justicialismo (Peronist Party), traditionally has a solid electoral support coming from the sectors of relatively low socio-economic level; one can expect a positive sign for this variable — the greater the percentage of *nbi* the greater the percentage of votes. *vargk* measures the change in capital expenditures in each municipality since the prior election. Two dummy variables are included to control political determinants. One of them (*int-fpv*) is assigned value 1 if the mayor belongs to the Frente para la Victoria and the other (*int-radK*) is assigned value 1 if the mayor is a Radical but allied with the government;¹⁹ in this way the influence of the party in power on the municipality is controlled. *varae* and *varpre* refer to the changes in economic activity and prices in each municipality since the prior election (between 2005 and 2007 in this case).²⁰ Estimates are based on cross section specifications for each election separately using ordinary least squares regression model with correction of heteroscedasticity.

The results for the 2007 elections are presented in columns (1) and (2) of Table 1.

¹⁷ In the same elections legislative representatives for the three levels of government (councilors, provincial senators and deputies, and national deputies) were chosen. The body of the text presents the election results for national deputies since tax handling and controls over the AFC are national policies. In 2009 Mayors were not up for election, which could have reflected the ongoing impact of good/bad local management. Mayors either supported the national government or not, and that adherence, which changed between 2007 and 2009, is what the coefficients of the variables which represent the Mayors' political tendencies capture.

¹⁸ The political alliance Frente para la Victoria (Front for Victory), belonging to the Justicialist Party, was created prior to the 2003 elections and has been in power both in the province of Buenos Aires and the national government since then. It is often associated with the letter K due to its main representative, the late Néstor Kirchner, who served as President for the term 2003-2007, and his wife, Cristina Fernández de Kirchner, elected President for the subsequent term.

¹⁹ The Radical Party is one of the most traditional mass-based political organizations in Argentina, together with the Justicialist Party. By K Radicals we mean members of the Radical Party allied with the Frente para la Victoria.

²⁰ *varae* is the change in economic activity in each municipality between national elections (i.e., between 2005 and 2007, or 2007 and 2009), while *varpre* is the change in prices. See details in online appendix A.

Table 1. Regression: Percentage of votes obtained by the Frente para la Victoria (*fpv*)

Variables	2007		2009	
	(1)	(2)	(3)	(4)
<i>cadagro</i>	0.141*** (0.0273)	0.140*** (0.0273)	-0.0929** (0.0438)	-0.0908** (0.0432)
<i>nbi</i>	0.586*** (0.117)	0.590*** (0.117)	0.536*** (0.113)	0.503*** (0.112)
<i>fpv (t-1)</i>	0.169*** (0.0590)	0.164*** (0.0591)	0.404*** (0.0751)	0.400*** (0.0740)
<i>int_fpv</i>	0.0682*** (0.0129)	0.0696*** (0.0130)	0.0213* (0.0124)	0.0219* (0.0122)
<i>int_radK</i>	0.0570*** (0.0205)	0.0602*** (0.0207)	-0.0323* (0.0186)	-0.0261 (0.0185)
<i>vargk</i>		-0.00135 (0.00123)		0.00227** (0.00104)
<i>varae</i>	-0.0479 (0.0903)	-0.0464 (0.0903)	0.0504 (0.129)	0.0593 (0.127)
<i>varpre</i>	0.0586 (0.0391)	0.0605 (0.0391)	0.0300 (0.0881)	0.0286 (0.0869)
<i>constant</i>	0.243*** (0.0329)	0.245*** (0.0330)	0.0436 (0.0299)	0.0422 (0.0295)
Observations	134	134	134	134
R-squared	0.446	0.451	0.632	0.645

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The signs of *cadagro* and *nbi* are positive: in the municipalities where the importance of the AFC and/or the percentage of population having unsatisfied basic needs are greater, the percentage of votes for the Frente para la Victoria (*fpv*) is greater as well. The fact that the mayor is a member of the Frente para la Victoria (*int_fpv*=1) or a K Radical allied with the government (*int_radK*=1) also has a positive impact on the municipality. Fiscal variables, in particular *vargk*,

and those representatives of demographic variables, were not significant.²¹ The constant, representative of the “normal” percentage of votes for the governing party, is positive and significant. The coefficients for *varae* and *varpre* are not significant.

The coincidence between the *nbi* and *cadagro* voters is truly remarkable taking into account the history of biased policies against *cadagro* coming from the political party in power (Reca 2007, 2008; Streb et. al. 2008; Sturzenegger and Salazni 2006). Maybe the memory of the nineties (absence of taxes on exports) along with the high and increasing international prices, the high yields per hectare, high level of exchange rate,²² and the belief that this and other restrictions could be temporal -a consequence of the 2001-2002 crisis.²³ But the evolution of the collection (Figure 1) shows that the official idea was to maintain and increase taxation on the sector.

The results of the 2009 elections (columns 3 and 4 of Table 1) reveal a significant change in voters’ behavior. The population with *nbi* still has a positive impact on the percentage of votes for the Frente para la Victoria (*fpv*), but AFC has a negative sign.²⁴ The 2007 social coalition (positive votes from *cadagro* and *nbi*)

²¹ The fiscal variables used in regressions which were not included in the text because of not being significant are the change in the total municipal expenditure and transfers from the higher levels of government. Neither were demographic characteristics significant. In order to inquire into the possibility of a differential behavior on the part of voters in the municipalities with a greater importance of cattle farming – the activity which was the most negatively affected by the official policies- we calculated the variable which represented the weight of cattle farming in the gross geographic product of each municipality; it did not turn out to be statistically significant. The variable *cadagro* better reflects the multiproduct nature of the sector’s production.

²² The gross margin of a representative hectare – combining soybean, corn, wheat and sunflower- taking into account international prices, yield, expenses and taxes, was 160 US\$ in 2007 and dropped to 103 US\$ in 2008. The exchange rate was 3.1 pesos per dollar in 2007 and 3.5 in 2008.

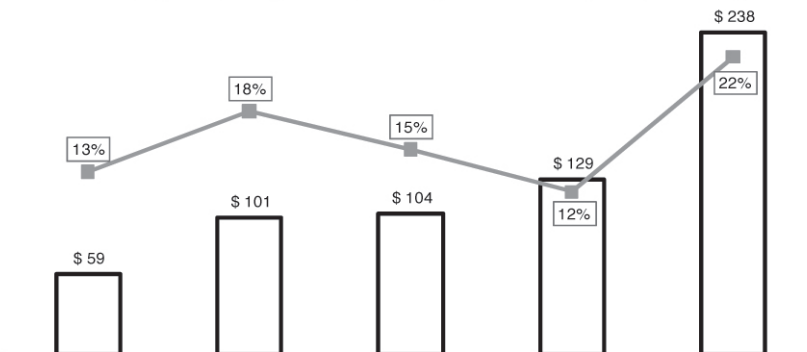
²³ The National Government had promised, in September 2003, to gradually remove the taxes on exports as from January, 1st 2005. See the *Memorandum of economic and financial policies of the National Government for 2003-2006 (Memorandum de políticas económicas y financieras del Gobierno Nacional para 2003-2006)*.

²⁴ Regarding the change of sign in *cadagro*, C. Gervasoni offered an interesting alternative explanation based on the economic voting theory from political science. According to this theory the important variable is the evaluation that the voter makes of the general economic situation, which is influenced to a large extent by the mass media. The voters’ evaluation would result from perceptions based on the evaluation of the different aspects of these matters that the mass media have put on the agenda. Certainly the mass media have played an important part, and so have the entrepreneur unions, which modified their message and put it across to the population with a wider scope of vision – incorporating the matters of poverty, income distribution, federalism – although deep down they were short-sighted when offering solutions. But underlying unionist action, the media, and voters’ perceptions, there was the concrete fact of a significant economic damage through taxes, quantitative restrictions on milk, meat, wheat, etc. Prices paid to producers dropped and this was reflected in the reduction of the cultivated area and production, in the cattle stock clearance, the dismantling of dairy farms, etc. This affected the AFC directly and also providers of inputs.

breaks down in 2009.²⁵ In the same way there is a break in the political alliance: the mayors of the *fpv* have a positive impact, but the dummy variable of the K Radicals (*int_radK*) changes in sign. The coefficients for *varae* and *varpre* are again not significant.

The variations in capital expenditures, which were not significant in the 2007 elections, had a positive impact on the 2009 results – such expenditures were one of the tools used by the national government in its policy for obtaining more votes. Although this variable is an item in the municipal budgets, in the period under study the national government transferred, directly to the mayors, considerable funds which were directed, fundamentally, to housing (Federal Housing Plan, Plan Federal de Viviendas). The quantitative importance of these transfers is reflected on the capital expenditures of the municipalities, which increased from barely over 104 pesos per capita in 2007 (15% of the aggregated municipal expenditure) to \$238 per capita (22%) in 2009 (Figure 4).

Figure 4. Evolution of capital expenditures in the municipalities of the province of Buenos Aires (in pesos per capita and percentage of total municipal expenditures)

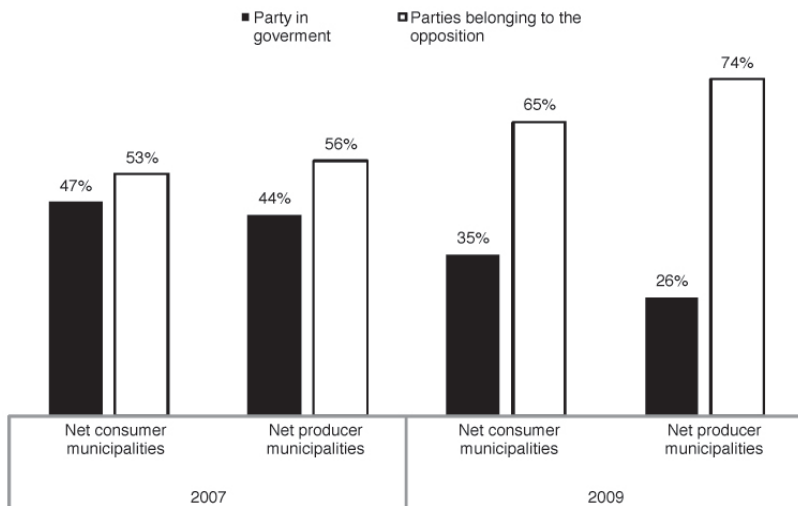


Source: own elaboration based on data of municipal budgets

²⁵ In the Introduction we presented two forms of reaction from citizens in the face of variations in economic policies. On the one hand the reaction as voters which is presented in the text and, on the other hand, the reaction by modifying taxable bases. Examples of modifications in the taxable base are changes from cattle farming to cereals and oleaginous products – in the province of Buenos Aires cattle farming varied from representing 54% of the gross agriculture and cattle farming product in 1964 to 26% in 2008; and the change in the area sown with soybean was from 47% of the country's total in 2000/01 to 63% in 2008/2009 in detriment of, mainly, the wheat and forage area. Although not the only explanatory factor – the changes in relative agriculture/cattle farming international prices had a significant influence – taxing policies and quantitative restrictions influenced this change.

The constant, which represents the normal percentage of votes for the party in government decreases between 2007 and 2009. This drop reflects a fall in votes common to all the municipalities, which can be associated with the policy of the governing party of coming face to face with different sectors and the re-emergence of inflation. But there were remarkable differences at the level of municipalities (Figure 5 and online appendix B): the fall in votes for the governing party at the provincial level was 31%, in the group of net producer municipalities 41%, and in the net consumers 26%. At the level of municipalities the fall fluctuated between 6.6% (in the municipality of J.C. Paz that belongs to the GBA) and 59% (in General Lavalle that belongs to the smaller group among the inner municipalities).

Figure 5. 2007 and 2009 elections according to groups of municipalities of the province of Buenos Aires (in percentage from the total of positive votes)



Source: Secretaría Electoral de la Provincia de Buenos Aires

The coefficients for the $fpv(t-1)$ — votes for the fpv in the previous elections (2005 and 2007 respectively) — are positive and significant: voters remember the evaluation on performance made at the moment of the previous elections and give it a positive weighting at the time of voting. The coefficient for this variable is greater in the 2009 elections than in the 2007 elections, which can be a consequence of a better evaluation at the moment of the previous elections — in fact, the general socio-economic situation was better in 2007 than in 2005.

In order to check the robustness of the results, the difference in differences model was estimated using the equation

$$fpv_{jt} = \beta_0 + \delta_0 D_t + \beta_1 cadagro_j + \delta_1 D_t cadagro_j + control\ variables_{jt} + error_{jt}, \quad (5)$$

where D_t = dummy variable year 2009 = 1, year 2007 = 0; j = municipalities, t = years.²⁶

Table 2. Percentage of votes obtained by the Frente para la Victoria (fpv), 2007 and 2009

Variables	(1)	(2)	(3)	(4)
<i>Dt</i>	-0.133*** (0.0153)	-0.134*** (0.0156)	-0.133*** (0.0151)	-0.134*** (0.0153)
<i>cadagro</i>	0.142*** (0.0291)	0.142*** (0.0293)		
<i>Dt cadagro</i>	-0.212*** (0.0363)	-0.212*** (0.0364)		
<i>dB</i>			0.0570*** (0.0129)	0.0564*** (0.0131)
<i>Dt dB</i>			-0.0930*** (0.0158)	-0.0932*** (0.0159)
<i>nbi</i>	0.600*** (0.0879)	0.594*** (0.0879)	0.570*** (0.0888)	0.561*** (0.0880)
<i>int_fpv</i>	0.0489*** (0.00934)	0.0486*** (0.00935)	0.0498*** (0.00991)	0.0493*** (0.00995)
<i>int_radK</i>	0.0469* (0.0243)	0.0457* (0.0241)	0.0341 (0.0265)	0.0328 (0.0264)
<i>Dt int_radK</i>	-0.0600** (0.0302)	-0.0574* (0.0302)	-0.0388 (0.0317)	-0.0358 (0.0318)
<i>vargk</i>		0.000631 (0.00105)		0.000693 (0.00113)
<i>varae</i>	0.00425 (0.0638)	0.00435 (0.0634)	0.0337 (0.0584)	0.0335 (0.0582)
<i>varpre</i>	0.0442 (0.0323)	0.0429 (0.0324)	0.0633* (0.0326)	0.0613* (0.0324)
<i>fpv (t-1)</i>	0.241*** (0.0577)	0.242*** (0.0577)	0.221*** (0.0592)	0.222*** (0.0592)
<i>constant</i>	0.217*** (0.0263)	0.217*** (0.0263)	0.236*** (0.0249)	0.236*** (0.0249)
Observations	268	268	268	268
R-squared	0.812	0.813	0.803	0.803

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

²⁶ We thank for the suggestions made by the two anonymous referees about additional checking of the results (difference of votes and control and treatment groups).

The results in columns (1) and (2) of Table 2 are consistent with the previous estimates. The coefficient for $D_t \text{cadagro}$ that measures the change in fpv due to the policies toward the sector in 2009 is significantly negative. In the municipalities where *cadagro* is higher, the loss of votes of the official party is also higher. The R^2 is 0.81.

An additional estimation was carried out in columns (3) and (4) of Table 2 considering control (net-consumer municipalities) and treatment groups (net-producer municipalities) and using the information presented in online appendix B. The estimated equation is:

$$fpv_{jt} = \beta_0 + \delta_0 D_t + \beta_1 dB_j + \delta_1 D_t dB_j + control\ variables_{jt} + error_{jt}, \quad (6)$$

where D_t = dummy variable year 2009 = 1, year 2007 = 0; dB = 1 for net-producer municipalities, zero otherwise; t = years.

The coefficient for $D_t dB$ in columns (3) and (4) of Table 2, which measures the effect of the policy, is significantly negative and corroborates the previous findings. In net producer municipalities the change in the voting behavior is negative in comparison with the net consumer municipalities.

An interesting result along the lines of the one presented in this study can be found in Streb et al. (2008). They estimate the relationship between the number of route blockades in March 2008 — one of the moments of greatest tension in the farmers/government conflict — and the importance of the agriculture and cattle farming sector in 457 towns (its importance measured in terms of the number and extent of exploitations, and the percentage of the surface sown with soybean). Coefficients turned out to be positive and significant: the greater the importance of the sector, the greater the number of pickets. In that study, the estimation relates a *form* of political participation — the route blockade or picket — to the importance of the affected sector which wishes to have an influence, by those means, on political results. In this study the estimation is presented for the *result* of another form of political participation — votes in the ballot box. Certainly, both forms of political participation, as actions tending to modify political results, can be complementary.

VI. Conclusions

This study belongs in the literature which analyses the effects of economic conditions on electoral outcomes. The results of the 2007 and 2009 elections for the partial renewal of deputies of the province of Buenos Aires at the National House of Representatives in the 134 municipalities, and their relationship with their productive characteristics, are studied. The context of the 2009 elections was the conflict which arose in 2008 between the agro-manufacturing sector and the national government –supported by the provincial government– due to the rise in taxes on exports (fundamentally grains and oleaginous products) and to market interventions through quantitative restrictions.

Municipalities differ greatly in their productive structures: at one extreme there exist municipalities in which the contribution of the agro-manufacturing chain is over 70% of the total gross product, while at the other extreme it is about 5% or less. One can assume that a policy which is detrimental (beneficial) to a certain sector will have a greater negative (positive) impact on the election results, in those municipalities where the sector is quantitatively important.

Separate estimations for the 2007 and 2009 elections are presented. Results suggest that voters take into account the effect of public policies at the time of voting and that they change according to whether they benefit or are damaged. The relative importance of the AFC had a positive impact on the votes obtained by the political party in power in 2007 and a negative one in 2009. The 2007 social coalition (positive votes from the AFC and the population having unsatisfied basic needs) broke down in 2009. In the same way there was a break in the political alliance with the Radical mayors which supported the national and provincial governments.

The change in votes from the *cadagro* between 2007 and 2009 is intriguing and brings up the questions of whether voters are well-informed or not, and whether they are short-sighted and only take into account recent policies. The votes from *cadagro* supported the party in power in 2007, when taxes and quantitative restrictions on the sector's production already existed. One hypothesis is that the combination of high and increasing international prices, high exchange rate and high yields, may have moved them to accept those policies – or else to believe in their temporal character. *cadagro* voters do not seem to have recalled the history of biases against the sector on the part of the party in power in other periods further away in time. The reversion of the favorable environment in 2007, combined with

the rise in taxes and quantitative restrictions, may explain the change in 2009. In this change, the activity of the sector's entrepreneur unions must have played an important part, carrying out an active plan of action, spreading information and putting the problem in the media. These actions worked to face the "rational ignorance" problem in the political market assuming that the absence of voluntary cooperation is lower in the context of repeated games (Axelrod 1981). The high costs — in terms of lost earnings — of the measures against the sector encouraged voters to have a rational behavior by assuming the cost of the plans of action and of obtaining information.

The "normal" percentage of votes for the ruling party — captured by the constant in the regressions — dropped between 2007 and 2009, reflecting an effect in common among all the municipalities. Partly it was associated with the "economic vote" due to the change in the economic situation, from positive to negative, between those years – lower growth and re-emergence of inflation. Political factors, such as the discretionary behavior and authoritarianism perceived by the population, also played a part. But there were remarkable differences between the municipalities according to the relative importance of the AFC.

In the period under study the national government (by way of compensation and seeking to obtain votes) transferred funds directly to the municipalities in order to finance capital expenditure, fundamentally housing. The rise in capital expenditures was particularly important in the year prior to the 2009 elections and had a positive impact on the percentage of votes for the ruling party — contrary to the 2007 elections where the variations in capital expenditures did not turn out to be significant. It is difficult to ascertain to which level of government the responsibility for such expenditure was attributed, since the executant was the municipal level and the financer was the national one. In the important official campaign responsibility was shared but, probably, closeness with voters favored the municipal government. The differences between votes for national deputies and municipal councilors points in that direction. Although information is not available for all of the municipalities, in the 43 in which the lists of municipal councilors and national deputies identified themselves with the party in power (FPV), the councilors obtained a total of 25% more votes than the deputies, and in only one of them did the list of deputies exceed the list of councilors.²⁷

²⁷ In most of the municipalities there were several political parties which had their own list of councilors but which supported the deputies of the Frente para la Victoria.

The robustness of the results was checked with additional estimates: difference of votes and control and treatment variables. The main findings of the separate estimations were confirmed.

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