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**Direct Democracy And Tax Exporting: Theory and an Application to
the First Referendum ("Consulta Popular") in Argentina**

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DIRECT DEMOCRACY AND TAX EXPORTING

Theory and an application to the first referendum (“Consulta Popular”) in Argentina

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Abstract

The assignment of the responsibility for different taxing powers is one of the most important problems in the theory and practice of fiscal federalism. The literature provides us with a set of general guidelines for the “tax assignment problem.” One conclusion is that “tax exporting” could create perverse signals for fiscal choice. In this paper the “tax exporting” problem is analyzed with simple models. The case of a tax passed through a referendum (Consulta Popular) in an Argentinean tourist Municipality is studied. In a numerical exercise, using the fiscal data of the Municipality, the size of the public expenditures is calculated under different rules of fiscal decision. Then, an empirical analysis of the results of the voting and its determinants is carried out. The paper concludes with some comments, in order to improve the mechanisms of referendum related to fiscal decisions at the municipal level.

Key words: direct democracy; tax assignment; fiscal externalities; tax exporting

JEL classification: H 23, H 71, H72

I. Introduction

The assignment of revenue instruments to different levels of government is one of the most important issues in the theory and practice of fiscal federalism. The main question is whether to assign certain tax instruments to a certain level of government or whether the kind of taxes assigned to each level is indifferent. The answer to this question embraces arguments related to efficiency, equity, administrative costs, and local autonomy. The literature offers general guidelines for the “tax-assignment problem.” For example, in local taxation, tax exporting should be avoided because it might create perverse signals for fiscal choice, with negative impact on efficiency and equity. In this paper the “tax-exporting” problem is analyzed with simple theoretical models (Section II) and the case of a new tax passed through a referendum in a tourist municipality in Argentina is studied (Section III). In Section IV the final comments are presented.

II. Simple models of fiscal decisions, tax-exporting and the size of public spending

Tax-exporting is a process by which a locality shifts the tax burden to nonresidents. The study of tax exporting is of interest because it can affect, on the one hand, the taxing and spending policies in the exporting locality – affecting in this way efficiency-; and, on the other hand, it modifies the distribution of real income among localities.^{1 2}

The effects of tax-exporting over the fiscal decisions of local governments (tax structure and the level of public spending) depend on how the benefit of spending -which is a function of the collective decision rule- is affected, and on the relative cost of taxing exportable goods vs. domestic goods.³ This relative cost depends, on the one hand, on the rule about collective decisions in the locality and, on the other hand, on the tax-rate structure.

In this paper we assume a tourist locality in which the local public spending (G) is financed with a property tax paid by the owners. These owners may reside in the locality, using the property for permanent housing, or they may reside in other localities, using the property as

¹ Whichever the level of public spending provided in the exporting locality, its real income increases because non-residents share the total revenue of the local government.

² Tax-exporting is an interjurisdictional fiscal externality. These externalities arise when the decisions of local governments about tax and spending affect the welfare of residents in other localities (Dalhby, 1996). These externalities lead to non-optimal tax and expenditure decisions if governments have biased perceptions of the marginal cost of public revenues and/or of the marginal benefits of expenditures. The externality arising from tax-exporting is direct, because it affects the utility of non residents. All direct externalities are horizontal, that is, among governments of the same level.

³ Income effects are not considered. Given a marginal benefit function of public spending, whether the locality modifies or not the level of public expenditure depends on the impact of tax-exporting over the marginal local (domestic) cost of public revenues. Tax exportation can also modify the marginal benefit.

housing in holiday periods. For the analyzed period, the total number and distribution of houses is fixed.⁴

The utility -measured in monetary terms- that consumers, residents or not, obtain from the goods different from housing is given by

$$U_i = U_i(c_i, G) \quad (1)$$

where c_i is a private good and G the total quantity of a local public good. There are N houses in the locality; $i = 1, \dots, R$ belongs to owners residing in the locality, and $i = R+1, \dots, N$ belongs to owners residing in other localities. Each person is the owner of one house from which he/she obtains a fixed utility that is added to that resulting from (1). It may be assumed that this fixed utility is higher for residents than for nonresidents because they use the house throughout the year. For the sake of simplification, it is assumed that housing is the only use for the properties.

The consumer' budget constraint is given by

$$y_i = c_i + h_i \quad (2)$$

where y_i is an exogenous income and h_i is the property tax paid to the locality. It is assumed that the price of the private good is equal to one. The budget constraint of the local government is

$$P_g G = r VT \quad (3)$$

where P_g is the price (constant) for a unit of G ; VT is the value of the N houses in the locality and r is the proportional tax rate. Because there are no other sources of financing (neither intergovernmental transfers nor public debt), the level of the tax rate is that needed to balance the local budget.

The property tax a person i has to pay depends on the tax rate (r) and on the value of his/her house (V_i); that is

⁴ There is only one taxable good. This good is consumed in the taxing locality and the exportation arises because the owners reside in other localities. Each person demands one house, there is no selling of the stock, and there are no modifications of the stock. For the tax-rate structure when there are n goods with different percentages of consumption within the locality, see Appendix.

$$h_i = r V_i = (V_i/VT) P_g G \quad (4)$$

The quantity of G to be provided depends on the collective decision rule. Let us assume the rule of the median voter (m) is followed. Replacing (2) and (4) in (1) for this citizen-voter and maximizing we obtain,

$$(U_g/U_c)_m = P_g (V_m/VT) \quad (5)$$

where $(U_g/U_c)_m$ is the marginal rate of substitution for the median voter.

If the collective decision arises from a benevolent government, the function to be maximized is

$$W = \sum_{i=1}^N w_i U_i(c_i, G) = \sum_{i=1}^N w_i U_i(y_i - (V_i/VT) P_g G, G) \quad (6)$$

$$w_i = dW/dU_i$$

and the first order condition is

$$P_g \sum_{i=1}^N \sigma_i (V_i/VT) = \sum_{i=1}^N \sigma_i (U_g/U_c)_i \quad (7)$$

where $\sigma_i = w_i U_{c_i}$ = social marginal utility of the private consumption good for the i person.

If all individuals have the same weight ($\sigma_i = 1, 2, \dots, N$), (7) becomes

$$P_g = \sum_{i=1}^N (U_g/U_c)_i \quad (8)$$

which is Samuelson's rule of equalizing the price of the public good (P_g) with the sum of the marginal rates of substitution over all consumers.

The welfare function of the local government can depart from (6) for several reasons, such as when the government only takes into account the benefits and costs for the R residents in the locality. In this situation, the welfare function is

$$W = \sum_{i=1}^M w_i U_i(c_i, G) \quad (9)$$

$$i = 1$$

and maximizing we obtain

$$P_g \sum_{i=1}^R (V_i/VT) = \sum_{i=1}^R (U_g/U_c)_i \quad (10)$$

If $[\sum_{i=R+1}^N (V_i/VT) > \sum_{i=R+1}^N (U_g/U_c)_i]$, with this decision rule the costs decrease more than the benefits. This is a probable result in a tourist locality, which provokes a higher quantity of G than the efficient one.⁵

An alternative for a government which only considers residents arises from the resident median voter (rm) preferences. In this case we have

$$(U_g/U_c)_{rm} = P_g (V_{rm}/V_t) \quad (11)$$

This collective decision rule changes the relevant median voter and may in this way affect the demand of the local public good.

Another model results from considering that the local government transforms the economic benefits into political ones, adding the political benefits arising from buying inputs in the locality together with the benefits of the public goods associated with G (using the previous case in which only the benefits and costs for residents are considered). The idea in this model is that some benefits arise from the consumption of goods whereas others are relevant to political decisions and constitute an alternative (or complementary) measure.⁶ The total benefits for a politician are the sum of those two kinds of benefits (Weingast et al., 1981). If the inputs are bought in the locality, the maximizing function is

$$W = \sum_{i=1}^R U_i(c_i, G) + P_g G \quad (12)$$

Maximizing (12) and assuming $\sigma_i = 1$ ($i = 1, \dots, R$) y $\sigma_i = 0$ ($i = R+1, \dots, N$) we obtain,

$$P_g \sum_{i=1}^R (V_i/VT) = P_g + \sum_{i=1}^R (U_g/U_c)_i \quad (13)$$

⁵ Equation (10), which is comparable to (8), arises from (7) doing $\sigma_i = 1$, for $i = 1, \dots, R$ and $\sigma_i = 0$, for $i = R+1, \dots, N$.

⁶ These two approaches are different. For example, the provision of defense (D), as a Samuelsonian public good, benefits all the population. However, in the positive public economy, inputs become relevant; e.g. the policies of employment and of transfer money to the factor's owners, among others.

The transformation of economic benefits into political benefits is represented in (13) adding P_g on the side of the marginal benefit.⁷ The quantity of G is higher than the efficient one (given by (8)), and also higher than the quantity that departs from the efficient when only the benefits and costs for the residents are considered (given by (10)). An interesting result is that in (13), for the resulting quantity of the public good, the marginal rate of substitution is positive, that is, the marginal utility is negative for the public good.

The resident median voter can also add to the benefit of consumption of the public good, that she or he obtained (or hopes to obtain) from a higher direct or indirect income or from an externality for living in a city with less unemployment and/or better environmental conditions. This effect is included adding χ per unit of G , so that condition (11) changes to

$$(U_g/U_c)_m = P_g (V_m / V_t) - \chi \quad (14)$$

In conclusion, in the median voter and in the benevolent government' models, there is tax exporting but the size of the public good is not modified because exportation has an impact neither on the marginal benefit nor on the marginal cost of public goods for the decision maker. Tax-exporting can generate higher public spending than what is considered efficient when the decision-maker only takes into account the benefits and costs for residents. If tax exporting changes the identity of the median voter, it can affect the demand of the local public good. Besides, the size of public spending is higher when the economic benefits and costs are transformed into political ones –and this effect is independent of whether the tax is exported or not, and of whether tax-exporting originates a higher public spending or not. In the same way, the median voter can add the benefit obtained from higher income or from a positive externality to the benefit of consumption of the public good.

III. Empirical results. The “Mar del Plata 2000” Plan

The aim of this section is to analyze some aspects of the additional tax on property applied by the Municipality of Mar del Plata to finance a plan of public work. The case is interesting for several reasons. Firstly, because Mar del Plata is a tourist city and the tax is therefore potentially exportable to other jurisdictions; secondly, because the fact that the fiscal package put to the vote permits the investigation of the welfare function of the local government (function type (1) for the median voters; type (6) for a benevolent government; type (9) for a local government which only considers the benefits and costs for residents; or

⁷ In an alternative way, the transformation can be seen as decreasing of P_g .

type (11) for a local government which considers the benefits and costs for residents and also transforms these economic benefits and costs into political ones); finally, because the relatively small size of the fiscal package allows the use of a partial equilibrium approach.

In the following sections the case is presented and the following points are investigated:

(i) Which fiscal package was put to the vote?

(ii) Which collective decision rule was used?

(iii) Was tax-exporting possible?

(iv) Which were the arguments of the welfare function of the local government?

(v) Which was the impact of tax- exporting on the size of the public spending?

(vi) Which was the electoral outcome and which its determinants?

(i) The fiscal package put to the vote

The referendum took place the 12th of May, 1996 and was the first “Consulta Popular Municipal” (referendum) in Argentina. The Yes/No question asked about was the execution of a plan of 25 public works, to be done in the following four years, with a total investment of 65 million pesos (1 peso = 1 dollar). The additional tax to finance the plan consisted in 3\$ or 4\$ per month, per property, for a period of eight years. The amount to be paid per month was a function of the ordinary proportional tax on property.

(ii) The rule of fiscal decision

The rule, included in the Municipal Law 556/96, seeks the active political participation of the residents in the Municipality through their opinion regarding the plan of public works “Mar del Plata 2000” and its financing. The electoral law establishes that the “Consulta” is to the residents in the city (...) who have their residences documented in their identification card. The conclusion is then that only residents can vote. The welfare function compatible with the law would be that of expression (9).

(iii) The possibility of tax exporting.

Because the tax is levied on a fixed tax base, whose owners may be residents in the city or not, there exists the possibility of exporting part of the tax to other jurisdictions. In the Plan Mar del Plata 2000, from the total amount of taxable properties, 61,4% belong to residents, who pay 64,4% of the ordinary tax and 60,8% of the additional tax (Tables 1 and 2). The percentage exported would be around 40%. Because the global real income in the city increases, the expected electoral outcome would be, under plausible assumptions, the approval of the proposal. For example, if the tax revenue were distributed in money among the residents, with no losers, the “Consulta” should always be approved (assuming that the total cost of the Consulta is lower than the amount exported of the tax). When there are winners and losers, despite the increase in the global real income of the city, it is possible that the Consulta may fail. The design and structure of the tax and the distribution of the benefits of the plan of public works are determinants of the electoral outcome.

*(v) Impact on the size of public expenditure*⁸

In this section an exercise of application is presented with numerical results on the size of public expenditure. Basic data related to the number and the fiscal value (rateable value) of the properties and the additional tax for the Mar del Plata 2000 Plan were used (Table 3). The taxpayers are classified into residents, non-residents, and total, in order to exemplify the different models of fiscal decision. A cuasi linear utility function given by

$$U_i = c_i + a_i \ln G \quad (15)$$

is assumed.

If the median voter rule is followed, the levels of the total and per capita public spending (assuming $a_i = P_g = 1$) are

$$G_{\text{median}} = \frac{N}{\left(\frac{V_i^{\text{median}}}{V_{\text{meantota I}}} \right)}$$

⁸ We thank W.Cont who suggested this section.

$$\frac{G_{\text{median}}}{N} = \frac{1}{\left(\frac{V_i^{\text{median}}}{V_{\text{meantotal}}} \right)} \quad (16)$$

The samuelsonian solution is

$$G=N$$

$$\frac{G}{N} = 1 \quad (17)$$

If the rule of the median voter is followed, then the solution for the problem is

$$\frac{G}{N} = \frac{1}{\left(\frac{V_{\text{medianresident}}}{V_{\text{meantotal}}} \right)} \quad (18)$$

Finally, if the local government's welfare function only takes into account the benefits and costs for residents, we obtain ⁹

$$\frac{G}{N} = \frac{1}{\left(\frac{V_{\text{meanresident}}}{V_{\text{meantotal}}} \right)} \quad (19)$$

The ranking of the per capita public spending under different rules of collective decision and different tax structures is presented in Table 4.¹⁰

With a proportional tax the size of the public spending for the resident median voter is 71% higher than the efficient. To apply a regressive tax structure increases the tax-price for the median voter and the size of the public spending is higher than the efficient in 15%. For a

⁹ If the utility for the residents is higher than for non-residents, it is $a_R > a_{NR}$. If the numbers are normalized so that the weighted average is 1, the expression (19) becomes

$$\frac{G}{N} = \frac{1}{\left(\frac{V_{\text{meanresident}}}{V_{\text{meantotal} \cdot a_R}} \right)} \quad (19')$$

¹⁰ In the Table the effects of the transformation of the economic benefits into political ones are not included. Neither are the benefits for residents beyond the consumption benefits of G.

government that only takes into account the benefits and costs for residents, the expenditures could be higher than the efficient from 28% to 34%, depending on the period for which the houses are occupied.

vi) Results of the voting and their determinants

In the referendum the fiscal package put to the vote not only fixed the level and the structure of the tax but also the size of the public spending. In this way the endogenous variable was the electoral outcome. A person i votes YES if the benefit of the public spending to him or her (b_i) is higher than the tax burden (c_i). With the assumption of identical preferences ($a_i = 1$), a person votes YES if the marginal utility of the public good ($1/G_0$) is higher than the tax-price. G_0 is the size fixed by the local government and the tax-price depends on the tax structure. From the numerical exercise in the previous section it is known that, with a proportional tax-rate structure, the median voter demands a level of expenditures significantly higher than the efficient. It is also higher than the level that would be fixed by a government looking only at the benefits and costs for the residents.¹¹ For these sizes of expenditures the percentage of YES-votes applying a proportional tax structure would have been higher than the median.¹²

The relatively high percentage of NO-votes (46%) must be explained. One reason might be the different appropriation of the benefits, with gains for the whole city but with winners and losers at the individual level. As it was said before, this question depends on the design of the plan of public works, which determines the distribution of the benefits across neighborhoods. The plan covered the entire city, but the works were more concentrated in the poorest areas. For the sake of simplification, equal per capita benefits for all the residents are assumed. The explanation for the relatively high percentage of NO-votes could be found in the tax regressivity.¹³ Figures 1 and 2 reveal the tax structure and the tax incidence on the property value. As a result of this tax structure design, 56,4% of the properties paid an additional tax of 6\$ every two months (those properties that paid 30\$ every two months as ordinary tax) -representing 19,8% of the ordinary tax but 49,3% of the additional tax. For residents these percentages are, respectively, 59,7%, 21,1% and 52,2%. For non-residents the percentages are 51,3%, 17,6% and 44,2%. These data are enough to reveal the

¹¹ To the results in Table 4 one should add the effect that the plan of public works and/or the externality from living in a city with better environment could have on the budget constraint of the median voter.

¹² Median voters demand in this case an expenditure 61% / 71% higher than the efficient (Table 4). All the voters with marginal utility between the provided quantity (from a benevolent government or from a government looking only at residents) and that of the relevant median voter are YES-voters.

¹³ The tax-regressivity was put forward for several political groups and neighborhoods. For example the local Union Labor wrote off a statement called "the 12th, YES to the plan of public works; the 13th, equitable taxation" (the 12th refers to the day of the referendum, 5-12-1996).

regressivity of the tax and this regressivity might have decreased the quantity of YES-votes, bringing it to the median. An additional evidence about regressivity arises from considering the additional tax in different neighborhoods and comparing it with the ordinary tax (Table 5).¹⁴ In the three richer neighborhoods the additional tax was equivalent to around 10% of the ordinary tax, with the percentage growing to 62% in the poorest areas. In the following section an econometric analysis is carried out in order to analyze the determinants of the electoral outcome.

vii) Estimations of the determinants of the electoral outcome

To analyze empirically the determinants of the results of the “Consulta Popular”, the city was divided in the neighborhoods defined in the electoral law. The main explanatory variable according to the previous section is the tax-price. We use several control variables -the choice limited for the availability of data. These variables are the economic level of the zone, the kind of occupancy of the properties, the productive structure and the number and sex of the residents. The economic level of the neighborhood is measured through a variable indicating the average level of education (weighted average of years of education at different levels) and the per capita value of the cars (quantity of cars weighted for the average-year-model). It also includes a variable representing the percentage of poor people (the percentage of people with unsatisfied basic needs (UBN) related to the percentage of non-UBN people). Regarding the occupancy of the properties, a variable considering the percentage of non-owner to owners is used. The productive structure is approached by the (per capita) number of commercial and service shops in the neighborhoods.

For the econometric estimation a standard minimum least squares regression was used. The dependant variable is the percentage of YES-votes divided the percentage of NO-votes.

The results of the estimations are reported in Table 6. As expected, the coefficient of average education, variable proxy of income and property value¹⁵, is positive.¹⁶ The richer

¹⁴ The tax regressivity might have had stronger effects than the concentration of the public works in zones IV to VI.

¹⁵ There is conclusive evidence about the positive relationship between education level and labor income. For Argentina (Gran Buenos Aires area) see Gasparini et.al. (2002); for the United States, see Card and Krueger (1996). According to Bahl and Linn (1992), there is no clear consensus on the income-elasticity of demand for housing in developing countries, but there are good a priori arguments that it will not be less than unity. In this paper it is assumed that education (average education in the neighborhood) is a proxy for both income and property value.

¹⁶ The positive sign can also reflect positive income elasticity and better information about the benefits of the proposal for the most educated people.

neighborhoods with lower tax-prices due to the regressivity¹⁷ have more percentage of approval of the Consulta.¹⁸

If the average education were the only determinant of the electoral outcome, the coefficient equal to 0,17 (models (a) and (b) in Table 6) would imply that in a neighborhood with an average education of incomplete primary education (3 years and half) the proposal would have been defeated by 62,5 % of the voters. In the other extreme, in a neighborhood with an average of complete college education, the proposal would have been approved by 75 % of the voters. The relative labor income between these extreme educational levels is 3,7 times (Gasparini et.al, 2002), and the same rank would correspond to property value if the elasticity property value-income were the unity. The tax price would be lower for the group with high value properties in 64% and considering non-labor income this difference would be higher. Consistent with these calculations, in Table 5 the difference is about 84 %.

The coefficient for the relative percentage of people with UBN is not different from zero. This result can be explained as a consequence of two opposite forces: on the one hand, this is the group of people who can benefit more from the job creation of the plan and this argument was put forward when the proposal was being sold to the people. But, on the other hand, it is the group that was relatively more hurt by the regressivity. The characteristic of the occupancy of the properties (owners, tenants, free occupants) is significant. In the neighborhoods with more people not legally obliged to pay for the tax, the YES answer got a higher percentage of votes. This would indicate that, in the short run at least, the tax was not shifted to the rental payments or to the persons who were living in the houses for free (free rent). The relative quantity of commercial and service shops was expected to have a positive impact on the YES-votes. The explanation of this is that if the public works attract more tourists, the benefits could be higher for its neighborhoods. The coefficient was not significant. The composition by sex did not influence the electoral outcome despite the expectation that due to employment opportunities, the neighborhoods with higher proportion of men would have more YES-votes.

The participation of residents in the Consulta was not obligatory. The percentage of residents who voted was around 48% of the residents that were legally able to vote. Because the

¹⁷ The net benefit is higher (lower) in the richest neighborhoods because the size of the public spending is fixed (G_0) and everyone obtains the same marginal utility ($1/G_0$), but for the properties of higher value the tax-price is lower (higher). With a proportional tax-rate structure the tax-price is V_i/V -an increasing function of V_i ($\partial(V_i/V)/\partial V_i = 1/V > 0$). With a regressive tax-rate structure the tax-price is a/V_i where a is a constant defined in a way that $\sum a/V_i = 1$. This tax-price decreases with V_i ($\partial(a/V_i)/\partial V_i = -a/V_i^2 < 0$).

¹⁸ The same sign was obtained for the average per capita value of the cars in the neighborhood, as proxy of income and property value, but the level of significance was lower.

percentage of voters varied significantly among neighborhoods, it was included as independent variable in model (d); the coefficient is not significant and this result constitutes evidence for the fact that the variability of voters by neighborhood did not have an influence on the electoral outcome. To further investigate the problem of selection bias in the sample, Heckman's procedure was used. Due to the lack of microdata to investigate this aspect in detail, it was assumed that in those neighborhoods where the percentage of residents who voted No was higher than a standard deviation there could exist bias selection. The results of the regression can be found in column (e) in the Table; the coefficients, signs and significance of the explanatory variables are similar to those in columns (c) and (d).

IV. Final comments

Tax exporting is a process by which a locality (e.g. a municipality) shifts the tax burden to nonresidents. The effects of tax exporting over the decisions of a local government (tax structure and the level of public spending) depend on how the benefits of the expenditures are affected, and on the relative cost of taxing exportable vs. domestic goods.

In this paper only one taxable good (real property) is considered. The owners who paid for the tax may reside in the locality or not. The tax paid by nonresidents is exported to other jurisdictions. Several models of fiscal decision are presented and the possibility that tax exportation affects the level of public spending is analyzed. In the median voter and in the benevolent local government models there is tax-exporting but the size of public spending is not modified. Tax exporting may influence the public spending size when the decision-maker only takes into account the residents or when it changes the identity of the median voter.

In the "Mar del Plata 2000 proposal" the percentage of tax-exporting would reach 40%. There is evidence of a local government considering only benefits and costs for residents. The collective decision rule permitted that only residents could vote.

In a numerical analysis, using explicit cuasi-linear utility functions and the data of Mar del Plata city, the size of the public expenditure was calculated under different rules of collective decision and different tax-rate structures. Had a proportional tax-rate structure been applied to the value of the properties -similar to the property tax the municipalities apply in order to finance their ordinary budgets-, the ranking of the size of public spending would have been the following: the highest size for the resident median voter, then the median voter in the total population, then that arising from a rule in which only residents account for both benefits and costs, and finally the efficient (Samuelsonian) size. The size for the resident median voter is

over 70% higher than the efficient one. The choice of a regressive tax-rate structure increased the tax price for the median voters and in this way decreased the size of the project -although it remained 15% higher than the efficient one.

The “Mar del Plata 2000” contains a more complex proposal than that of the numerical analysis because the fiscal package put to the vote fixed not only the tax-rate structure but also the size of the public spending. In this context, the endogenous variable is the electoral outcome. Assuming a size for the public spending equal to or lower than the efficient, then the percentage of the YES-votes under a proportional tax-rate structure would be higher than the median. It is hypothesized that the regressive tax-rate structure decreased the amount of YES-votes and moved it near to the median. A standard regression was run to test the determinants of the voters’ choices in the referendum using data from almost seventy neighborhoods in the city. The estimated coefficients have the expected sign and are statistically significant. The more wealthy neighborhoods had more YES-votes indicating a lower tax-price due to tax-regressivity. The percentage of YES-votes increases with the number of tenants in the neighborhood -they can vote but, at least in the short run, they do not pay for the tax. The poorest people could, on the one hand, be hurt by the tax-regressivity but, on the other hand, could be benefited by job creation -as it was put forward when the proposal was sold to the people; the coefficient is not significant indicating the probable compensation of these two opposite effects.

Finally, some comments about using the “Consulta Popular” for fiscal choices at the local level follow. The rule for collective decision is of importance in the problem of tax exporting. The issues of local employment and local level of economic activity are not out of concern of these units of government. The design of the tax rate structure is a determinant of the electoral outcome. An interesting question in the Mar del Plata 2000 Plan is why the Mayor of the Municipality, who had won the election a few months before, put the fiscal package to the vote instead of passing it in the ordinary way fixed in the Provincial Constitution and in the Provincial Law of Municipalities. The point of the Mayor might have been that he did not want to violate the commitment assumed with the population about increasing taxes. Perhaps another reason could be that certain interest groups found in the “Consulta Popular” a way to pass their proposal of public spending and its financing. This is an open question not investigated in the paper (for the foundations of the popular initiative, see Besley and Coate, 2000). A good news with the Mar del Plata 2000 referendum was that, in a country accustomed to predatory governments, a door was open for the direct participation of the people. The benefits of the political participation (one of the values in the organization of the public sector) can be divided into three categories: instrumental, to ensure that the

government maximizes aggregated welfare; educational, for individuals to learn that their private interests are linked to the interests of others; and direct consumption benefits for those who participate (Inman and Rubinfeld, 1997; Frey, 1997). The “Consulta Popular” was good despite its wrong design in several aspects (especially regarding who was allowed vote and the tax-rate structure -among others). Some suggestions to improve the mechanism arise from the results of this paper. About the fiscal decision rule, restricting the possibility of voting only to residents was a poor decision, especially considering that changing the identity of the median voter would not affect the electoral outcome significantly. About the tax-rate structure it was one of the most debatable factors and one that determines the result. Finally, a negative aspect is that the additional tax implemented through the referendum was recently transformed into a permanent tax, this time without voting, in violation of the original commitment.

Table 1

Tax structure			
Voted tax	Number of properties	Semimonthly tax revenue of pre-existing (ordinary) tax (U\$S)	Additional semimonthly tax revenue of voted tax (U\$S)
Residents			
Semimonthly payment U\$S 6	132,090	1,763,471	792,540
Semimonthly payment U\$S 8	89,324	6,595,567	714,592
Total	221,414	8,359,038	1,507,132
Non-residents			
Semimonthly payment U\$S 6	71,588	812,290	429,528
Semimonthly payment U\$S 8	67,894	3,812,810	543,152
Total	139,482	4,625,100	972,680
Total			
Semimonthly payment U\$S 6	203,678	2,575,761	1,222,068
Semimonthly payment U\$S 8	157,218	10,408,377	1,257,744
Total	360,896	12,984,138	2,479,812

Source: Based on data from General Pueyrredón Municipality (1996).

Table 2

Tax structure Percentages			
Voted tax	Number of properties	Semimonthly tax revenue of pre-existing (ordinary) tax	Additional semimonthly tax revenue of voted tax
Residents			
Semimonthly payment U\$S 6	36.6	13.5	31.9
Semimonthly payment U\$S 8	24.7	50.8	28.8
Total	61.3	64.3	60.7
Non-residents			
Semimonthly payment U\$S 6	19.8	6.2	17.3
Semimonthly payment U\$S 8	18.8	29.3	21.9
Total	38.6	35.6	39.2
Total			
Semimonthly payment U\$S 6	56.4	19.8	49.2
Semimonthly payment U\$S 8	43.5	80.1	50.7
Total	100.0	100.0	100.0

Source: Based on data from General Pueyrredón Municipality (1996).

Table 3

Mean and median of the distributions*			
	Residents' properties	Non-residents' properties	Total
Pre-existing (ordinary) tax			
Total number of properties	221,414	139,482	360,896
Total revenue (U\$S)	8,974,930	5,037,280	14,012,210
Mean (U\$S)	40.53	36.11	38.83
Median (U\$S)	22.65	28.25	24.05
Voted tax			
Total number of properties	221,414	139,482	360,896
Total revenue (U\$S)	1,507,132	972,680	2,479,812
Mean (U\$S)	6.81	6.97	6.87
Median (U\$S)	6.00	6.00	6.00

* See Figures 3 to 5

Source: Based on data from General Pueyrredón Municipality (1996).

Table 4

Size of the per capita public spending under different rules of fiscal decision and different tax structures		
Rule of collective decision	Per capita public spending with proportional tax-rates (pre-existing (ordinary) tax)	Per capita public spending with regressive tax-rates (voted tax)
Median resident	1.7144	1.1450
Median total	1.6145	1.1450
Benefits and costs for residents*	0.9580 a 1.2821	1.0088 a 1.3417
Benefits and costs for residents and non-residents (Samuelson)	1	1

* The lower values correspond to $a_R = a_{NR} = 1$ (expression (19)); the higher values correspond to $a_R > a_{NR}$ ($a_R = 1.5$; $a_{NR} = 0.25$); assuming that the utility depends on the period of occupancy of the houses. E.g. if NR people occupy the houses for two months and R people for all the year, we have $a_R / a_{NR} = 6$.

Source: Based on Table 3

Table 5

Average tax (pre-existing and voted) per neighborhood*			
Neighborhoods	Average pre-existing (ordinary) tax (1)	Average voted tax (2)	(2)/(1)*100
I	75.70	7.53	9.90
II	66.80	7.66	11.50
III	57.00	7.46	13.10
IV	36.10	6.81	18.90
V	24.60	6.40	26.00
VI	9.78	6.04	61.80
Mean	45.00	6.98	23.53
Standard deviation	25.68	0.67	19.65

* Correspond to the first payment in the year 2000 for residents.

Source: Based on data from General Pueyrredón Municipality (2001).

Table 6

Explanatory variables	Dependant variable: percentage YES/percentage NO				
	(a)	(b)	(c)	(d)	(e)
AE	0.17 (1.78)***	0.17 (1.72)***	0.20 (1.99)**	0.21 (1.76)***	0.21 (1.91)**
UBN	0.05 (0.20)	0.02 (0.10)	0.05 (0.19)	-0.003 (-0.012)	-0.10 (-0.45)
NO-O	0.56 (2.90)*	0.61 (2.92)*	0.85 (3.19)*	0.71 (2.38)**	0.98 (3.04)*
Population		-2.51e-06 (-0.69)	-8.88e-07 (-0.19)	-1.47e-07 (-0.30)	-2.50e-06 (-0.48)
MW			-0.23 (-1.40)	-0.23 (1.29)	-0.34 (-0.52)
CSp			-3.37 (-1.17)	-2.89 (-0.89)	-4.00 (-1.06)
V				0.19 (0.14)	
Constant	0.69 (3.83)*	0.70 (3.85)*	0.86 (3.82)*	0.89 (3.60)*	0.91 (1.36)
Selection					
AE					0.18 (0.17)
UBN					
NO-O					1.64 (0.46)
Population					-5.19e-05 (-1.58)
MW					-2.60 (-1.40)
CSp					-2.97 (-0.09)
Constant					3.11 (1.60)
Number of observations	66	66	66	61	61
R ² adjusted	0.19	0.18	0.19	0.15	
Chi ²					24.21
Log Lik					-5.29
Rho					0.96
Sigma					0.20
Lambda					0.20

t test between parenthesis in regressions (a) to (d) (* 1 % significance; ** 5 % significance; *** 10 % significance); z test in regression (e)

Description of variables and data sources

Dependant variable

Percentage of YES votes/percentage of NO votes.

Source: Newspapers "La Capital" and "El Atlántico", Mar del Plata, 1996.

Independent variables

AE: average education: weighted average of years of education at different levels

UBN: unsatisfied basic needs: percentage of population with unsatisfied basic needs/ percentage of population without unsatisfied basic needs

NO-O: no-owners: percentage of renters and free occupants/percentage of people living in their own properties

MW: percentage of men/percentage of woman

CSp: number of commercial and service shops/population

V: number of voters/population legally able to vote

Source: Basic data from the Municipality of General Pueyrredón.

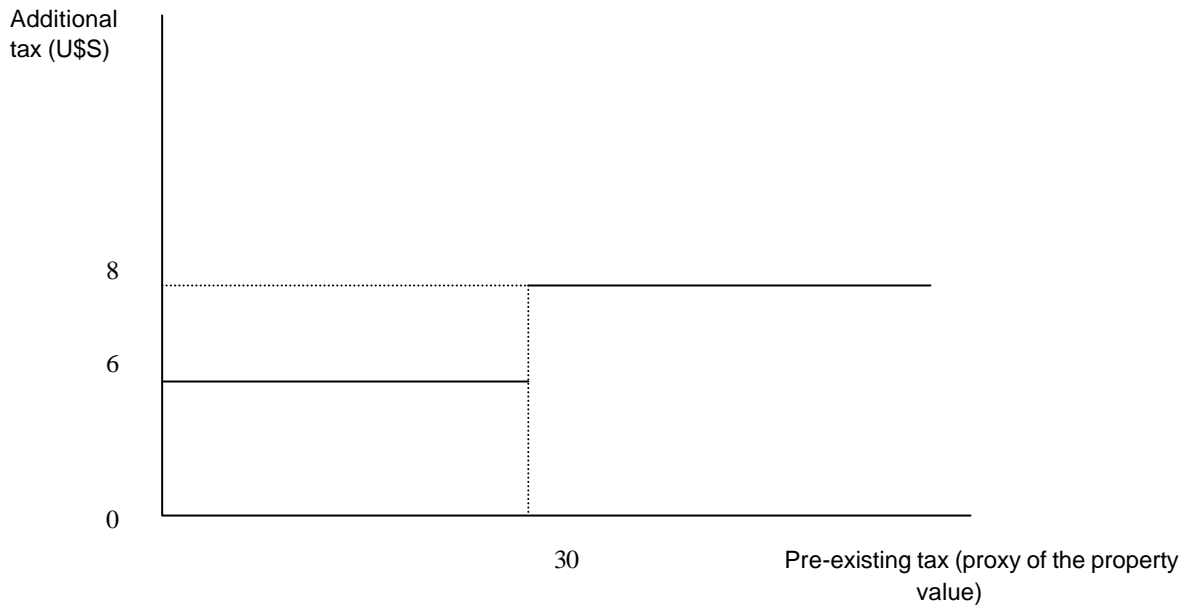


Figure 1
Structure of the additional tax
(semimonthly payment - US\$)

Figure 2
Incidence of the additional tax on property value

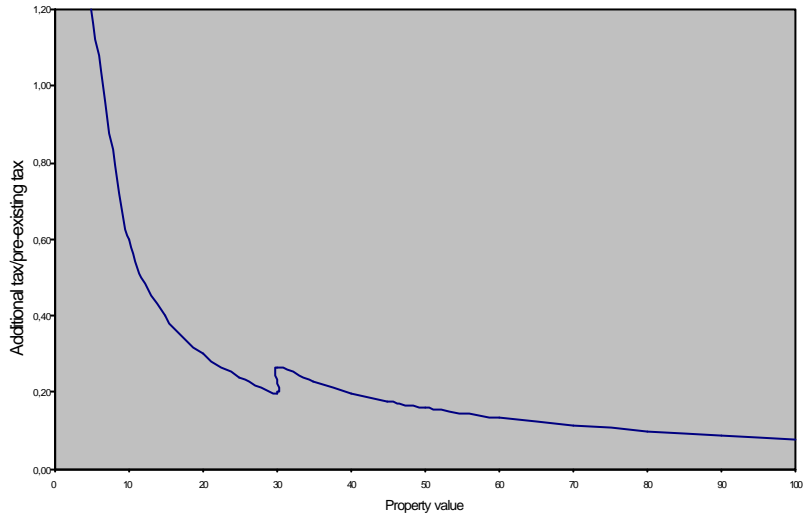


Figure 3
Taxation on residents
Frequency distribution of the value of residents' properties

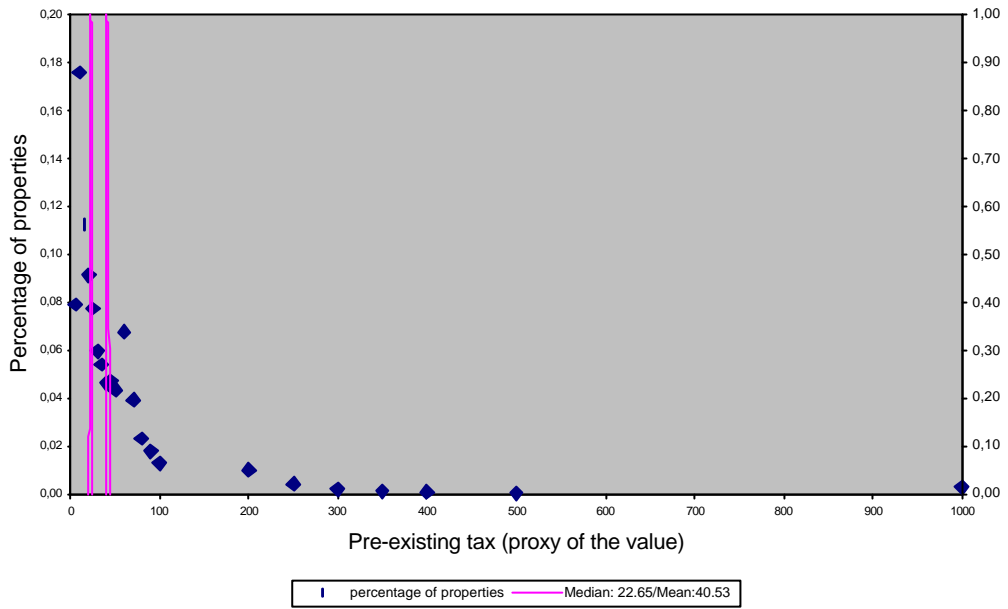


Figure 4
Taxation on non-residents
Frequency distribution of the value of non-residents' properties

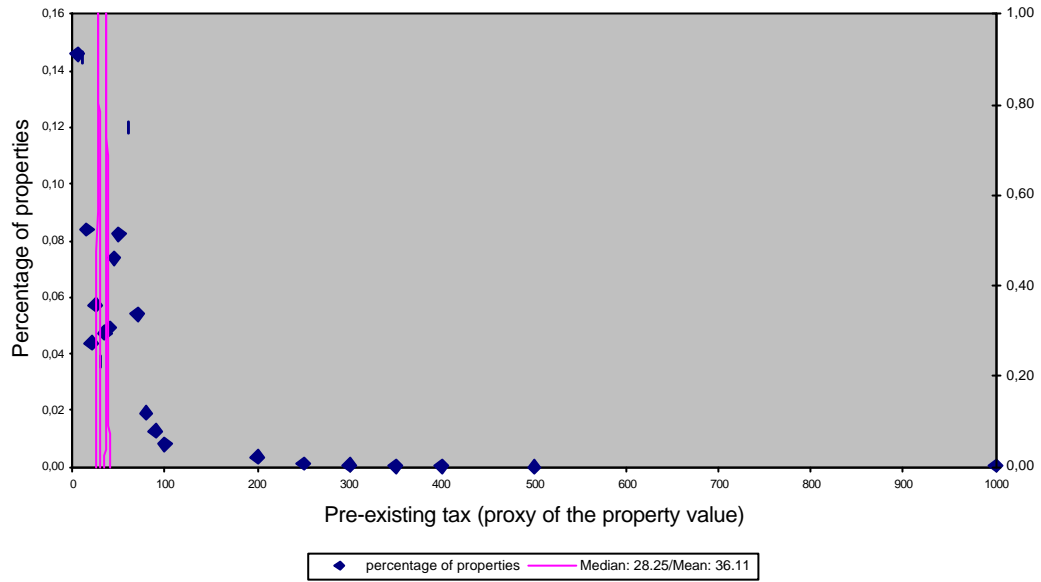
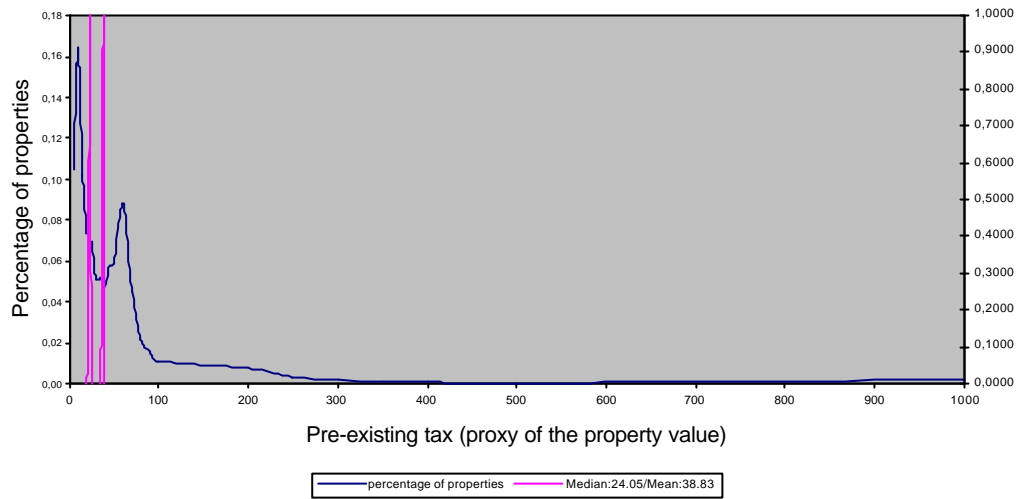


Figure 5
Total taxation (residents and non-residents)
Frequency distribution of the value of total (residents and non-residents) properties



Appendix

Cuasi-optimal tax-rates on goods

Several models of taxation lead to the same formal expressions for the cuasi-optimal tax-rate structure on goods. Be q_i the consumers' prices, p_i the producers' prices and $t_i = q_i - p_i$ the tax on the good i . It is assumed independent demands and no income effects. To minimize the excess burden, the tax-rates as percentage of the final price are given by

$$\tau_i = (\mu - \lambda / \mu) (1/\eta_i) \quad i = 1, \dots, n \quad (A1)$$

where μ is the marginal cost of the public funds in terms of utility, λ is the marginal utility of the private income and η_i is the price-elasticity of demand. Expressions (A1) are the Ramsey rule.

For an exportable good and a politician considering only the cost for residents, the expressions are

$$\tau_i^{\cdot} = (\mu - \lambda \theta_{ir} / \mu) (1/\eta_i) \quad i = 1, \dots, n \quad (A2)$$

where θ_{ir} is the share of domestic consumption (Gordon, 1983; Wildasin, 1987). The higher the tax exportation (lower θ_{ir}), the higher the tax-rate. Hettich and Winner (1984) develop a model in which the tax-rate structure arises from the minimization the political cost of taxation in terms of lost votes. Tax exportation decreases the political cost and determines that the taxes on exportable goods have an important share in total tax revenue. The expressions for the tax-rates are

$$\tau_i^{\cdot\cdot} = (\mu - k_i / \mu) (1/\eta_i) \quad i = 1, \dots, n \quad (A3)$$

where k_i is the marginal cost of the public revenue in terms of lost votes. The higher the k_i , the higher the political cost. And this political cost is decreasing with the exportation of the tax.

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