Are national transfers crowding out provincial tax revenues in Argentina?

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ARE NATIONAL TRANSFERS CROWDING OUT PROVINCIAL TAX REVENUES IN ARGENTINA?

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RESUMEN

La literatura se enfocó recientemente en los incentivos fiscales débiles originados en arreglos interjurisdiccionales que causaban la contracción de recursos coparticipados ante incrementos de la recaudación subnacional propia y que debilitaban el federalismo fiscal. Es interesante verificar hipótesis similares en el caso argentino, dado la incidencia que las transferencias discrecionales tomaron en los presupuestos provinciales y el amesetamiento de la recaudación provincial propia. El análisis realizado mediante un modelo de datos de panel arrojó evidencias de efectos crowding out de menor magnitud a la esperada, aún cuando a la pérdida de autonomía fiscal se suman otros costos de las transferencias discrecionales; entre ellos, una mayor dependencia provincial respecto del gobierno central

Palabras claves; Financiación presupuestaria provincial, incentivos fiscales, autonomía financiera, transferencias nacionales, crowding-out, gastos provinciales.

Clasificación JEL: H77

ABSTRACT

Recent papers focused on the problem of weak fiscal incentives arising from imperfect interjurisdictonal arrangements which in turn distorted the fiscal federal scenario, as shared revenues dwindled following a subnational tax collection´s improvement. Verification of similar hypotheses gathers interest in Argentina, given both discretionary transfers´ incidence in provincial budgets and the stagnation shown by provincial tax collections. The econometric analysis carried out with a panel data model yielded evidences of crowding out effects whose magnitude was smaller than expected; nevertheless, other costs should be added to financial autonomy loss due to discretionary transfers, as for instance a greater provincial dependency from the central government.

Key words: provinces´ budgetary financing, fiscal incentives, financial autonomy, national transfers, crowding-out, provincial expenditures.

JEL Classification: H77

1. INTRODUCTION

The structure of interjurisdictional fiscal relations prevailing in Argentina rests on the so called revenue sharing system whereby main taxes (as for instance taxes on value added, excise, income and current account credits and debits) are collected by the central government and the net yield[1] is later subject to a double rule distribution; the so called primary distribution between the national government and the provincial level (42.34% and 56.66% respectively) and a secondary distribution which takes place among all provinces also according to set fixed coefficients[2]. There is also a second set of taxes that is also subject to rule distribution, the most representative one being the tax on petrol and natural gas whose yield is allocated as follows: 21% to the Pension System, 22.91% to the central government level, 22.91% to the provinces and 33.18% also to the subnational level under the form of an earmarked transfer to provincial housing funds[3]. Royalties to provinces in compensation for the extraction of natural resources (oil, gas and minerals) and current and capital transfers from the central government to provinces complete the scheme of fiscal relations linking national and subnational government levels[4].

A worth emphasizing feature is, in this regard, the marked switch from transfers subject to rule to discretionary transfers experienced by the subnational level´s fiscal finance in the course of the last two decades; according to statistical information supplied by official sources[5] revenue shared transfers, that averaged 50.6% of all provincial incomes in the years 1993-2001, fell to 47.2% in the period 2002-2012. Conversely, discretionary current and capital transfers, whose participation was relatively minor in the first period (3.2% and 0.7% respectively), abruptly climbed to an average of 7% and 4.1% during the second one. The increase of discretionary transfers, both in absolute and relative terms, seems also to accompany the deterioration of the relative participation of provinces´ own fiscal resources as their original average participation of 34% dwindled lately to 31.7%.

The situation depicted in the preceding paragraph calls for policy makers to carefully analyze its negative consequences upon the strength of the federal finances[6] scheme constitutionally framing fiscal relations between different government levels. A first worth highlighting feature is the marked switch from rule-based national transfers, towards discretionary transfers that took place at the subnational level in the course of the two last decades. According to statistical information from official sources[7] revenue shared transfers, that averaged 50.6% of overall provincial incomes in 1993-2001, felt to 47% in 2002-2012; conversely, the percent share of discretionary current and capital transfers

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[1] Net yield (or masa coparticipable neta) results from taxes´ gross yield from which a number of predetermined transfers (mainly directed to the PAYG Pension System and to the Treasury´s Contribution Fund) are detracted.

[2] The Law 23548, enacted in 1988, determined these fixed coefficients that rule the secondary distribution ever since despite the fact that the 1994 constitutional reform mandated that a new revenue sharing regime should be in place not later than 31 December 1996.

[3] There are also other earmarked transfers, mainly out of taxes on wholesale and retail energy markets operations, directed to national and provincial energy funds

[4] There is also a subnational revenue sharing scheme enacted and managed by provinces whereby the latter make transfers to municipalities in their jurisdiction.

[5] National Fiscal Office for Coordination with Provinces, Ministry of Economy, Argentina.

[6] Term coined by the Canadian economist Richard Bird.

[7] National Fiscal Office for Coordination with Provinces, the Treasury, Ministry of Economy.

rose abruptly from 3.2% and 0.7% respectively –in the first mentioned period- to 7% and 4.1% during the second period. The mentioned relative increase of discretionary transfers may at least suggest that provinces can now be more subject to the revenue inflows from the central government responding to factors other than their actual fiscal or socioeconomic convenience, which will be the case if string attached transfers force the political alignment of provincial governments with the upper level´s interest or policies.

Figures also show that the setback experienced by rule-based transfers was also accompanied by that of provinces´ own tax yields; with regards to this, the 7 percent points fall in average participation of provincial taxes in overall provincial revenues may be seen as the result of crowding-out effects[8] exerted by discretionary transfers upon provincial tax revenues, as provinces may find less costly –in political terms- to strive for additional national transfers instead of deepening their own tax sources. Let it be noticed that if provincial tax revenues are actually being crowded-out by discretionary transfers the consequences will be far from being negligible: the more own tax resources accrue to provincial budgets the higher financial autonomy will be and this will assumedly make provincial governments more accountable towards their taxpayer which, on accounts of a higher tax pressure, will demand not only more but also better public expenditures. In the same way as a higher financial autonomy may be conducive to better public goods, a higher dependence on discretionary fiscal transfers may reduce accountability and induce excessive spending in certain items (as for instance public employment) that will not necessarily favour subnational economic growth and social development[9].

As shown by the recent literature, the likelihood of crowding-out among revenues from different government levels has somehow received analytical and empirical consideration by several specialists, as was the contribution by E. Zhuravskaya (2000) that will be reviewed in the next section; this author studied the cases of Russia and China and arrived at the conclusion that the fiscal federalism arrangements in the former country were not conducive to growth and business enhancement and to efficiency in the provision of public goods, contrariwise to what the Chinese performance so far showed. In looking for reasons, Zhuravskaya found that Russian federal-regional/regional-local revenue sharing arrangements were not stable but frequently renegotiated for what subnational governments´ access to intergovernmental transfers heavily depended on the distribution of bargaining power; a damaging consequence of that was that overall budget funds –at the local level- were independent of their efforts to raise additional own revenues as the upper level exactly crowded-out (by diminishing the amount of transfers) marginal increases of local governments´ own tax yields. The opposite situation was the one reflected by the Chinese experience since long term revenue sharing rules stand as the generalized practice, most of transfers to local levels respond to a fixed formula and the decentralized feature of a substantial part of local governments´ revenues are not subject

[8] Specialists in Fiscal Federalism may reasonably argue that larger amount of per capita transfers to subnational governments with lower per capita tax potential may be regarded as a natural response of normative approaches of fiscal federalism seeking to fill the gap and promote equalization. Nevertheless, the hypothesis of crowding-out resorted to in this paper stems from important contributions in the Literature and is also subject to proof in the econometric section.

[9] A curious feature to be stressed in the econometric section is the positive relationship between capital transfers and provincial economic and social expenditures. This makes one wonder whether actual provincial (i.e., infrastructure provision, hospitals, schools, housing, etc.) are not falling short of required ones.

to revenue sharing what secures them from predatory taxation (crowding-out of resources) on the part of the upper level of government.

In pursuing the preceding thread of arguments the main purpose of the paper is to ascertain, on the basis of the available statistical information and using the panel data model econometric framework, whether negative crowding out effects of national fiscal transfers upon Argentine provinces´ own fiscal revenues can actually be verified. Should the latter been proven true, a second objective will consist in analyzing if the subnational government level´s loss of financial autonomy caused an impact on provinces´ pattern of public spending; finally, the provincial allocation of public spending among categories will be resorted to in order to assess their possible contribution to financial autonomy.

The paper is organized as follows: In Section 2, a brief survey of the literature is carried out, particularly of the Zhuravskaya´s paper (2000) that highlighted the possibility of crowding out between different levels´ tax yields; in section 3, the presentation of stylized facts is aimed at showing the main features and pattern of transfers and subnational tax yields and public spending in Argentina; in Section 4, a panel data model using fiscal data for the period 2003-2012, corresponding to the Argentine provinces, is resorted to in order to assess the impact of central government´s ruled-based and discretionary transfers upon the collection of provinces´ own tax revenues; section 5 concludes.

2. A BRIEF SURVEY OF THE RECENT LITERATURE

As mentioned in the preceding section, the possibility of a negative impact upon subnational governments´ own revenues and public spending allocation, stemming from unsuitable inter jurisdictional fiscal arrangements, has been empirically studied by various specialists in fiscal federalism as for instance. In this connection, the paper by Qian and Weingast (1997) was one of the first in dealing with this matter by pointing it out that, somehow similarly to explanations found by new theories of the firm for managers to align their interest with those of shareholders´ interests, the second generation economic theory of federalism shed light on why would political officials commit to efficiently providing public goods and preserving market incentives: in parallel to arguments of the theory of the firm Qian and Weingast suggested that features of federalism such as decentralization of information and authority and inter jurisdictional competition (particularly induce competition among local jurisdictions) would provide more credible governments´ commitment to secure citizens´ economic rights and preserve markets; with regards to the first feature, appropriate decentralization of information and authority might be conducive not only to establishing positive economic incentives and to limiting the ´state predation problem´[10] but also to reduce the possibility of occurrence of the soft budget constraint problem whereby governments may be also tempted to bail out failed projects or to go ahead with costly and inefficient public spending programs[11]. Qian and Weingast also

[10] North (1990) pointed out that the ´state predation´ problem arises if individuals have no incentives to take risks and make efforts today because they feel that governments will be tempted to take away from them too much income and wealth generated by their future success.

[11] As E. Zhuravskaya, Qian and Weingast also refer to modern China as a worth mentioning example of the economic benefits of federalism , particularly by encouraging devolution of authority from the central to local governments which count with ´extra budget´ () and ´off budget´ revenues ()together with the

argued that competition among jurisdictions also have incentive effects by favoring the endogenous emergence of harder budget constraints for lower government levels; in authors´ words "in federal systems, the mobility of resources across regions raised the opportunity costs to local governments engaged in wasteful public expenditures for what a jurisdiction consistently making inefficient expenditures would find harder to attract mobile resources[12]

The paper by Zhuravskaya (2000), reviewed in this Section, focuses on the Russian and Chinese experiences as respectively representatives of ´market-preserving federalism´[13] and ´market-hampering federalism´[14]. Based on the contributions by Knight and Li (1999), Montinola et al (1995), Lavrov (1996), Qian and Weingast (1996, 1997), Shleifer (1997) Treisman (1996a, 1996b, 1997) and Wong (1997) Zhuravskaya made a thorough institutional and econometric analysis of inter jurisdictional fiscal arrangements in both the mentioned countries and arrived to the conclusion that the form these were drawn explained why the performance of Russian local governments felt short of that of the Chinese ones, in terms of incentives to business growth and better public goods provision. In order to illustrate the situation, the author quotes Treiman´s assertion that the distribution of federal transfers in the Russian federal scenario is based on political bargaining with no consideration of local levels´ economic objectives; in the same line, Lavrov argued that Russian regional governments´ disproportionate high control of resources causes vertical unbalances to come about due to the uneven distribution of resources vis-à-vis local governments´ spending responsibilities. In sum, and as mentioned in the Introduction, Zhuravskaya suggests that a frequent negotiation of shared revenues, a local governments´s availability of resources depending on their bargaining power and not in fixed formulae fatally drives to lower government levels having weak fiscal incentives.

In order to illustrate how the strength of government fiscal incentives affects public goods provision or promote business growth at the local level, E. Zhuravskaya resorts to the simple model depicted by (1) whose maximization is a problem to be faced by local authorities:

1) Max c P + B + S subject to P + S ≤ SHARED REV + OWN REV

where P and B respectively stand for the levels of public goods provision and regulation of private business chosen by local levels and S is the amount of public revenues diverted for personal ends (corruption). Let it be noticed that as by assumption the political benefit for local authorities of providing public goods (c) lies between 0 and 1, the model shows that local authorities count with incentives to raise regulations (B) in so far as this is conducive to enhancing their likely private benefits (bribes). While the maximization problem in (1) includes the constraint that total budgetary revenues limits the amount local authorities can use for public goods provision or privately divert, expressions (2) and (3) respectively denote the components of own and shared budgetary revenues:

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responsibility of supplying local public goods. At the same time, upper government levels find not advisable to prey on local fiscal resources as they expect these to be used for the provision of local public goods.

[12] Qian and Weingast (1997, pp. 88-89).

[13] The paper by Quian and Weingast (1997) refers to the concept and also supplies an extensive literature on this theory.

[14] Term coined by E. Zhuravskaya (2000).

2) *OWN REV = $\bar{W}$ + g(P)y(B) for g´ > 0 and y´ < 0.*

3) *SHARED REV = $\bar{T}$ + α [g(P)y(B)] for - 1 ≤ α ≤ 0*

As indicated by the expression (2) local levels´ own revenues include, apart from the fixed component $\bar{W}$, a second term indicating that while the provision of public goods favors business growth and enhances local revenues, the increased level of regulation causes the opposite effect. The distinctive feature introduced by Zhuravskaya´s model, and shown in equation (3), is that shared revenues relate to own local revenues through the parameter α accounting for the strength of fiscal incentives; that is, if α equals – 1 the latter are very weak and any increase in local revenues will be completely offset (crowded-out) by a negative change in shared revenues, contrariwise to when α = 0 in which case increases in local own tax collection turns into an equivalent change in local total revenues.

By making the corresponding substitutions, the maximization problem stated in (1) results in the following expression (4):

4) *Max c P + B + S subject to P + S ≤ $\bar{T}$ + $\bar{W}$ + (1 + α) [g(P)y(B)]*[15]

The author points out, that, the solutions to the model developed from (1) through (4) P*, B* and S* can be used to show the impact of fiscal incentives upon local authorities´ decision, as illustrated by the ensuing three propositions in which the former two respectively indicate that stronger fiscal incentives respectively lead to more public goods provision and lower regulation levels while the latter states that if two local governments with equal budget but with fiscal incentives of different strength are compared the corruption level will likely be higher where fiscal incentives are lower:

$$\frac{dP^*}{d\alpha} > 0, \qquad \frac{dB^*}{d\alpha} < 0, \quad for\ all\ \alpha \qquad and\ \frac{dS^*}{d\alpha}\Big|_{d[\bar{T}+\bar{W}]=-d[(1+\alpha)g^*y^*]} < 0$$

E. Zhuravskaya proves the argument that local fiscal incentives are very weak in Russia, and that any marginal improvement in cities´ tax collections is subject to an immediate crowding out by the upper level (in this case the regional governments); this is done through the regression of equation (5), by setting a value of -1 for the coefficient of the variable standing for increases in local governments´ own tax collection[16] (null hypothesis). According to the author, the alternative hypothesis[17] is more akin to the Chinese ´market-preserving federalism´ case in which the degree of crowding out is minor and fiscal incentives stronger.

[15] E. Zhuravskaya points out that evidence suggest that (1 + α) is likely to be significantly greater than 0 in China, while her estimates for Russia yield a close to 0 value for (1+ α).

[16] This would be the case if the upper level compensated the local tax collection increase by curtailing an equal amount of shared taxes and other transfers to cities.

[17] An α close to 0 amounts to saying that shared revenues are determined independently of shifts in own revenues.

5) $\Delta\,[\text{shared revenues}]_{lt} = \alpha\,\Delta\,[\text{own revenues}]_{it} + \eta\,[\text{population}]_{it} + [\text{city effect}]_{t} + \zeta\,[\text{year dummy}]_{t} + \varepsilon_{it}$

H_0: $\alpha = -1$; H_a: α close to 0.

´Shared revenues´, in equation (5)[18], embodies not only cities´ actual revenues from federal and regional shared taxes but also other actual regional transfers accruing to local governments. The endogenous variable is also made a function of population, city effect and a year dummy variable. While the inclusion of population is meant to control whether the relation between shared and own revenues depend on the city size, city specific effects in the regression equation serve the purpose of ascertaining if unobservable city-specific, time-invariant differences across cities affect the dependent variable; next, year dummies are included in the equation in order to verify whether systematic changes in all cities´ shared revenues take place in a particular year. Finally, a comment is in order regarding the coefficient α which will represent, due to the fact that equation (5) does not include an intercept and that the sum of city effects is constrained to be 0, the crowing out of own revenues by shared revenues.

Equation (6) is in turn introduced in order to proof the hypothesis that stronger fiscal incentives, represented by a positive δ, also lead to a more efficient provision of public goods by local governments[19]. As presented above, strong fiscal incentives in this context mean that the structure of inter-governmental relations permits local governments to foster business and economic growth and to enhance the quality of provided public goods[20], For the measurement of the dependent variable ´outcome of public goods provision´, the author resorts to two indicators: the rate of infant mortality and the share of children forced to attend school (in Russia) in the evening due to overcrowded schools[21]

6) $[\text{outcome of public goods provision}]_{lt} = \delta\,[\text{incentives proxy}]_{it} + \kappa\,[\text{population}]_{it} + \omega\,[\ln(\text{total pc spending})]_{it} + [\text{city effect}]_{t} + \zeta\,[\text{year dummy}]_{t} + \varepsilon_{it}$

H_0: $\delta > 0$; H_a: $\delta \leq 0$.

[18] In Equation (5) Δ stands for the variable´s annual change, I and t respectively stand for the city and the year subscripts and ε is the error term.

[19] Obviously, the alternative hypothesis $\delta \leq 0$ will mean that local governments face scenarios of weak fiscal incentives.

[20] E. Zhuravskaya also pointed out that strong fiscal incentives exist when local governments have the possibility of benefitting from increases in their own taxes.

[21] Needless to emphasize, given that health care and education are the two most important items for Russian local governments, lower values for both the mentioned rates will be taken as the consequence of negative δ o smaller values for ω.

Apart from population, city effect and the year dummy, already defined in equation (5), two other exogenous variables are introduced in the above equation (6): the ´incentives proxy´ to which E. Zhuravskaya assigns a value of 0 if shared and own revenues hold opposite signs and 1 otherwise[22] and the of total of local per capita budgetary expenditures on Education and Health Care, which the author instrumented with the regional ratio of industrial and agricultural output in order to rule out the possibility of correlation with components of the error term.

Finally, and in line with the original interest of the author of proving that Russian intergovernmental fiscal arrangements are more prone to result in what she calls a ´market-hampering federalism´, equation (7) is introduced in which the endogenous variable ´Δ number of business´ is highly and particularly dependent on the strength of fiscal incentives, represented by the exogenous variable ´incentives proxy´ already defined.

$$7)\quad \Delta\,[\text{number of business}]_{lt} = \theta\,[\text{incentives proxy}]_{it} + \lambda\,[\text{population}]_{it} + \chi\,[\ln(\text{total pc spending})]_{it} + [\text{city effect}]_{t} + \zeta\,[\text{year dummy}]_{t} + \varepsilon_{it}$$

$$H_0: \theta > 0;\ H_a: \theta \leq 0.$$

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3. A COMMENT ON THE STYLIZED FACTS

3.1. THE PERFORMANCE OF OVERALL PROVINCIAL REVENUES

The Argentine provinces defray their public expenditure with revenues both from provincial and national sources widely falling into two categories: tax and non tax revenues. As shown by Table 1, with figures for 2012, the former category, made up of provincial and national tax resources, is the major one followed by the so called non tax revenues (mainly oil and mining royalties) and current and capital transfers from the central government. It is also worth pointing out that national tax revenues traditionally constitute the subnational level´s main financing source embodying ruled-based unconditioned transfers (revenue sharing[23]) as well as earmarked rule-based grants[24].

[22] An incentives proxy equal to 0 or to 1 will respectively mean weaker or stronger fiscal incentives. As tax bases for shared and local revenues are highly positively correlated and functions of the local level of economic development, a value of 0 for the incentives proxy means that shared and local revenues shift in different directions and that there is full crowding-out (Zhuravskaya, p. 351).

[23] According to Lay 23548, the so called net shared mass mainly results from the collection of the following taxes: VAT, Personal and Corporate Income Tax and Excise Taxes. Provinces also receive other non conditioned rule-based transfers from outside the Revenue Sharing System, as for instance those stemming from the collection of the Tax on Small Taxpayers (Monotributo) in place of VAT and Personal Income Tax.

While national discretionary and mainly earmarked transfers used to be a minor resource for provinces, with percent shares traditionally averaging 2%-3% of overall resources, had a significant increase as of 2003 and stand today as the third more important revenue for the Argentine subnational level; as will be shown in the rest of the section (and also with the econometric analysis), this increase might have taken place to the detriment of provinces´ financial autonomy[25], let alone other important costs entailing both a deterioration of the federal fiscal scenario and provinces´ increased political and economic dependency on the central government level.

TABLE 1
ARGENTINA: REVENUE STRUCTURE OF THE PROVINCIAL PUBLIC SECTOR
(In percent of Total Revenues-year 2012)

Current Revenues				0.94
Tax Revenues			0.81	
▪ Provincial		0.34		
▪ National		0.47		
Revenue Sharing	0.325			
Educational Financing	0.05			
Others	0.095			
Non Tax Revenues			0.06	
Current Transfers			0.06	
Others			0.01	
Capital Revenues				0.06
Capital Transfers			0.055	
Others			0.005	
Total				1.00

Source: Argentina, Secretary of the Treasury Secretary.

Bars in Figure 1 reflect provinces´ performance with relation to their main budgetary revenues in per capita constant values, per jurisdiction and as an average for the period 2003-2012.In the first place, the average $ 400 reached by provinces´ own tax revenues in the period (shown in figure 1.1) is basically explained by the performance of the city of Buenos Aires and the provinces of Chubut, Neuquén, La Pampa, Santa Cruz and Tierra del Fuego whose large per capita fiscal revenues did not respond to the same cause; whereas in the three first jurisdictions the role of their own fiscal sources mattered[26] (due to a greater level of economic activity or to the impact of determined activities such as the oil producing sector), the latter two´s revenues per capita also reflected the impact of a scanty population. As in the preceding case, the average $ 1500 depicted by the point line

[24] Rule-base earmarked transfers to provinces, basically stemming from the collection of Taxes on Liquid Combustible and Gas and Taxes on Energy must be applied by provinces to outlays in the following sectors: housing, roads and energy.

[25] For reason given in the next Section, loss of provincial financial autonomy due to the displacement effect that might assumedly be caused by national transfers would only apply to current transfers but not to capital transfers

[26] The transaction or turnover tax collected from firms distributing oil produces all over the country in part account for the high per capita tax yields in Chubut and Neuquén.

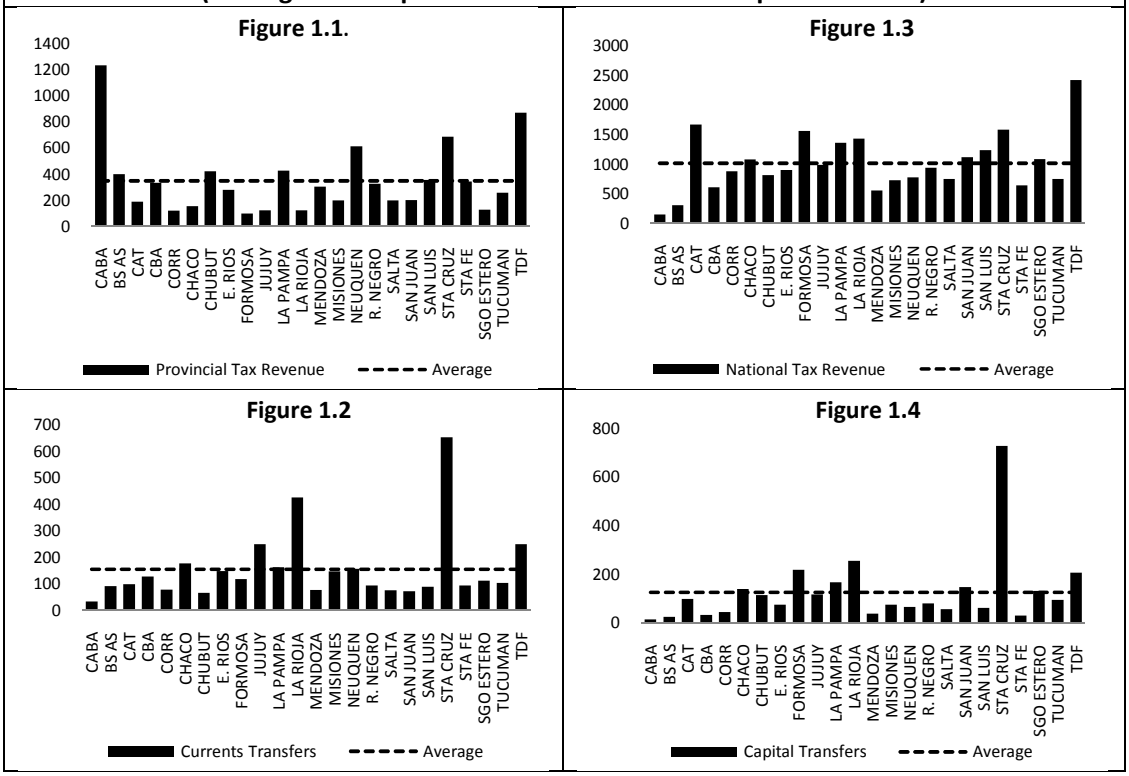
in figure 1.3 for per capita national tax revenues are highly influenced by the amount received by provinces such as Catamarca, Formosa, La Pampa, La Rioja, Santa Cruz or Tierra del Fuego whose population density is well below that of the rest[27]. Should this bias be corrected, the average would be better represented by a line close to $ 500 or $ 600.

A careful inspection of figures 1.1 and 1.2, including provinces´ bars for provincial taxation and current transfers to provinces, brings out hints over a possible crowding-out between these two revenue categories, particularly after drawing envelopes over the bars, as u-shaped line seems to come out in the first case and an inverse u-shaped line in the second one.

FIGURE 1

ARGENTINA: PROVINCES´ PER CAPITA BUDGETARY INCOME FOR REVENUE CATEGORY

(Average for the period 2003-2012-in constant pesos of 1993)



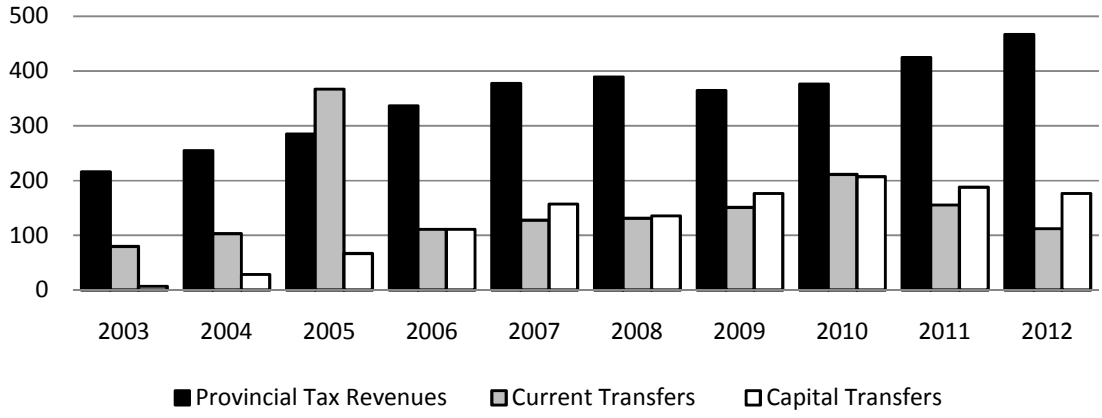
Source: Own elaboration based on data from the National Office Argentina for Fiscal Coordination with Provinces, Argentina.

The possible occurrence of crowding-out between revenues from provincial tax sources and national current transfers can also be perceived in the ensuing figure 2, in which bars now represent provinces´ overall annual receipts per revenue category; the u-shaped and inverse u-shaped envelopes are here clearly noticeable as of 2007, although a similar pattern could not be ruled out for the previous years had it not been for the

[27] These provinces (except for Santa Cruz, La Pampa and Tierra del Fuego) also exhibit a poorer fiscal capacity compared to the rest.

particularly weight of per capita own collected taxes in the city of Buenos Aires[28]. Nevertheless, the opposite performance of tax collection and national current grants so far suggested by the graphical representations must only be considered as a first approximation to the hypothesis of crowding out that is econometrically treated with the panel data model in the next section.

FIGURE 2
EVOLUTION OF PER CAPITA PROVINCIAL TAX REVENUES, CURRENT AND CAPITAL TRANSFERS
(All provinces´ average for years 2003 through 2012-in constant pesos of 1993)



Source: Own elaboration based on data from the National Office Argentina for Fiscal Coordination with Provinces, Argentina.

The ensuing figures 3 and 4 help to summarize most of the analysis so far developed in relation to the fiscal structure of subnational financing. In the first place, and in relation to the per capita average revenue composition for the whole period considered, figure 3 confirms the extremely uneven provinces´ performance with respect to financial autonomy with jurisdictions such as the city of Buenos Aires, Buenos Aires, Córdoba, Chubut, Mendoza, Neuquén or Santa Fe, whose own fiscal effort is well above 35%-40% of all their budgetary resources; on the opposite side, the fiscal effort of Catamarca, Corrientes, Formosa, Jujuy, La Rioja or Santiago del Estero barely reaches 10% for what shared revenues and mainly national transfers are substantial for making up their fiscal balance[29].

[28] The weight of the city of Buenos Aires´ per capita own tax revenues within the annual averages (figure 2) is due the fact the jurisdiction basically resorts to its own tax sources and that its tax collection effort is important (see figure 1.1). Likewise, received national transfers fall short of contributing to the overall budget revenue in a significant way (see figure 1.2).

[29] As mentioned in footnote 8 above, the causation issue is not minor; that is, transfers to determined provinces are substantial because their own fiscal power is weak or some areas prefer to resort to national transfers instead of deepening their own fiscal sources? With respect to this, apart from the hypothesis held in the paper that certain provincial governments consider less costly (in political terms) to replace provincial tax collection by national transfers there is also –and conversely to the case of other provinces- their paramount dependency on shared revenues.

Figure 4 adds the dynamic dimension to the static view of provinces´ revenue composition shown by the previous figure 3 and it embodies all the four charts in figure 1. As expected, own provincial tax´s share did not vary much although it shows the already quoted u-shaped pattern[30] whereas the inverse u-shaped pattern is much more visible for transfers. Needless to say, the relative weight of shared revenues shrank also as transfers increased their participation. Finally, the steady increase shown by capital transfers as of 2009 may be closely related to rule-based transfers from the Soya exports solidarity fund set in operation after the world financial crisis.

FIGURE 3: jurisdiccions´revenue share, according to source and as average for the period 2003-2012

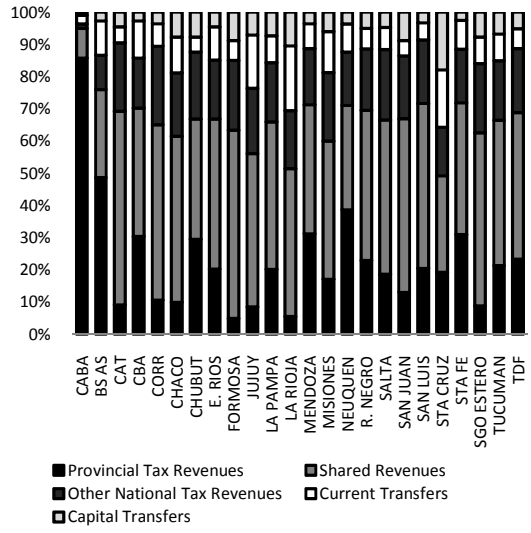
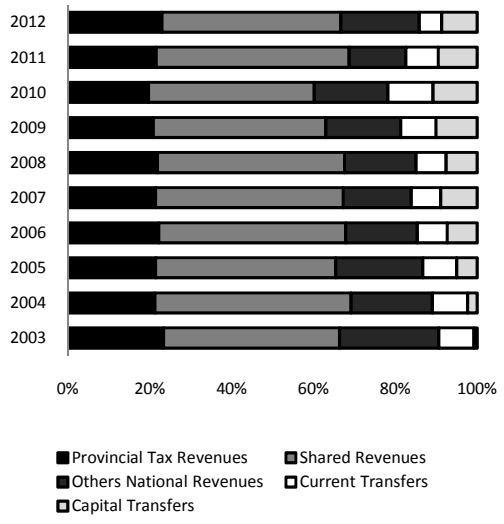


FIGURE 4: overall annual revenue share from 2003 through2012



Source: Own elaboration based on data from the National Office Argentina for Fiscal Coordination with Provinces, Argentina.

3.2 THE COMPOSITION OF PROVINCIAL PUBLIC SPENDING

The pattern of provincial public expenditures, both considering the average for the period 2003-2013 (static view) and their annual evolution throughout the period (dynamic dimension) is respectively depicted by the ensuing figures 5 and 6, built on the basis of information from the National Office for Coordination with Provinces and presented in per capita constant pesos of 1993, under the usual categories of administrative, public security and police, social and economic expenditures and public debt services. When considering the pattern for the period, figure 5 suggests a marked cyclical feature for all the three main categories of public spending (administrative, social and economic expenditures) among provinces; that is, the increase of administrative spending must occur at the expense of the other two expenditure categories and vice versa. Let it however be said that this is not only a statistical consequence of varying percent shares, specially because the visual

[30] As already said, this pattern would have been more marked had the share of the city of Buenos Aires not been included.

comparison with figures 1.1, 1.2 and 1.3 above shows that while greater shares of administrative spending are found in those provinces also receiving greater amounts of current transfers, provinces with greater financial autonomy and receiving also more capital transfers have in turn higher percentages of per capita social and economic expenditures, for what this pattern could be suggesting that the structure of financing matters in terms of the allocation of provincial public spending[31].

FIGURE 5: categories of provincial per capita public expenditure, average shares for the period 2003-2012

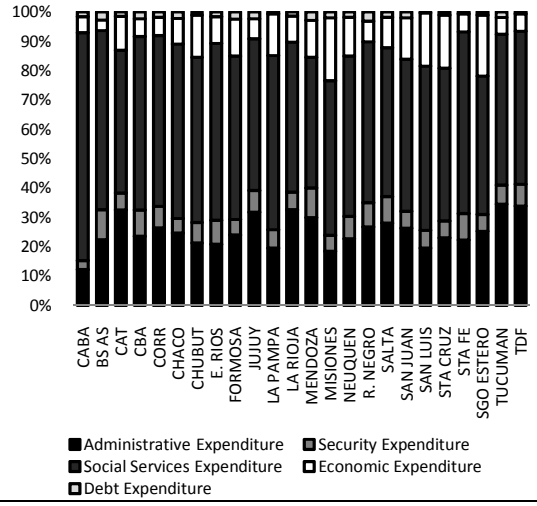
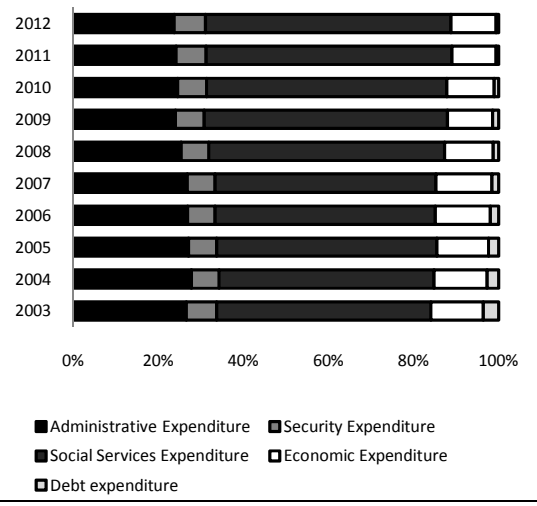


FIGURE 6: Average annual share of provincial public spending categories, from 2003 through 2012



Source: Own elaboration based on data from the National Office Argentina for Fiscal Coordination with Provinces, Argentina.

Considering now the evolution of the share of spending categories along the period, figure 6 shows a steady increase in administrative expenditures (only attenuated in the last two years) which roughly follows the evolution of current transfers (see figure 2) together with an increase of economic spending practically replicating the behavior of capital transfers in figure 2.

In order to complete the analysis of stylized facts, figure 7 reflects how the internal composition[32] of the main provincial public spending (social expenditures[33]) has evolved along the period. As the picture shows, there were no substantial changes between 2003 and 2005 with participations of 51.02%, 20.89%, 10.02% respectively for Education, Health and Social Welfare and 48.83%m 19;36% and 11.16% for 2005 while only Housing grew from 8.50% to 12.76%. Nevertheless, 2008 mainly reflects changes in the participation of social security (now 13.50%) whose increase took place in detriment of

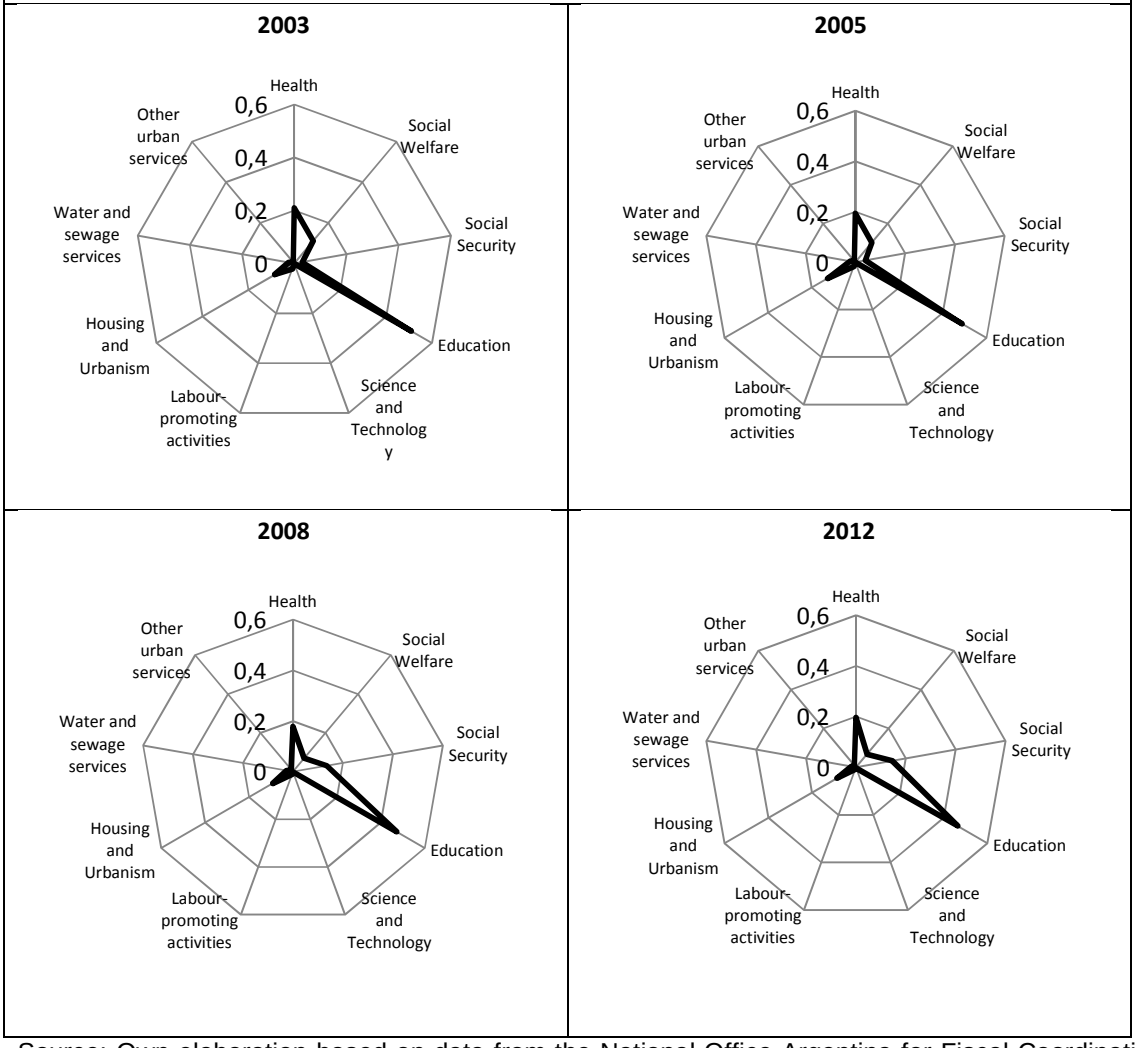
[31] As administrative spending basically comprise public employment, this conclusion may also suggest another cost to be added to the already crowding-out effect caused by discretionary current transfers; that is, a possible negative impact upon spending allocation at the provincial level.

[32] Social spending mainly embodies education, health, social security, social welfare, science and technology, labor-promoting activities, housing, water, sewage and other urban services.

[33] In general, social expenditure participation reached over the period 54% of the overall provincial public spending.

Social Welfare and Housing, whose percentages respectively fell to 6.92% and 9.20%. Finally, 2012 maintain the last shares, that is to say: Education 46.38%, Health 16.92%, Social Welfare 6.78%, Social Security 14.52% and housing 8.66%.

FIGURE 7
CHANGES IN THE PERCENT SHARE OF PROVINCIAL SOCIAL SPENDING´S COMPONENTS



Source: Own elaboration based on data from the National Office Argentina for Fiscal Coordination with Provinces, Argentina.

4. THE ECONOMETRIC ESTIMATION OF A PANEL DATA MODEL

By recalling Zhuravskaya´s argument that crowding-out might take place between revenues of different government levels, induced by the inadequacy of the structure of intergovernmental fiscal relations, the conceptual framework developed in Section 2 is here adapted to assess the impact of a set of exogenous variables (particularly national discretionary transfers and categories of provincial spending) upon the performance of

Argentine provinces´ own tax revenue yields. For that, the econometric analysis[34] was carried out by using a panel data model including fiscal information for the 23 provinces and the city of Buenos Aires, from 2003 through 2012. The estimated regression equations are expected to shed light on the validity of the hypothesis that the occurrence of crowding-out is highly dependent on subnational governments facing a scenario in which weak fiscal incentives prevailed.

The set of series used for the estimation of coefficients include per capita annual provincial taxes´ yield, discretionary and rule-based current and capital transfers from the central government and public spending by category. The original statistical information from the National Office for Fiscal Coordination with Provinces was changed to per capita constant value series (1993=100), for what inter censuses estimates of provincial population from the INDEC[35] and the Consumer Price Index from INDEC (1993-2007) and from the Statistics Office of the province of Santa Fe (2008-2012) are used. As the resulting series are not stationary, and in order to avert the risk of spurious correlation, variables´ first differences proving to be I(1) are used.

In searching for econometric evidences of crowding-out, equations (8) and (9) are estimated by Generalized Least Squares[36], resorting in both cases to STATA options that correct the problems of heterocedasticity, serial and spatial correlation[37]

In both the ensuing equations the dependent variable (PTR) stands for provinces´ annual own tax revenues;

$$8) \quad (PTR)_{it} = \beta\ (NCUT)_{it} + \varphi\ (YEAR\ DUMMY)_t + \varepsilon_{it}$$

$$9) \quad (PTR)_{it} = \beta'\ (NCUT)_{it} + \eta\ (NCAT)_{it} + \varphi'\ (YEAR\ DUMMY)_t + \varepsilon_{it}$$

As for the explanatory variables:

NCUT stands for national discretionary current grants accruing to provinces. Based on the hypothesis that these transfers displace revenues from provincial tax sources, the coefficients β and β' can be seen as the exogenous parameters indicating the weakness of fiscal incentives, whose possible values range between -1 and 0; therefore, these coefficients are expected to hold negative signs unless the displacement effect does not exist, in which case their value should be 0..

NCAT represents national ruled-based capital transfers to provinces[38]. In Argentina, public capital goods privately supplied (hospitals, schools, roads and other infrastructure outlays) are seen to check evasion possibilities and to enhance taxpayers´ compliance as the provincial government must legally proceed to withhold from contractors –at the moment of

[34] The statistical software used was STATA.
[35] Statistics and Censuses National Office.
[36] As pointed out by various econometricians, GLS are best suited than MCO to deal with the problem of serial correlation.
[37] Regarding coefficients, BLUE with minimum uniform variance are expected.
[38] The transfers mainly arise from the Solidarity Federal Fund created in 2009 with 30% of the yield of Soya export duties. According to the decree 206, provinces and municipalities must exclusively finance capital expenditures conducive to enhancing the quality and quantity of housing and of educational, health care and road infrastructure.

payment- the amount of national and provincial tax dues (value added tax, income tax, transactions tax, stamp duties). For this reason, the coefficient η *i*s expected to be positive.

The inclusion of dummy variables in (8) and (9) responded to the already declared objective (see equation 5 above) of verifying if systematic changes in all provinces´ own tax revenues took place in a particular year. It is particularly worth noticing that, by estimating equation (8) without intercept, the parameter β represents here the size of crowding-out; that is, the amount of own tax revenues displaced by one unit increase in national current transfers to provinces. For reasons given above, the possibility of crowding out in equation (9) results from the difference of the negative β and the positive η parameters.

Table 2 and 3 below show econometric results obtained from the GLS regression of the preceding equations (8) and (9) including diverse alternatives; that is, assuming heteroscedastic and correlated error structure and respectively using AR1 and panel-specific AR1 autocorrelation structures[39] with the purpose of enhancing coefficients´ accuracy and statistical significance.

Table 2 shows a NCUT´s estimated coefficient of --0.076, when equation (8) is regressed assuming a heteroscedastic and correlated error structure; in turn, statistically significant coefficient values of -0.088 and -0.062 are obtained when AR1 and panel-specific AR1 autocorrelations are used what highlights the already known fact that not only serial correlation but also spatial correlation matters when a panel data model is resorted to. Although quoted results yield sound econometric evidence of the crowding-out effect caused by national current transfers upon own tax sources´ provincial revenues, the negative impact in Argentina is far well behind of that shown by Zhuravskaya for the Russian case, in which there was an almost full crowding-out effect. Nevertheless, there are at least two reasons why inspection of figures in Table 2 should not lead one to hasty conclusions that disregard the minor negative impact of current transfers upon the financial autonomy of Argentine provinces: in the first place, even taking any of the three obtained coefficients for the variable NCUT, and relating it to officially informed current transfers to provinces in the period 2003-2012, the crowding-out impact upon provinces´ own tax revenues amounted to a non negligible annual level of around five percent points of provinces´ own tax collection; in the second place, the real impact upon accountability and governance largely exceeds the actual impact of crowding out as the fact of not deepening their own tax sources and bargaining in place for more national transfers also entails cost to provinces´ compulsory adherence[40] to central government´s interests rather than theirs, progressive increase of string attached transfers at the expense of unconditioned grants, gradual loss of financial autonomy, etc. Finally, a comment is order with relation to the performance of the year dummy variable, which yield positive coefficients both statistically different and not different from zero but a negative (and significant) coefficient for year 2009 which might be reflecting the impact of the world financial crisis that negatively hit the economic growth rate and subsequently the yield of provinces´ main tax; that is, turnover or transaction tax.

[39] The value of Wald χ^2 and its probability was also included in table 1. As known the Wald Test permits to assess whether the vector of estimated parameters is statistically significant; this assumption is met in this case according to the probability value respect of the observed Wald χ^2 value shown in table 3.

[40] This distortion has already been pointed out by Rezk et al (2013)

TABLE 2

CROSS-SECTIONAL TIME-SERIES FGLS REGRESSIONS WITHOUT CAPITAL TRANSFERS TO PROVINCES

Dependent Variable: PTR				
Explanatory Variables		**Panels(correlated)**	**Panels(correlated) Corr(ar1)**	**Panels(correlated) Corr(psar1)**
NCUT		**-0,076**	**-0,088**	**-0,062**
		(-3,66)*	(-4,53)*	(-2,72)*
Year Dummy	**2005**	**0,494**	**0,470**	**0,397**
		(5,37)*	(4,15)*	(3,33)*
	2006	**0,248**	**0,140**	**0,172**
		(2,97)*	(1,24)	(1,47)
	2007	**0,425**	**0,377**	**0,360**
		(7,82)*	(4,20)*	(3,52)*
	2008	**0,070**	**0,009**	**0,113**
		(1,28)	(0,10)	(1,11)
	2009	**-0,198**	**-0,166**	**-0,217**
		(-3,68)*	(-1,85)**	(-2,13)*
	2010	**0,106**	**0,180**	**0,040**
		(1,64)	(1,87)**	(0,39)
	2011	**0,537**	**0,547**	**0,440**
		(8,56)*	(5,89)*	(4,31)*
	2012	**0,373**	**0,427**	**0,415**
		(6,13)*	(4,63)*	(3,95)*
Wald Chi2		**(9) 405, 09**	**(9) 136, 51**	**(9) 64,47**
Prob > Chi		0,000	0,000	0,000

(*) Significant at 5% level (**) Significant at 10% level

Table 3 differs from the previous one in that results for national capital transfers are now also considered, in addition to current transfers, as stated by equation (9). Apart from the fact that negative NCUT´s coefficients by and large reproduce figures in Table 2 (for all the three options), and that a slightly greater crowding-out is confirmed, the outstanding feature is that national capital transfers help to soften (though not to fully compensate) the fiscal displacement caused by current transfers. The explanation for that resides, as has already been anticipated, in the legal responsibility whereby provincial governments must compulsory withhold due taxes from private contractors at the moment of making payments for public works; in this connection, transfers specifically aimed at defraying capital outlays directly contribute to raising taxpayers´ compliance and to enhancing provinces´ financial autonomy.

Another important conclusion derived from results in Table 3 is that despite the fact that positive coefficients of NCAT are greater than the negatives ones corresponding to NCUT (except in last column when spatial autocorrelation is corrected) a slight negative crowding-out impact still remained due to the fact that per capita amounts of current transfers exceeds those of capital transfers. The positive effect of capital transfers upon

provincial tax revenues will be indirectly assessed again below as this grant are used to instrument provincial economic and social expenditures. Finally, and coinciding with what was mentioned in the previous case, the year dummy variable shows statistically significant positive coefficients (save for two cases in year 2008) but repeats negative coefficients in 2009 what in turn confirms a systematic change occurring in that year.

TABLE 3

CROSS-SECTIONAL TIME-SERIES FGLS REGRESSIONS INCLUDING CURRENT AND CAPITAL TRANSFERS TO PROVINCES

Dependent Variable: PTR				
Explanatory Variables		**Panels(correlated)**	**Panels(correlated) Corr(ar1)**	**Panels(correlated) Corr(psar1)**
NCUT		**-0,087** (-4,61)*	**0,078** (-3,85)*	**-0,088** (-4,79)*
NCAT		**0,095** (5,37)*	**0,082** (5,45)*	**0,079** (4,70)*
Year Dummy	**2005**	**0,471** (5,02)*	**0,445** (3,86)*	**0,440** (4,87)*
	2006	**0,167** (1,78)**	**0,138** (1,19)	**0,178** (1,94)**
	2007	**0,335** (3,94)*	**0,478** (4,43)*	**0,382** (4,53)*
	2008	**0,047** (0,62)	**0,115** (1,07)	**0,235** (2,79)*
	2009	**-0,192** (-2,30)*	**-0,237** (-2,19)*	**-0,248** (-2,87)*
	2010	**0,144** (1,78)**	**0,166** (1,51)	**0,186** (2,10)*
	2011	**0,583** (7,03)*	**0,377** (3,45)*	**0,376** (4,23)*
	2012	**0,428** (5,22)*	**0,300** (2,77)*	**0,309** (2,93)*
Wald Chi		**(10) 178,47**	**(10) 97,89**	**(10) 105,90**
Prob > Chi		0,000	0,000	0,000

(*) Significant at 5% level.

(**) Significant at 10% level.

The next interesting point resides in ascertaining whether national transfers and the allocation of provincial spending somehow enhance (or dwindle) provinces´ financial autonomy, for what the following equations (10) and (11), including again provinces´ annual per capita own tax revenues as the dependent variable are laid out:

$$10) \quad (PTR)_{it} = \zeta\,(NCUT)_{it} + \rho\,(GSE)_{it} + \varphi\,(YEAR\ DUMMY)_t + \varepsilon_{it}$$

$$11) \quad (PTR)_{it} = \zeta'(NCUT)_{it} + \omega\,(GSS)_{it} + \varphi'\,(YEAR\ DUMMY)_t + \varepsilon_{it}$$

As for the explanatory variables:

NCUT stands, as before, for national discretionary current grants accruing to provinces. Based on the hypothesis already proven in equations (8) and (9), coefficients ζ and ζ' are expected to hold negative signs.

GSE stands for ´provincial economic spending´ mainly including capital outlays in transport, communications, energy, irrigation and roadways. To the extent that the provision of these services are regarded as an indication of subnational authorities´ greater degree of accountability and governance taxpayers will assumedly be more inclined to meet their tax liabilities, for what a positive ρ is expected.

GSS or ´provincial social spending´ mainly includes annual expenditures in education, health care, housing, water provision and sewage[41]. Similar to the case of GSE, the coefficient ω is expected to hold a positive sign.

As in equations (8) and (9), the inclusion of dummy variables intends to check for systematic changes in all provinces´ own tax revenues taking place in a particular year. As usual, ε stands for the error term and I and t respectively indicate the province and the year subscripts.

The inclusion, in this context, of the already defined NCAT as a variable that instruments GSE and GSS is aimed not only at averting the risk of endogeneity and ruling out the possibility of correlation with components of the error term but also with the object of acknowledging its impact on spending variables whose capital content is high[42]. MCO regressions equations were run using variables in first differences[43], both under fixed effects and random effects which also include the usual STATA specifications correcting for heteroscedasticity. The estimated coefficients for NCUT-GSE and NCUT-GSS are respectively shown in the ensuing tables 4 and 5. It is worth pointing out, from the observation of the regression outcomes shown by table 4, that the variable current transfers (NCUT) replicates estimations already shown in tables 2 and 3 (both under fixed effects and random effects) and that coefficients are negative and statistically different from 0, for what the already introduced crowding-out hypothesis also holds in this case; at the same time, and for reasons given above, economic public spending also seems to positively impact upon provinces´ financial autonomy not only by enforcing but also promoting taxpayers´ compliance[44]. Let it also be noticed that although figures reveal possibility of autocorrelation, this risk reduces significantly when the regression variant ´random effects´ is resorted to; also the correlation test shows that the explanatory variables are not correlated (in any case) with the random error term. Likewise, better values for coefficients and greater statistically significance achieve when the dependent variable is instrumented using capital transfers (NCAT) but the risk of autocorrelation

[41] Originally social security payments are included in provinces´ social expenditures. The reason for their exclusion, in this case, is for limiting the analysis only to category´s components embodying capital outlays.

[42] See section 3(stylized facts).

[43] As explained above, when variables in levels are not I(0), first or successive differences avert the risk of spurious correlation.

[44] Taxpayers compliance is particularly promoted when the degree of governance is high.

increases both with fixed and random effects. Finally, values for the Hausman test make indifferent to choose between fixed and random effects but, given its better performance towards autocorrelation, the regression under random effects should be privileged.

TABLE 4

CROSS-SECTIONAL TIME-SERIES MCO REGRESSIONS INCLUDING CURRENT TRANSFERS TO PROVINCES AND PROVINCIAL ECONOMIC EXPENDITURES

Dependent Variable: PTR							
Explanatory Variables		**XTREG**		**XTREG, VCE(ROBUST)**		**XTIVREG, GSE INSTRUMENTED***	
		FE	**RE**	**FE**	**RE**	**FE**	**RE**
NCUT		**-0,088** (-4,62)*	**-0,088** (-4,60)*	**-0,088** (-3,05)*	**-0,088** (-3,09)*	**-0,092** (-4,67)*	**-0,092** (-4,78)*
GSE		**0,152** (4,59)*	**0,140** (4,27)*	**0,152** (2,62)*	**0,140** (2,37)*	**0,259** (4,37)*	**0,255** (4,39)*
Year Dummy	**2005**	**0,137** (1,16)	**0,137** (1,16)	**0,137** (1,36)	**0,137** (1,37)	**0,148** (1,22)	**0,149** (1,25)
	2006	**-0,152** (-1,26)	**-0,151** (-1,23)	**-0,152** (-1,67)	**-0,151** (-1,68)*	**-0,185** (-1,47)	**-0,185** (-1,50)
	2007	**-0,013** (-0,12)	**-0,010** (-0,09)	**-0,013** (-0,11)	**-0,010** (-0,09)	**-0,033** (-0,30)	**-0,033** (-0,30)
	2008	**-0,225** (-2,06)*	**-0,230** (-2,09)*	**-0,225** (-2,16)*	**-0,230** (-2,17)*	**-0,186** (-1,64)	**-0,188** (-1,68)*
	2009	**-0,566** (-5,16)*	**-0,571** (-5,18)*	**-0,566** (-3,75)*	**-0,571** (-3,76)*	**-0,514** (-4,47)*	**-0,516** (-4,57)*
	2010	**-0,211** (-1,94)*	**-0,213** (-1,94)*	**-0,211** (-2,20)*	**-0,213** (-2,22)*	**-0,194** (-1,73)*	**-0,194** (-1,76)*
	2011	**0,058** (0,53)	**0,055** (0,50)	**0,058** (0,72)	**0,055** (0,70)	**0,076** (0,68)	**0,075** (0,68)
	2012	**-0,009** (-0,08)	**-0,010** (-0,09)	**-0,009** (-0,08)	**-0,010** (-0,10)	**0,000** (0,000)	**-0,000** (-0,000)
corr(u_i, Xb)		-0,046	0	-0,046	0	-0,082	0
R2		**0,398**	**0,398**	**0,398**	**0,398**	**0,363**	**0,378**
Rho		**0,268**	**0,176**	**0,268**	**0,176**	**0,276**	**0,302**
Hausman Test (prob>Chi2)		**0,268**		----		**1**	

NCUT´s coefficients did not vary significantly when provincial social spending was used in place of economic spending, as results in table 5 highlight; nevertheless, a clear difference arises with relation to the second explanatory variable as coefficients´ size get much smaller when provincial social spending was used in the regression. In quality terms, GSS seems to have a better econometric performance at least on one account: the risk of autocorrelation is averted or reduced both in fixed effect and random effect estimations. In this sense, the inclusion of an instrumental variable, similar to when GSS was used, does not seem to have improved the quality of estimations as traces of autocorrelation are evident whichever variant was used (FE o RE). In sum, and in the light comments to the results of the preceding equation (Hausman test) the random effect variant seems to be more advisable.

TABLE 5
CROSS-SECTIONAL TIME-SERIES MCO REGRESSIONS INCLUDING CURRENT TRANSFERS TO PROVINCES AND PROVINCIAL SOCIAL EXPENDITURES

Dependent Variable: PTR							
Explanatory Variables		**XTREG**		**XTREG, VCE(ROBUST)**		**XTIVREG, GSS INSTRUMENTED***	
		FE	**RE**	**FE**	**RE**	**FE**	**RE**
NCUT		**-0,087** (-4,54)*	**-0,087** (-4,59)*	**-0,087** (-3,70)*	**-0,087** (-3,75)*	**-0,089** (-4,57)*	**-0,090** (-4,72)*
GSS		**0,094** (4,50)*	**0,096** (4,64)*	**0,094** (3,53)*	**0,096** (3,65)*	**0,153** (4,39)*	**0,150** (4,46)*
Year Dummy	**2005**	**0,092** (0,78)	**0,092** (0,78)	**0,092** (0,99)	**0,092** (0,99)	**0,073** (0,61)	**0,075** (0,64)
	2006	**-0,143** (-1,18)	**-0,144** (-1,19)	**-0,143** (-1,80)*	**-0,144** (-1,81)*	**-0,165** (-1,33)	**-0,165** (-1,37)
	2007	**-0,048** (-0,44)	**-0,050** (-0,45)	**-0,048** (-0,43)	**-0,050** (-0,44)	**-0,088** (-0,78)	**-0,086** (-0,78)
	2008	**-0,226** (-2,07)*	**-0,225** (-2,07)*	**-0,226** (-2,13)*	**-0,225** (-2,12)*	**-0,193** (-1,71)*	**-0,194** (-1,77)*
	2009	**-0,573** (-5,23)*	**-0,572** (-5,23)*	**-0,573** (-3,14)*	**-0,572** (-3,14)*	**-0,532** (-4,69)*	**-0,534** (-4,85)*
	2010	**-0,128** (-1,15)	**-0,125** (-1,13)	**-0,128** (-1,49)	**-0,125** (-1,49)	**-0,060** (-0,51)	**-0,063** (-0,55)
	2011	**-0,017** (-0,16)	**-0,018** (-0,17)	**-0,017** (-0,17)	**-0,018** (-0,18)	**-0,048** (-0,42)	**-0,047** (-0,42)
	2012	**0,043** (0,39)	**0,044** (0,40)	**0,043** (0,47)	**0,044** (0,49)	**0,083** (0,73)	**0,081** (0,73)
corr(u_i, Xb)		0,018	0	0,018	0	0,015	0
R2		**0,396**	**0,396**	**0,396**	**0,396**	**0,369**	**0,380**

Rho	0,237	0,178	0,237	0,178	0,226	0,317
Hausman Test (prob>Chi2)	1		----		1	

5. CONCLUSIONS

Recent articles in the literature focused on the consideration of prevailing fiscal relations between government levels in different countries and concluded that, according to the generated fiscal incentives (disincentives) interjurisdictional fiscal arrangements could either be called ´market-preserving federalism´ or ´market-hampering federalism´, depending on that the central government level´s fiscal behavior favored or deterred business growth and efficient public good provision at the subnational level.

E. Zhuravskaya´s paper was in this regard an outstanding contribution, as using the Russian and Chinese case studies, this author modeled the impact of the so called weak fiscal incentives whereby any marginal increases in Russian municipalities´ own revenues were immediately crowded out by a similar negative change in their shared revenues received from the regional government, conversely to the Chinese institutional case in which ruled-base transfers based on long term arrangements prevented this crowding out effect from happening.

The crowding-out hypothesis was thus appealing for analyzing the Argentine fiscal federal setup since the stylized facts of section 3 showed that the weight of the own tax collection within overall revenues stagnated or fell in many a jurisdiction whereas other revenue categories, as for instance national transfers, not only increased in absolute terms but also in relative terms becoming thus a substantial budgetary resource for many provinces.

Apart from the fact that discretionary transfers (contrariwise to provincial tax resources and shared revenue which are unconditioned) are earmarked and generally string attached resources, the idea suggested by the analysis of stylized facts could be that a variant of Zhuravskaya hypothesis might be taking place in Argentina; that is, that some provincial governments found less costly (in political terms) to accede to national transfers rather than deepening their own tax sources, for what a variant of the above depicted crowding-out effect could explain the loss of provinces´ financial autonomy.

In line with this idea, a panel data model including fiscal information for all the 24 jurisdictions for the period 2003-2012 was set up and GLS and MCO estimations were carried out using the following per fiscal capita variables: provincial tax collection, current and capital transfers and provinces´ economic and social public expenditures. In order that the problem of spurious correlation could be averted, only variables in first differences were used.

As for the econometric evidence, the negative sign and significance of the estimated coefficient for current transfers showed that a crowding-out effect is in effect taking place between this variable and the provincial tax collection, although its actual magnitude seemed to be much lesser than expected. Nevertheless, other costs for subnational governments needed be accounted for, apart from the mentioned increased

dependency from the central government, as the reduced degree of accountability and governance due to an induced pattern of public spending might in turn impact negatively upon taxpayers´ level of compliance and additionally reduce provinces´ financial autonomy.

It is however worth pointing out that the regression of equations in which capital transfers were included showed in change a variable´s favorable impact upon the level of provincial financial autonomy which found at least two reasonable explanations; in the first case, prevailing provincial fiscal regulations require that taxes be withheld from contractors at the moment any payment for capital outlays is done to contractors, what naturally enforces tax compliance and reduces evasion possibilities; in the second case, almost all capital outlays fall in investment in the areas of Education, Health, Housing, Water Provision, Sewage, Transport, Energy, Roads, Irrigation which, conversely to the case of current transfers whose use in increasing public employment is highly suspected, are spending decisions which tend to rise –in citizens´ eyes- accountability, governance and consequently tax compliance.

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