DECENTRALIZATION IN BRAZIL/PARANA : THE DEVELOPMENT OF A MUNICIPAL CREDIT SYSTEM[1]

Pierre Kopp & Rémy Prud'homme[2]

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I – Introduction[3]

Since its independence in 1822 Brazil has had a federal structure. There are three tiers of government in the Brazilian federation: the federal government, 27 states and more than 5 500 municipalities. At the federal level, states are represented equally in the senate (3 senators each), a system that gives 74 per cent of seats to 43 per cent of the population. Senate approval is required for all draft laws and constitutional amendments approved in the Lower House or Chamber of Deputies. The senate also rules on matters of state debt and is able to mandate exceptions. Finally, the states each have a separate judiciary.

Under 1988 Constitution Brazil (present population of which is about 175 million inhabitants) is a federal system comprising 26 states and a federal district. The biggest state of Brazil (San Paolo) is larger than Argentina (34 millions). Three states (Minais Gerais, Rio de Janeiro and Bahia) are comparable in size to Chile (14 millions). Three others are the size of Bolivia (7 millions) and nine others are comparable to Uruguay (53 millions). Almost half of the states are comparable in size to another country on the continent.

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[2] Respectively Professor at the University Paris I and Emeritus Professor at the University Paris XII.

[3] This chapter takes and actualises the data presented by R. Prud'homme (1998) "State and Local Public Finance in Parana: Structure and Issues": United Nations Development Programme Project BRA/95/005: Strategic Actions in Support of Urban Development.

Table 1 - Distribution of Brazilian States by Size, 2000

State	Population (Millions of inhabitants)	Inhabitants (Per Km^2)
San Paulo	36,97	149,00
Minais Gerais	17,87	30,50
Rio de Janeiro	14,37	328,00
Bahia	13,00	23,20
Rio Grande do Sul	10,18	36,10
Parana	9,56	48,00
Pernambuco	7,91	80,30
Ceara	7,42	50,90
Para	6,19	5,00
Maranhao	5,64	17,00
Santa Catarina	5,35	56,10
Goias	5,00	14,70
Paraiba	3,44	61,10
Espirito Santo	3,09	67,20
Piaui	2,84	11,30
Alagoas	2,82	101,30
Amazonas	2,81	1,80
Rio Grande do Norte	2,77	52,20
Mato Grosso	2,50	2,80
Mato Grosso do Sul	2,07	5,80
Distrit Federal	2,04	352,20
Sergipe	1,78	81,10
Rondonia	1,32	5,50
Tocantins	1,16	4,20
Acre	0,56	3,70
Amapa	0,48	3,30
Roraima	0,32	1,50

Brazil's 1988 Constitution transferred significant autonomy and power to municipal governments. Brazilian municipalities are run by democratically elected mayors assisted by municipal councils. Municipalities are responsible for the provision of services -- some exclusively, others in conjunction with state and central government. Municipalities are exclusively responsible for providing lighting, markets, local roads, urban public transport, fire protection, land-use control and armed night guards. The functions which they exercise concurrently with the state governments include education, public health, recreation, culture, social assistance, agriculture and public utilities. But the allocation of services is less straightforward than the clear divisions would appear, in part because federal and state governments have continued to invade municipal spheres, and in part because of a "de facto renunciation of functions by the municipalities themselves".

The municipal sector is a collection of 5,500 municipalities (both rural and urban) encompassing a broad range of units with extreme differences in size, economic

structure, and fiscal outlook. Most of them are cash strapped, and they depend heavily upon loans for their investments.

The public sector is dominated by small municipalities 75% of which have fewer than 20,000 inhabitants; most of them are fiscally weak and overly dependent on transfers from upper levels of government. At the other extreme, two megalopolies, Rio de Janeiro and Sao Paulo, dominate the fiscal and economic landscape, accounting for almost 10% of Brazil's population as well as two thirds of overall outstanding municipal debt in the country.

Brazil's public sector is highly decentralized: states and municipalities account for almost half of all public sector revenues and expenditures. Municipalities represent 19% of total public revenues (5,4% of GDP), 13% of public spending, 24% of gross investment (World Bank, 2001). A large part of social expenditure is financed by municipalities: 31% of primary and secondary education, 20% of health, and 82% of housing and urban expenditure.

Economic theory states that decentralizing spending responsibilities can bring substantial welfare improvement. Government resources can be allocated most efficiently if responsibility for each type of public expenditure is given to the level of government that most closely represents the beneficiaries of the outlays.

However the fathers of the theory of decentralisation only provide a basic framework. Oates (1972) and do not specify what they mean by « sub-national governments ». Is it, in a federal country, the region or the city? Or a group of cities? Finding the optimal number of sub-national government and specifying the level on which they should be placed is therefore the guiding thread of our research. Answering this question in the case of Brazil is particularly interesting as Brazil is a special case in Latin America, because some of its states are comparable in size to that of some of the countries in the region. It is surprising to note that Brazil did not feel it necessary to create a supplementary level between the state and the municipality. Should this choice prove to be judicious and that the Brazilian states functioned correctly, it would represent a claim in favour of our thesis in which decentralisation in Latin America failed partially in its objective in "forgetting" the cities in favour of the regions. It is unfortunately impossible to systematically review all the states of the federation.

We have thus decided to focalise our research on one particular state, Parana. It is of course impossible to be sure that what is true in Parana would necessarily prove to be true elsewhere. Nevertheless, the in-depth study of the case of Parana has an importance which is in no way anecdotic, for three reasons. Firstly, the population, area and economic size of Parana is comparable to that of many countries in Latin America. This means, for instance, that if Parana can do without an intermediate level of government, the need for

intermediate (regional) levels of government in countries of a similar size is questionable. Secondly, the administrative structures are supposed to be sufficiently plastic to adapt to several specific configurations. So, what works in one state should work in another. Lastly, the Parana is one of the beacon states of Brazil, as it does not have a city the size of Rio or Sao Paolo. This state's success then can realistically serve as a model for other states having an analogous configuration.

II – Measuring decentralization in Parana

The State of Parana, in the Southern region of Brazil, just south of the powerful State of Sao Paulo, has (in 2000, the year for which most of the figures in this paper are given) a population of about 9.5 million (hereafter: M) people, in an area of about 200,000 km2. This is small by Brazilian standards: Parana accounts for less than 6% of the total population and a bit more than 2% of the territory. But this is relatively large by global standards: Parana is larger than many countries. To make a European comparison, Parana is about the size of Greece or Hungary.

Parana: among the wealthy states

Per capita income in Parana is estimated to be around US$ 2,838. This is the order of magnitude of what the GDP of Greece was in the early 1980's. This is 20% above the Brazilian average. Parana is now one of the richest States of Brazil, after Brasilia and Sao-Paulo. Parana's high ranking amongst Brazilian States is however recent. Although in the 1950's Parana's GDP per capita was higher than the Brazilian average, it did not maintain this advantage, and became lower than the Brazilian average, until the early 1990's.

Much of this recent growth seems to be due to the development of agricultural production, particularly soya, of which Parana is a major producer and exporter. The role of agriculture in Parana is important, and the share of agriculture in the State GDP is greater than the share of agriculture in the GDP of Brazil as a whole. Parana is also a rapidly industrializing state. The share of industry in the State GDP increased in the 1990's (whereas it has decreased in Brazil), but it remains lower in Parana (29%) than in Brazil (31.3%).

This importance of agriculture suggests that Parana's population is heavily concentrated: in 2002 the share of urban population in Parana was 73%, and does not increase. There are few large urban agglomerations. The population of Curitiba is close to 1,5 million but reaches 3 million when the metropolitan area is included. There are two other large cities: Maringa (288,000 inhabitants) and Londina (447,000). Both are surrounded by a metropolitan area, which increases the population. The Federally-defined metropolitan region of Curitiba (which seems to be larger than the effective labour

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[1] These numbers, calculated from the *Anuario Estadistico do Brasil 2000*, result from administrative definitions, and do not have much economic meaning by themselves; but they can be compared over space and over time.
[2] 200,000 inhabitants of the metropolitan region are classified as « rural ».
[3] These figures, calculated from the Anuario Estadistico do Brasil 2000, are the result of administrative definitions and do not have much economic meaning on their own; but they can be compared over space and time.

market area) consists of 25 municipalities and 2,400,000 inhabitants[1].

The politico-administrative structure of Parana consists of one State and (in 2000) of 398 municipalities covering the entire territory. The number of municipalities is not constant. Nearly every year, some municipalities are divided and new municipalities created. Between 1991 and 1997, the number of municipalities increased by as much as 24% and between 1997 and 2000 by 7% (more than 27 municipalities). This is in sharp contrast with what happens in most other countries, where policies generally aim at consolidating and amalgamating municipalities, and therefore where the number of municipalities tends to decrease. In 2000, the number of municipalities was 398. They were distributed as indicated in the following Table 2.

Table 2 - Distribution of Parana Municipalities by Size, in Terms of Population, GDP and GDP/capita 2000

	Total population (% of total)	GDP (% of total)	GDP/capita (in US$)
Curitiba municipality	16,5	19,8	3,6
9 other large municipalities (>125,000 inh.)	22	28	3,526
71 medium-size municipalities. (20,000-125,000 inh.)	32,7	34,3	3,015
318 small municipalities (<20,000 inh.)	27,8	17,8	1,838
Total: 398 municipalities	100	100	3,100
Total population in 2000 (in 1,000)	9,5		
Total GDP in 2000 (in MUS$)		27,5	

Note: Source: Calculated from PARANACIDADES computer files; GDP data is from IPARDES

Table 2 shows that about 40% of the population and nearly 50% of the economic output of Parana is located in the ten largest municipalities. This 2000 concentration is approximately the same as in 1996. But relative to 1996, the share of Curitiba GDP decreased and the share of the nine other large municipalities increased. In absolute value between 1996 and 2000, the GDP per capita in Parana grew (from 3,003 to 3,100), but the GDP per capita of Curitiba and of and the small municipalities decreased (respectively from 4,039 to 3,600 and from 2,061 to 1,838), whereas that of the nine large municipalities increased and that of the medium municipalities remained stable.

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[1] 200,000 inhabitants of the metropolitan region are classified as « rural ».

Table 2 also suggests that the GDP per capita of a municipality is somewhat related to its size. This correlation, however, is a very loose one. There are small municipalities with high GDP per capita; and large municipalities with relatively low GDP per capita. Indeed, the coefficient of correlation (0.04) is not statistically significant at 10%. There are two reasons for this. The first is that the municipal GDPs produced by IPARDES must be considered with caution; they are based on collection of value-added tax, and a municipality having a large factory shows a very high GDP or GDP per capita. The second reason is that municipalities are not cities; municipalities are administrative concepts, not socio-economic realities; a given economic agglomeration may be broken down into several municipalities. The relationship that normally exists between city size and income per capita does not exist between municipality size and income per capita. This is not without importance, because municipality size is often taken as a proxy for municipality wealth: it is not a good proxy in the case of Parana, and probably not in Brazil as a whole.

The Structure of Public Finance in Parana

The public sector in Parana consists of the Federal government, the government of the State of Parana, and about 400 municipalities. Each of these governments controls a number of « associated entities ». The various governments and entities receive income, in the form of taxes, fees, transfers, and loans; and make expenditures.

The nomenclatures utilized are very detailed[1] and often more legalistic than economic: some regrouping into economically meaningful categories is necessary[2]. The data from the executed budgets of the 399 municipalities has been extracted, checked, and computerized, although not published. This represents an immense amount of work, and a most valuable source of information. It is nevertheless far from perfect. The share of « other income », for instance, is regrettably large[3]. This basic information is occasionally at odds with information from other sources[4].

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[1] The basic sources of information on these financial flows are the *Balance Geral da Uniao* for federal income and expenditures, the *Balance Geral do Governo do Estado do Parana*, for State income and expenditures, and the executed budgets of each municipality for their respective incomes and expenditures. In principle, the two *Balance Geral* present consolidated data for both the governments and their « associated entities ». In practice, and at least at the State level, consolidation is a difficult exercise, and the consolidation presented is not perfect. The Parana accounts for 1996 report (p. 219) « inter-governmental transfers » for 96 MR; by definition, a complete consolidation would eliminate such transfers.

[2] About 200 items of income in the Parana accounts, for instance.

[3] Various types of « others » represent 15% of the total income of municipalities in 1996

[4] For instance, the figures reported by the Federal government for « negotiated transfers » (convenios) to the State of Parana are much greater than the figures found in the Parana accounts for the same concept; part of the explanation seems to be that some of these transfers go to associated entities that put them in extra budgetary accounts; for the most part, it seems that these negotiated transfers benefit semi private-semi public institutions, such as hospitals or schools, that are not legally part of the State sector, but could nevertheless be economically considered

Figure 1 shows the most important financial flows for the year 2002 between the three levels of government and two groups of actors: Parana households and enterprises, and the rest of the world; the « rest of the world » includes, in particular, the banking system.

Figure 1 - The Structure of Parana Public Finance, 2002
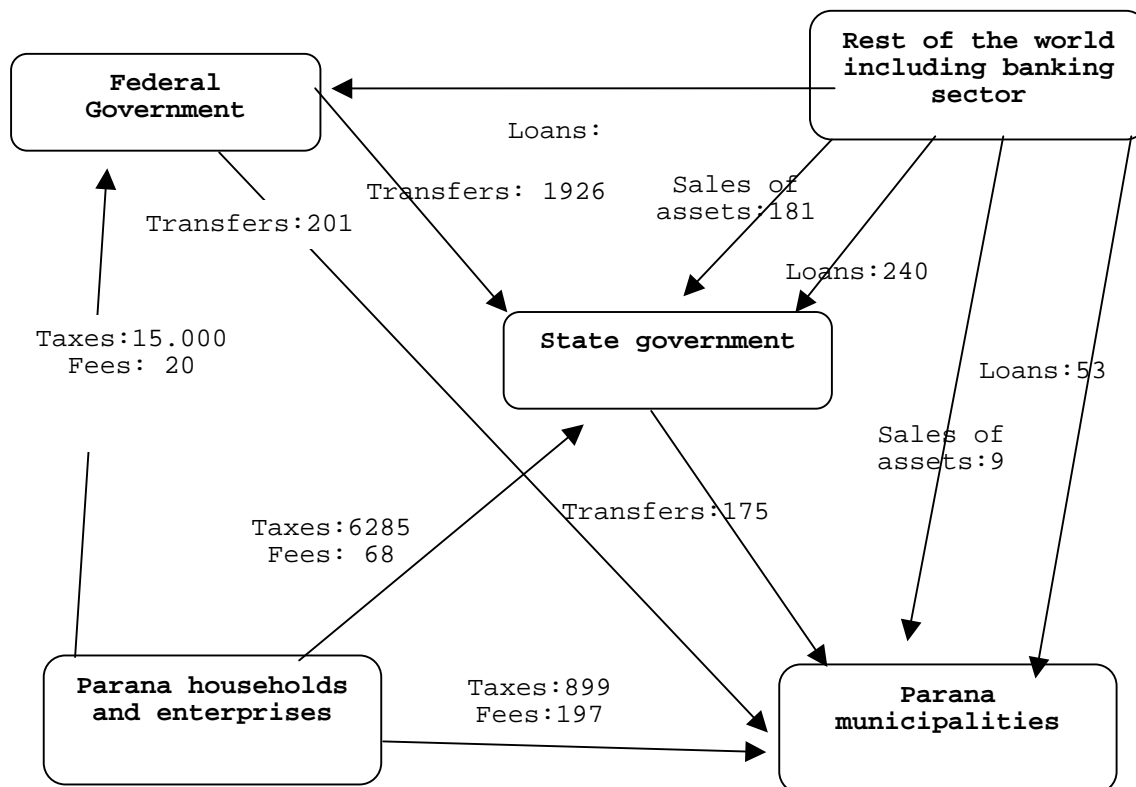
This figure shows the main relationships between our entities. Parana households and enterprises pay about 22 billion R in taxes and about 0,3 billion R in fees to the three levels of government. What is meant by fees here are the resources of governments derived from property income, actual fees for services, and other non-tax tax income. This is indicated in Table 3 which also relates these amounts to the GDP of Parana.

part of it. Efforts have been made to reconcile the numbers and to present a coherent and economically meaningful picture.

Table 3 - Contribution of Parana Households and Enterprises to the Three Levels of Governments, 2002

	Federal	State	Local	Total
In billions of R:				
Taxes	15.	6.2	0.9	22,1
Fees	0,02	0,07	0.2	0,3
Total	15	6,27	1,1	22,4
In % of Parana GDP (82,5):				
Taxes	18	7,5	1	27
Fees	0,02	0,08	0,24	0,35
Total	18,18	7,6	1,4	27

Notes: Totals may not add exactly because of rounding.

By far the largest amount, in taxes as well as in fees, accrues to the central government. The State government takes about 30% of the total. Municipalities only account for less than 4% of this total.

The recent evolution of the tax structure (since 1996) is contrasted. The total amount has increased from 11.2 to 22.1 M. R, that is to say a growth of 97%. Total taxes paid in Parana increased faster than Parana GDP since the fiscal income corresponds to 30% of the GDP in 1996 and to 27% in 2000. As the local fiscal tax burden is stable between 1996 and 2000, this overall trend is explained mainly by the federal and state's fiscal income variations. In absolute value, the federal level taxes increased from 7.4 MR in 1996 to 15 MR in 2002 (an increase of 100%), and the State of Parana taxeds increased from 3.9 MR to

6.3 MR (an increase of 61%). But these two growths in fiscal income are weaker than the economic growth in the same period, given that its share of wealth diminishes from 21% to 18% for the federal level and from 8% to 7% for the Parana government.[1]

The total tax burden in Parana appears to be around 27% of GDP. This is a little less than the 28% estimated for Brazil as a whole, also for 1996, by IBGE.

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[1] It should be pointed out here that the figures often quoted in Brazil (and even in the Constitution) about the allocation (repartiçao) of taxes between the three levels of government are misleading. These numbers refer to the after-transfer allocation. The national value-added tax (IPI) for instance is said to be allocated to the Federal government for 47%, to the States for 21.3% and to the municipalities for 22.5%1; while the State value added tax (ICMS) is said to be allocated to the States for 75% and to the municipalities for 25%. The reality is different. What you have (in the first case) is one Federal tax, the amount of which happens to be the base chosen to calculate the amount of a transfer to States and to municipalities. It is important to realize that for a State or a municipality one R in tax is not the s
ame thing as one R in transfer. One R in tax has a political cost to the sub-national government; one R in transfer has not. In raising taxes and in spending money, it makes a difference.

[2] The rest, 3%, is allocated to the Development Fund for the North and North-East.

But we should be careful here not to jump to conclusions, because we cannot be sure that the IBGE estimate is strictly comparable to our own estimate for Parana.

Table 4 - Structure of Parana State and Municipalities Income, 2002

	State (amount)	(%)	Municipalities (amount)	%
Taxes	6285	72%	899	14,75%
Fees	6,8	0,08%	197	3,23%
Transfers	1903	21,83%	4396	72,12%
Loans	240	2,75%	53	0,87%
Sales of assets	181	2,08%	9	0,15%
Other	130	1,18%	541	8,88%
Total (MR)	8719	100	6095	100%

Note: (a)The figures for the combined State and municipal governments are consolidated; transfers in that case refer to Federal government transfers. Totals may differ with fig 1 because of "others".

The overall structure of Parana state and local government income is quite satisfactory. State and local taxes —that is taxes the rate of which is decided by Parana governments— account for more than half of State and local government income. This is a very reasonable percentage, higher than is found in most, if not all, European countries. Central government transfers appear for 22%: again a reasonable figure. Loans account for 2%, which does not appear to be unsustainable.

Tax is predominant in the income structure of the Parana State government (72% of the resources) and is more important compared to 1996 (60% of the income). The tax weight has grown although the federal transfer has also grown from 13% of the overall Parana state resources to 22%. Inversely, the municipalities do not depend upon the tax, which represents 15% of the overall income, and depend less and less upon it as the tax represented 13% of 1996 resources. Consequently, the share of transfers is high : 70% of municipal income; and is higher and higher because it was 65% in 1996. The share of fees and other sources of income tend to diminish but they are an important source of financing (more than 10%) for the municipalities. Furthermore, it appears that borrowing is very rare and its use tends to decrease. It represents less than 1% of the municipalities' financial sources and less than 3% of that of Parana state.

Municipalities: a permanent need for more resources

It appears that there exists a great difference between the State and the municipalities. Whereas the State of Parana derives 60% of its income from taxes (plus 7% in the form of fees, State commercial or quasi-commercial activities, not to mention 8% in the form of sales of assets), Parana municipalities derive 65% of their income in the form of transfers. The State is financially self-dependent, and consequently accountable. The municipalities are not.

Figure 1 also indicates the magnitude of intergovernmental transfers. It shows that the Federal government grants 3.9 billion R to Parana State and local governments: 1.7 billion to the State and 2 billion to the municipalities, whereas the State gives municipalities subsidies of about 1.7 billion.

Municipalities are heavily subsidized, and receive in transfers nearly 4 billion R. The State of Parana hands out (to the municipalities) less than it receives (from the Federal government) and is therefore a net gainer at the intergovernmental transfer game. This result is explained by the fact that the transfer from the federal state to the Parana government increases faster than the transfer from the Parana State to the municipalities. The increase in the first transfer between 1996 and 2003 is 171% whereas the rise in the second is 70%.

This is primarily the result of national policies which largely determine intergovernmental transfers. There is nothing inherently undesirable in this. Helping cash strapped municipalities and reducing intermunicipal disparity is a normal responsibility of a State government.

Borrowing is another possibility to bypass the tight municipal resources. An important source of municipal borrowing in Parana is based upon two IADB loans and channelled through FDU[1]. The first loan, signed in 1996, amounted to US$ 249 million. The second, signed in 2002, was for US$ 100 million. However, because of the multiplier effect discussed below, the amounts lent to Parana municipalities were much higher than suggested by these figures. In addition, a handful of municipalities have been borrowing directly from banks, and, more significantly, most municipalities have "debts without loans", in the sense that they have arrears on their payments to the social security system or to suppliers (although arrears to suppliers are usually short-term). Table 5 provides some figures on the relative magnitude of these various loan sources.

After 2000, and as a consequence of the Federal Law on fiscal responsibility, changes were introduced in the institutional setup governing municipal lending in Parana. The role formerly played by the State Bank is now performed by the Development Agency, controlled by the Secretariat of Economy (Fazenda). Such an Agency is controlled by the State of Parana and monitored by the Central Bank, and is authorized to make loans to municipal governments —provided they meet the conditions imposed by the Federal Senate. The Fund resources have therefore been transferred from the (now privatized) State Bank to this Development Agency.

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[1] Their main source for loans for investment purposes has been a fund called FDU created at the State Bank, fueled initially by a World Bank loan (1988-1994) and afterwards by IDB loans (1996-2001/2002-2006) to the State of Parana, and in practice managed (since 1997) by Paranacidade, an entity created and controlled by the State Secretariat for Urban Development (SEDU).

**Table 5 – Parana Municipal Indebtedness, by Source, Selected
Municipalities, 2002**

	FDU	Other	Social banks	Total security
Largest municipalities :				
Curitiba (1,586)	42,852	459,136	–	501,988
Londrina (447)	971	970	20,726	46,756
Maringa (288)	16,800	82,494	12,944	112,358
Ponta Grossa (273)	5,539	2,235	58,856	66,630
Foz (258)	16,406	9,624	20,726	46,756
Cascavel (245)	12,280	8,596	12,268	33,144
Colombo (183)	5,570	–	9,136	14,707
Ten smaller municipalities :				
Boa Ventura (7)	73	–	324	398
Clevelandia (18)	166	–	461	627
Florida (2)	294	–	1,079	1,373
Itambaraca (7)	339	–	1513	1852
Mendaguaçu (17)	606	–	461	1,067
Nova Olimpia (5)	208	–	657	864
Porecatu (16)	296	–	6,812	7,108
Salto do Itarare (6)	3	–	651	655
Sao Sebastiao de Amer (9)	255	–	4,587	4,842
Xambre (7)	61	–	1843	1967

Source : Extracted from Paranacidade files. *Notes*: The ten
smaller municipalities have been randomly selected ; the
numbers in parenthesis are the population of the municipality
in 2,000, expressed in thousands ; figures are in thousands
reais ; « Social security » includes « Fundo de Previdencia »
and « Precatorios » ; in the Case of Curitiba, « Other banks »
includes mostly an IADB loan.

Table 5 shows that the indebtedness picture is (with the
notable exception of Curitiba) dominated by delayed payments
to the social security system. This debt however is entirely
unrelated to investment expenditure. Table 6 also shows great
disparity in the amount of debt per capita (from a low 34
reais in Clevelandia to a high 572 reais in Florida) that
seems completely independent of municipal size. A third
feature is the difference between large municipalities and
smaller ones: whereas the largest municipalities borrow from
both banks and FDU, the smaller municipalities only borrow
from FDU. FDU has therefore in recent years been an important
source of borrowing for investment in large municipalities and
the only source of borrowing for investment in small
municipalities.

It appears from this examination that Parana public
finances are clearly a problem. The municipalities are
indebted, but we will see further on that this level of
indebtedness is not unbearable to reimburse the social
security debts which represent a heavy weight and good news as
far as rehabilitation of public finances is concerned. For
the rest the municipalities obtain non negligible resources
from taxes and fees and complete their budget with federal
transfers which transit by the state. Nothing in this
administrative system pleads in favour of the introduction of

a supplementary level, the region, the usefulness of which is obscure.

III – Sub-national Taxes paid by Enterprises and Households

This section describes and briefly analyses the main taxes paid by Parana enterprises and households, of which the evolution is very stable since 1996. It also addresses the ticklish question of fiscal disparities amongst municipalities. It appears that fiscal disparities can be explained by the great heterogeneity of size and wealth of the municipalities.

Predominance of added value tax

Table 6 presents a summary of the taxes paid by Parana households and enterprises, and their relative importance. A description of the Federal taxes is beyond the scope of this paper. But the main State and municipal taxes call for a brief description.

Table 6 - Taxes Paid by Paranian Households and enterprises, 2002

To:	In BR	In %
Federal taxes(a)		
On wages	4,71	21
On sales(b)	3,32	15
On income(c)	3,16	14
On production(d)	1,97	8,8
Other Federal taxes(e)	1,88	8,41
Total, Federal taxes	15,054	67
State taxes:		
Value-added tax (ICMS)(f)	5,58	25
Automobile tax (IPVA)(f)	0,40	1,77
Other(g)	0,31	1,37
Total, State taxes	6,28	28,07
Municipal taxes:		
Property tax (IPTU)	0,36	1,6
Business tax (ISS)	0,43	1,93
Tax on property sales (ITBI)	0,11	0,48
Permits	0,01	0,05
Improvement tax (melhoranza)	0,15	0,67
Total, municipal taxes	1,06	4,74
Total, taxes paid	22,38	100

Notes:(a) See Prud'homme (1998); (b)CONFIN and PIS (c)Including the tax on benefits of corporate entities classified as a contribution, in addition to the corporate income tax; (d)IPI and tax on change and banking operations;(e) not identified above; (g)Including the amount collected by the State of Parana and distributed to the municipalities (which is omitted in Parana accounts); (d)Other taxes (for 20 MR), plus other contributions (for 9 MR), plus transfers from associated entities which are mostly taxes on changes of vehicle ownership raised by DETRAN

The heaviest tax paid in Parana, nearly 5.6 billion R, is a State tax, the ICMS (Imposto sobre Circulacao do Mercancias e Servicos). It is assessed on the value-added by enterprises. It is based on sales, but enterprises can deduct the ICMS from their tax liability which has already been paid on the inputs they have purchased. Rate of the tax varies with the type of product (and with the State).

In Parana, for *inter-State sales*, the standard rate decided by the State council is 18%. But there are rates of about 26% for energy, gasoline, telephone, tobacco and arms; of 12% for most agricultural production, transport services and automobiles; and of 7% for computers and silk. For interstate commerce, there are two rates: 12% for sales to Minas Gerais, Rio Grande do Sul, Rio de Janeiro, Santa Catarina and Sao Paulo; and 7% for sales to the rest of Brazil. The rate structure varies from State to State in principle, but in practice it does not seem to vary much. The general rate for Sao Paulo is also 18%, and it applies to electricity consumption (when in Parana electricity consumption is taxed at about 26%). Santa Catarina has a high and a low general rate like Parana, and of the same value. For *out of State sales*, the rates vary with the destination State: 12% for the richer States south, of Sao-Paulo, Rio de Janeiro

and Minas Gerais; 7% for the other, poorer States of the North and North-East. For *export sales*, the rate of the tax is 0%.

The value-added tax is theoretically an excellent tax that does not discriminate between forms of enterprise organisation, is more difficult to evade than most other taxes[1], and has a high yield. But the value-added tax is generally a national tax. Brazil is about the only country[2] that has introduced value-added tax as a State tax. This makes it much more complicated to administer, for two main reasons[3]. One has to do with inter-state trade: VAT paid in one State is deducted from VAT liability in another State, at different rates, and this makes checking particularly difficult. The other reason is related to multi-regional enterprises, that is enterprises that have operations in more than one State: the value added by these enterprises can easily be calculated for the country at large, but can only be allocated to the various States by means of artificial and arbitrary rules; these rules can be —and in practice are— manipulated by enterprises for tax minimization purposes. Some specific rules also complicate matters. The tax on wholesale electricity sales —an important matter for Parana which sells large quantities of power to Sao-Paulo and to other central States— is only imposed by Sao Paulo, not by Parana, just as in the case of electricity exported to Paraguay.

There is little doubt that the system is very complex, and that this complexity generates and/or facilitates tax evasion. Tax evasion is a major problem in Brazil. A very rough order of magnitude is given by the share of ICMS in GDP, 7%. If all value-added were taxed at an average rate of 17%, the proceeds of the tax would be around 17% of GDP, or rather slightly less because some elements of GDP such as wages of civil servants are not taxable, let us say 14%. This suggests that about half the ICMS is not collected. This is bad for State finance. It is also bad because it introduces distortions between enterprises that pay the VAT and enterprises that do not. But obviously, complexity is not the only cause of tax evasion. A simplification of the value-added tax system achieved by a nationalization of the tax for instance would reduce fraud, but would not eliminate it.

Three other sub-national taxes

Three other sub-national taxes of comparable importance, and accounting for more than half a billion R complete the

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[1] This is because an enterprise A purchasing goods or services from an enterprise B has no interest to cooperate with B in tax cheating: B might be tempted to underreport the value of the sale, in order to minimize its tax bill, but A wants to maximize the value of the sale and of the amount of tax paid by B, because A will deduct this amount from its own tax liability when it sells its goods to an enterprise C or to a final consumer.

[2] India has a regional sales tax that has some features of a value-added tax but is not a full VAT.

[3] Similar problems arise within the European Union, because each county has its own VAT system and because the European economies are increasingly integrated.

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picture: an automobile tax (IPVA), a property tax (IPTU) and a business tax (ISS).

The IPVA — The automobile tax (IPVA) is a State tax assessed on motor vehicle ownership. The tax base is the value of the vehicle, which is a function of type and of age. There is a registry of vehicles in Parana, which is the basis for calculating the tax and sending the tax bill. This tax yielded 5.58 billions R in 2002.

The IPTU — The property tax (IPTU) is a municipal tax assessed on the value of urban properties. It accounted for 400 MR in 2002. For reasons which are not clear, the equivalent on rural properties is a Federal tax that does not produce much income. The tax is assessed and collected by municipalities. The tax base is the market value of the property. Each municipality constructs and maintains, as best it can, a cadastre of properties[1]. It creates a commission that estimates the market value of each property. There is no homogeneity in recording and assessment procedures. In some municipalities, the assessed value may represent 10% of the market value; in others, 50%. Tax rates are decided by each municipality, within a ceiling of 5%. Exemptions may be decided, for low income retired people, for instance, or for small enterprises.

This completely decentralized procedure is unfortunate for the analyst, because it means that it is not possible to know and to compare tax bases and tax rates between municipalities, because assessment practices and values vary from one municipality to the other.(See Annexe B)

The ISS — The business tax (ISS) is a municipal tax assessed on professional services (doctors, lawyers, architects, etc.), on construction, on banking services, on hotels, on repair shops, etc. Electricity and transportation are exempt. It is in principle assessed on actual gross income, although in certain cases deductions for purchases are allowed, and in other cases gross income is substituted by an assumed « reference income », which can be very low[2]. The tax rate is decided by each municipality; within a maximum ceiling of 5 the tax is self-declaratory, although certain municipalities maintain a cadastre of taxpayers. The ISS produces 430 MR in the entire State and is the largest municipal tax in terms of yield, but it is worth noting that the municipality of Curitiba alone accounts for about 60% of the total tax collected.

Disparities Between Municipalities

A final question must be discussed: that of tax disparities between the 399 municipalities of Parana. In Parana as elsewhere, municipalities are not equal in the tax

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[1] Illegal construction is not a problem, much to the contrary: people who have built a house illegally are eager to pay the tax and thereby create a pseudo property title.
[2] In one municipality, the reference income for doctors is 34 R per month (about US$ 30).

domain. Some have higher tax bases per capita than others, largely because they are wealthier. Some have higher tax rates. Some have higher tax yields per capita than others. It is useful to appraise the magnitude of these disparities, and to try to understand them.

Inter-municipal disparities in terms of per capita tax yields are very wide indeed, and they are very much a function of municipality size. On a per capita basis, in 1996 (Table 7, third row) local taxes raised in Curitiba —and for the most part paid by Curitiba's people and enterprises— are about twice as heavy as those raised in the next larger municipalities, which are also twice as heavy as those raised in medium-size municipalities, which are again twice as heavy as those raised in the smaller municipalities. Compared to 1996, Curitiba's share and that of the smaller municipalities has increased. In 2002, Curitiba represented more than 50% of the overall amount of the taxes, and 43% in 1996. The modification of the shares is explained by the growth in tax income from Curitiba and the smaller cities and by the decrease in the income from the other municipalities.

People in Curitiba pay about ten times more than people in the smaller municipalities in local taxes. This is true for the two main taxes, the property tax (IPTU) and the business tax (ISS), as well as for all other taxes.

Table 7 — Parana Local Taxes per capita As a Function of Municipality Size, 1996-2000

	Property tax (in R/cap)	Business Tax (IPTU)	All Taxes (ISS)
Curitiba	51,5 (55)	212 (88)	(183)
9 next largest municipalities	24,5 (25)	73 (29)	(89)
70 medium-size municipalities (20,000-125,000 inhab.)	18 (13)	38(10)	(41)
291 small municipalities (<20,000 inhab.)	6(6)	16 (3)	(18)
Average, Parana municipalities	100 (21)	20 (25)	(69)

Data between brackets is for 1996. The last row has not been recalculated in 2000 for problems of data consistency.

This is not very surprising. The property tax is a tax on urban properties, and there are obviously more urban properties in the larger, more urban, municipalities. Curiously enough, the tax on rural properties is a Federal tax, which is in part returned to municipalities as a subsidy; but the amounts collected (and transferred back) are negligible. Similarly the business tax is a tax on businesses, which are mostly located in the larger municipalities. This explanation, however, may not be the entire story. It could well be that local tax assessment and collection is more effective in the larger municipalities, and/or that local tax rates are higher. If Curitiba municipality collects nearly five times as much per capita as the other municipalities in property tax, it is probably for four reasons: (i) Curitiba has more property per capita than other municipalities; (ii)

Curitiba assesses property better than other municipalities; (iii) Curitiba has a nominal tax rate of 5% —the maximum authorized— higher than the tax rate of many other municipalities and (iv) Curitiba has a much higher collection rate than many other municipalities. The lack of data on tax bases does not make it possible to quantify the importance of these various factors. The net result, however, is somewhat unfair to the larger municipalities. On a per capita basis, but also per unit of output produced or in relation to GDP per capita, larger municipalities contribute much more to their own municipal budgets.

Because the size of a municipality is a very poor proxy for its wealth, the size-tax relationship does not necessarily translate into wealth-tax relationship. The wealthiest municipalities, on a per capita basis, do not necessarily raise more taxes per capita.

To find out, it is useful to conduct regressions of tax yield per capita as a function of city size and of GDP per capita. The results of such regressions are given in Table 8. They show that local taxes per capita depend more upon the size of a municipality than upon its wealth

Table 8 - Parana Local Taxes as a Function of Municipality Size and GDP per capita, 2002: Regression Results

	Dependent variable (Number of observations) (in $)	GDP/cap (in inh.)	Size	Intercept	R2	Form	
(1)	Taxes/cap (2.60)	0.0009		14.6	0.0185	Linear	361
(2)	Taxes/cap (5.1)	0.57	-2.28 (-2.36)		0.067	Exponential	361
(3)	Taxes/cap		0.000149 (9,95)	17.05	0.213	Linear	366
(4)	Taxes/cap		0.426 (11.11)	-1.33 (-3.72)	0.25	Exponential	366
(5)	Taxes/cap 361	0.00075 (2.63)	0.000149 (11.64)	11.58	0.288	Linear	
(6)	Taxes/cap 361	0.63 (6.67)	0.434 (12.11)	-6.85 (-7.62)	0.338	Exponential	

Note: Five municipalities are excluded for lack of data; the numbers in parentheses under the regression coefficients are the t values

The regression results are econometrically quite good (all t values are high) and economically quite significant. Both municipality size and GDP per capita have an influence on taxes raised per capita. But the influence of size is much more important than that of GDP. This is reflected in the much smaller R2 of the equations that explain taxes per capita by GDP (equations 1 and 2) than by size (equations 3 and 4). This

is even clearer in the regressions that include both
explanatory variables. Even when GDP is taken into account,
size is very meaningful. Equation (5) tells us that when the
population of a municipality increases by 10,000 people, the
taxes paid per capita increase by 1.5 R. The coefficients in
equation (6) are elasticities. When the population of a
municipality increases by 100%, taxes raised increase by about
43%. When GDP per capita increases by 100%, taxes also
increase by 63%. But a 100% increase in population is a small
increase, because variation in municipality sizes are great in
the sample, whereas an increase of 100% in GDP per capita is a
large increase because variations in GDP per capita are
relatively small in the sample. Local taxes raised in a
municipality are therefore mostly a function of the size of
the municipality, not its wealth. There is no clear economic
or social justification for this.

IV – Municipal Borrowing: The Success of Paranacidade

Taxes collected by municipalities and transfers received
do not suffice to cope with all of the financial needs of
Parana municipalities. Local loans allow distribution of the
cost of the infrastructures over several generations which
durably improves the lives of the inhabitants. There is no
doubt about its economic justification; however the modalities
of its implementation created much debate. In practice, one of
the most interesting features of Parana has been the
development of an original municipal credit system, known as
Paranacidade sytem, by the name of a key institution in the
system. What it has done has been to transform a temporary
IADB loan into a working capital.

Efficiency and control

Everything else being equal, the arguments in favour of
local borrowing (if the credit markets permit it) are stronger
in growing economies. Borrowing may be the economically
appropriate way to finance capital outlays for six major
reasons, as every public finance textbook indicates.

Firstly, on a pragmatic basis, the amount required for
many sub-national governments expenditures is too large to be
raised from sub national governments' savings on current
accounts, local taxation, central government grants, private
sector provisions, or from foreign aid, and, because of their
nature, the entire investment must be expended before benefits
start to accrue.

Secondly, the infrastructure needed to accommodate future
growth is needed today. Delaying provision will slow the
growth that would improve conditions, including the ability to
repay debt. In other words, going into debt will permit growth
and increase the means for its repayment in the future. But it
is important to note that the debt must support productive

growth and not be poured down the drain of unproductive uses. This implies that local governments must follow the "golden rule" which prohibits borrowing to finance current expenditure. Moreover, borrowing to cover current account deficits has just the opposite intergenerational effect of paying for capital expenditure from current revenue. It shifts to the future the cost of services enjoyed by today's taxpayers. Many of the cases that have attracted the IMF's attention involve sub national borrowing to pay for current expenditure[1]. Central government regulations may prohibit local borrowing to finance operating expenses, but because resources are fungible and monitoring of capital projects is often inadequate, it is difficult to ensure that funds nominally borrowed for capital purposes end up financing investment rather than operating expenditures.

The third argument is that it is more equitable and economically efficient to have those that over time consume capital and benefit from it to contribute to the costs. When the technical problems of funding "lumpy expenditures" are combined with those of intergenerational equity and economic development, borrowing becomes favoured where markets will accommodate it.

Fourthly, short-circuiting the central government and provinces, or just provinces, frees local governments from the uncertainties of central government grants and loans and significantly reduces borrowing costs for municipalities. As a matter of fact, the interest rates paid by municipalities on loans are quite different from the interest rates charged by the lenders.

The fifth argument is that borrowing triggers incentives for better financial management. Local authorities that must disclose their finances to the private credit market in order to demonstrate that they are creditworthy come under pressure to take financial management seriously.

Finally, and above all, in terms of allocative efficiency it often makes sense to finance long-life investment projects by borrowing rather than relying upon current public savings or transfers. By forcing local governments to acknowledge the true cost of capital, i.e. the true price of investment, private market credit systems can help local authorities improve the choice of investments. As a matter of fact, from the borrower's perspective, low-return investments that nonetheless are profitable when financed with subsidized loans become unprofitable at the market rate of interest, and are squeezed out when the investor must pay the full market cost of capital.

Special credit intermediaries have been set up in many Latin American countries to lend funds to municipalities. Almost always, it is asserted that these institutions are meant to pave the way to self-sustaining local credit markets,

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[1] In both Argentina and Brazil, for example, provincial and state governments have borrowed massively from provincial banks to pay for their operating expenses.

where funds can be gathered voluntarily from private savers and channelled through market intermediaries to cities that need investment financing. However, very few Latin American countries, if any, have made this transition. In fact, few have even laid the foundations for a true municipal credit market. Although Municipal Development Funds in some Latin American countries now are celebrating their 20th anniversaries, they have largely remained captive instruments for on-lending funds provided by international institutions and central governments.

In a number of countries, the central government is empowered with direct control over the borrowing of sub national governments. This control may take a variety of forms, including setting annual (or more frequent) limits on the overall debt of individual sub national jurisdictions (or on some of its components, such as external borrowing); reviewing and authorizing individual borrowing operations (including their terms and conditions); and/or centralizing all government borrowing, with on-lending to sub national governments for approved purposes (generally investment projects). Control generally encompasses not only the ex-ante authorization of proposed borrowing but also ex-post monitoring.

Direct central government controls are, of course, more common in unitary states (such as France, Japan, Korea, and the United Kingdom) than in federations. One example of the latter is India, where federal government approval is required for borrowing by the sub national governments if they have outstanding debt to the federal government, as is currently the case for virtually all the states.

Several considerations argue in favour of direct central government controls on the external borrowing of sub national governments, in accordance not only with their debt-servicing capacity but also with macroeconomic (especially monetary and balance of payments) considerations. But these arguments are less compelling in the case of domestic borrowing of sub national authorities. Detailed administrative control of the latter may involve the central government in micro-level decisions which would be best left to the relevant sub national jurisdictions. The current decentralization trend seems therefore likely to be in conflict with systems of administrative controls imposed by the central government on sub national borrowing.

Only Colombia has a limit on total debt. Colombia is also the only country in Latin America that has a regulatory framework in place to control the indebtedness capacity of municipalities in accordance with their operating surpluses. A 1997 law identified three levels of indebtedness known as the "street light system", which establishes three levels of emergency by following two economic indicators: the first one measures liquidity, and the second one measures solvency. The latter is only used for the "red level", or for highly indebted municipalities. The "red level" represents a danger

in the capacity to repay the debt (Freire, Maria, Marcela Huertas, and Benjamin Darche, 2000).

Most of the other Latin American countries either have no quantitative controls on total debt or use the debt service/revenue ratio to control outstanding debt.

To sum up: as a rule, inappropriate borrowing by local governments should be viewed not as a problem of decentralization but as a symptom of more basic underlying inadequacies with the intergovernmental fiscal system in general. Once this is resolved, the institutional problems that may give rise to unsustainable local borrowing should largely be solved. However, it may take a considerable learning period before practice reaches the same level as theory and, in the interim, certain specific rules and limits may be needed in order to reduce the likelihood of undesirable outcome.

The Parana case

The municipal lending system created in 1996 with the first IADB loan was relatively complex[1]. It is presented in a summarized fashion in Figure 1. Six institutions were involved : the IADB, the State of Parana, the Secretary of Urban Development (SEDU), the State Bank, the municipalities, and Paranacidade, an agency controlled by SEDU. Other institutions such as the Central Bank, the Secretary of Economy (Fazenda), and its Development Agency also existed, but did not play a role in the municipal lending system. Dotted lines show power or control relations. Thus, the State of Parana obviously controls its Secretariats of Urban Development and Economy, as well as the State Bank. SEDU controls Paranacidade. Plain lines show money flows.

Figure 2 – Municipal Lending System in Parana, 1996-2000

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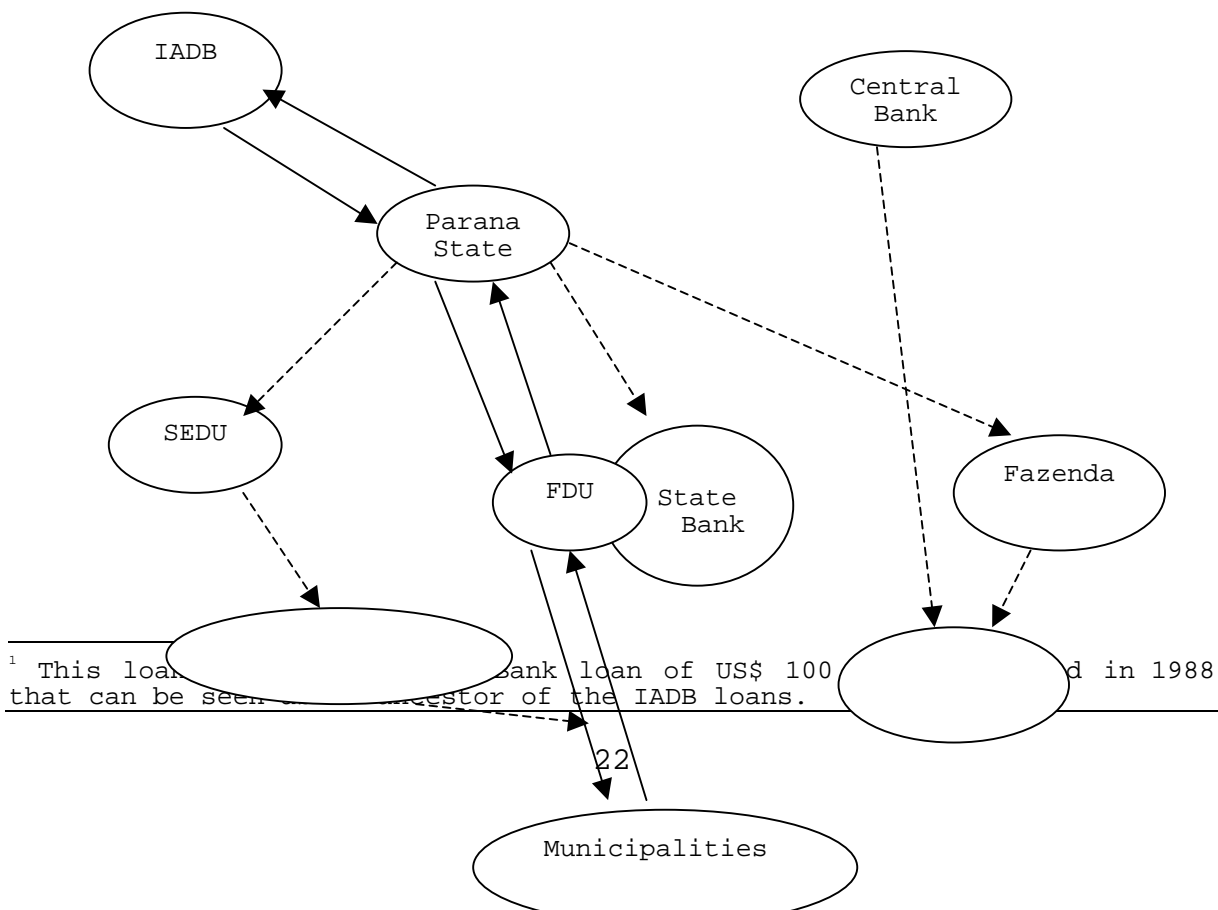
[1] This loan [...] bank loan of US$ 100 [...] in 1988 that can be seen [...] ancestor of the IADB loans.

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Note: Plain lines represent money flows; dotted lines represent power and control relationships.

The IADB was lending the money to the State of Parana. The State in turn was allocating that money to FDU, a special Fund opened at and operated by the State Bank. This Fund (through the State Bank) was lending money to municipalities. The role of Paranacidade in this process was crucial : this agency was preparing the loans, identifying the bankable municipalities, negotiating with them, and approving eligible projects in accordance to project evaluation criteria. In turn municipalities were paying the FDU interest on their outstanding loans and amortization of the capital. Part of this money was transferred to the State government, in order for it to pay interest to and reimburse the IADB.

But part of this money remained with FDU for funding further loans to municipalities. Why and how was the Fund accumulating money? The answer is that the municipalities were paying back more than was needed to reimburse the IADB. This was happening for three reasons. First, there was a great difference in the interest rate paid by municipalities (16%) and the interest rate paid by the State of Parana to the IADB (4.66%). Second, there was a difference in the grace period granted to municipalities (1 year) and the grace period granted by the IADB (4 years). Third, there was a difference in the maturity of loans to municipalities (5-10 years) and the maturity of the IADB loan (20 years). These three differences accounted for the « benefits » of the Fund. They can also be seen as a protection against the risk of currency exchange rate changes, since the IADB loan was in US dollars and the loans to municipalities in local currency. This mechanism in analyzed in greater detail below.

Important changes were introduced at the Federal level in 2000 in the rules governing municipal —and even more so State— borrowing (Dillinger 2001). They were reinforced by the 2000 Law of Fiscal Responsibility (*Lei de Responsabilidade Fiscal – LRF*). Two measures of particular importance for our purposes were: (i) constraints on municipal borrowing and (ii) the disappearance of State-owned banks, which were to be privatized. The system in place in Parana had therefore to be modified, since the State Bank housing the Fund had to disappear. It was indeed modified. The new system is shown in Figure 2.

The role formerly played by the State Bank is now performed by the Development Agency controlled by the Secretariat of Economy (Fazenda). Such an Agency is controlled by the State of Parana and monitored by the Central Bank, and is authorized to make loans to municipal governments —provided they meet the constraints imposed by the Federal Senate. The Fund resources have therefore been transferred from the (now privatized) State Bank to this Development Agency. Paranacidade continues to assess, oversee, negotiate and monitor the loans to municipal government now made by the Development Agency. Hence the black arrow in Figure 2-connecting Paranacidade to the flow of money from the Fund to municipalities.

The change was not instantaneous. For two years (2001 and 2002) FDU could no longer make new loans to municipalities, and the Development Agency was not yet empowered to make new loans. Only loans previously signed could be disbursed by FDU. As a result, FDU current loans to municipalities declined dramatically, from 134 M. reais in 2000 to 25 M in 2001 and 40 M in 2002.

Figure 3 – Municipal Lending System in Parana, After 2001
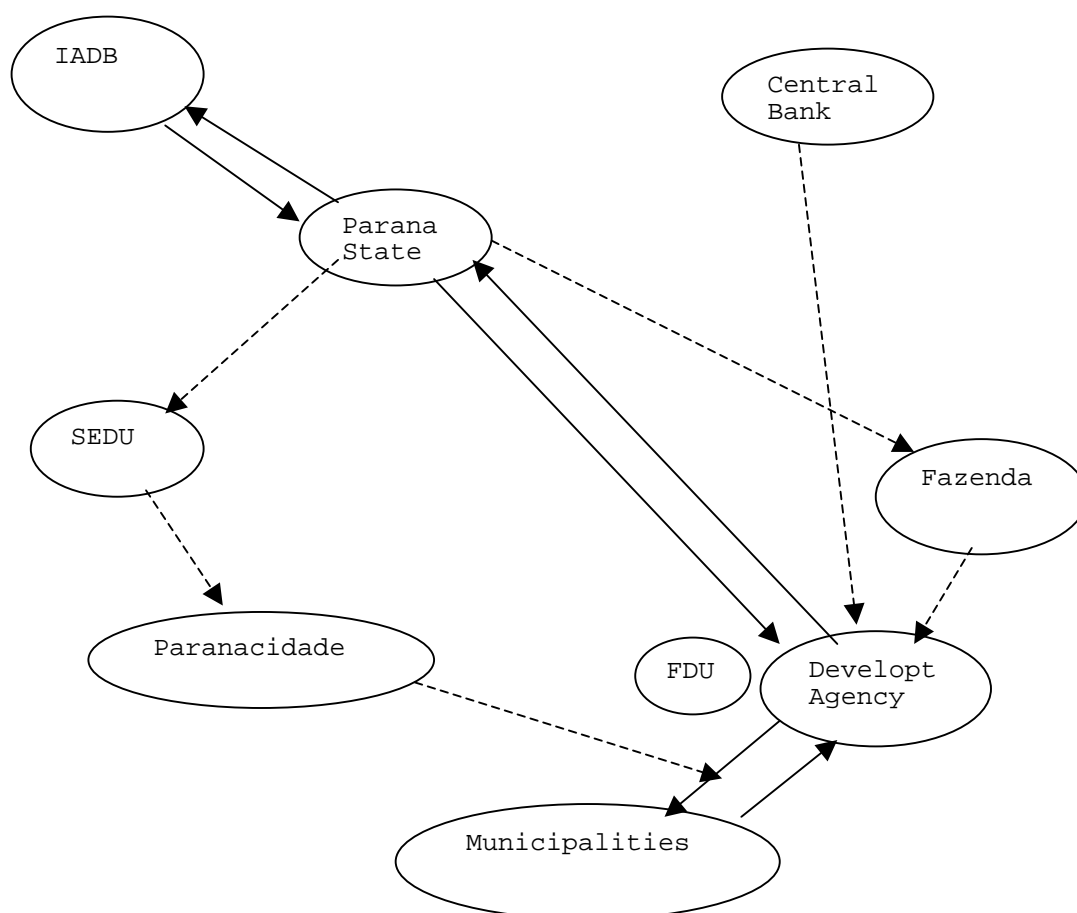
Note: Plain lines represent money flows; dotted lines represent power and control relationships

This system is potentially damaging for municipal lending in Parana. So far, the new system, and the new State governor elected in 2002, have not introduced fundamental changes in

the day-to-day practice of municipal lending in Parana. Much depends upon the governor, who controls both SEDU and Fazenda, and the new governor is committed to the continuation of the municipal lending program. The money accumulated in the Fund and the money coming from the second IADB loan are both used to make new loans to municipalities. The constraints imposed by the Senate upon municipal government are in practice not very binding in Parana (as discussed below), and the demand for loans remains strong. The importance of the program has even been increased, in the sense that the State wants to use it to more explicitly influence the municipalities' behaviour. It has instructed Paranacidede to do so and to introduce « conditions » in the lending program —exactly what the IADB and the World Bank try to do in their own lending operations!

In the future, however, things could change. The war treasure accumulated by the Fund and aimed at developing a self-sustainable municipal lending program constitutes a tempting target. It is now part of the Development Agency's capital—by far the largest part— although it is in principle ear-marked for municipal lending. But the Development Agency may eventually be pressured into using "its" capital for other —equally legitimate— development purposes, such as lending to private enterprises. The fact that the Fund is now (via the Development Agency) controlled by Fazenda rather than by SEDU increases the possibility of such an outcome. A ministry of Urban Development is, by nature, more committed than a ministry of Economy to municipal financing. Besides, we all know cases of competition between ministries. For the time being, the commitment of the governor and his secretaries provide a very effective protection against the dismantling of the municipal lending program. But governors and secretaries come and go; and the IADB loan will soon be disbursed. Therefore the protection they offer is weak for the long and even medium term. In other words, continuity of the present municipal lending system in Parana is not completely assured.

The FDU-Paranacidade Achievements

The complex system developed prior to 2000, and still operative today (although threatened), can be credited with two main achievements: it helped transform a temporary loan (loans are transient by nature) into permanent capital, and it developed significant expertise in municipal lending.

It is important to understand the mechanisms at work in Parana that have accomplished a sort of miracle: the creation of capital endowment with a temporary loan. The IADB lends money to the State of Parana, or more precisely to its FDU, that sub-lends it to Parana municipalities, with the technical help of Paranacidade. The variations in the terms of the two loans make it possible for the State of Parana, or for its FDU, to repay the loan and yet accumulate enough money to continue municipal lending. This is true even in the presence of severe exchange rate shocks, such as those that occurred in the period 1999-2002.

The following model explores (with figures) the mechanisms behind this apparent miracle. It is a somewhat simplified, yet realistic, version of the IADB Parana Urban loan negotiated in 1996 for an amount of 250 million US$, at a time when one real was worth one US$.

Let us first consider the flow of debt service from the FDU (or State of Parana). Let us assume a loan of 100 M reais entirely disbursed at the beginning of year 1. The interest rate is 5% per annum. There is a three years grace period, during which interest is paid[1]. In years 1 to 3, debt service is therefore equal to 5.0 M. During year 4 and subsequent years, debt service consists of interest and amortization, and is constant. It is easy to calculate that it must be equal to 8.9 M per year, if capital is to be entirely repaid at year 20. The flow of debt service is therefore (5; 5; 5; 8.9; 8.9; …; 8.9), as shown in Table 9.

In reality, things are more complicated because of exchange rate risks. The loan is to be repaid in US$. If the reais value of the dollar increases, as has been the case in recent years, the flow of reais to be paid will also increase. Table 9 shows evolution of the exchange rate over the first 8 years of the loan, which is exactly that which prevailed between 1996 and 2004. It then first assumes a stable exchange rate, second a sliding (at a rate of 5% per year) rate. It calculates the implied debt service for each of the 20 years of the loan in both cases.

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[1] In reality, the grace period was longer; to be on the safe side, we assume a full 3 year grace period.

Table 9 – Flow of Debt Service from FDU to IADB, Hypothetical Case, Years 1-21

Year	Capital (M$)	Interest (M$)	Amort (M$)	DS1 (M$)	Reais/$	DS2 (M reais)	DS3 (M reais)
1	100.0	5.0	–	5.0	1.0	5.0	5.0
2	100.0	5.0	–	5.0	1.1	5.4	5.4
3	100.0	5.0	–	5.0	1,2	5.8	5.8
4	100.0	5.0	3.9	8.9	1.8	16.1	16.1
5	96.1	4.8	4.1	8.9	1.8	16.2	16.2
6	92.1	4.6	4.3	8.9	2.3	20.8	20.8
7	87.8	4.4	4.5	8.9	3.1	27.6	27.6
8	83.3	4.2	4.7	8.9	3.0	26.6	26.6
9	78.6	3.9	4.9	8.9	3.0	26.6	27.9
10	73.7	3.7	5.2	8.9	3.0	26.6	29.3
11	68.5	3.4	5.4	8.9	3.0	26.6	30.8
12	63.0	3.2	5.7	8.9	3.0	26.6	32.3
13	57.3	2.9	6.0	8.9	3.0	26.6	34.0
14	51.3	2.6	6.3	8.9	3.0	26.6	35.7
15	45.0	2.3	6.6	8.9	3.0	26.6	37.4
16	38.4	1.9	6.9	8.9	3.0	26.6	39.3
17	31.5	1.2	7.7	8.9	3.0	26.6	41.3
18	24.2	1.2	7.7	8.9	3.0	26.6	43.3
19	16.4	0.8	8.0	8.9	3.0	26.6	45.5
20	8.4	0.4	8.4	8.9	3.0	26.6	47.8
21	0.0	0.0	0.0	0.0	3.0	0.0	0.0

Notes : Capital is debt outstanding, and refers to the beginning of the year; DS1 = Debt service ; DS2 = Debt service in reais, taking into account effective changes in exchange rates until year 8 (2003), and postulating a stable exchange rate afterwards ; DS3 = Debt service in reais, taking into account effective changes in exchange rates until year 8 (2003), and postulating a sliding exchange rate at a rate of 5% per year afterwards.

Let us then consider the flow of debt service from municipalities to FDU. It is assumed that the money lent to FDU by the IADB is immediately re-lent to municipalities at the beginning of year 1 (which is of course a simplification). Municipalities pay interest, at a rate of 16%, and pay back capital without a grace period. Debt service is constant and such that capital is entirely amortized in year 7. It is easy to calculate that the debt service of a 100 loan is equal to 24.7 per year.

For all of the 7 first years, even with the high devaluations that have taken place, this is much more than what has to be paid back by the FDU to the IADB. The FDU therefore accumulates money. All or part of this money can be lent to municipalities. We must assume *a re-lending rule*. Let us assume that the FDU lends all the debt service it receives minus the debt service it must pay. In year 1, for instance, it will reinvest 19.7 M. (24.7 minus 5.0) at the above mentioned terms. In year 2 (and in the six subsequent years), these 19.7 M. new or additional loans will produce debt service of 4.9 M. per year. This additional debt service itself will be reinvested in year 2. In year 7 when the initial 100 M. loan to municipalities has been entirely repaid

by municipalities, new loans will have been made (for an additional 200 M.), that will produce debt service in subsequent years. Table 10 presents the main flows and stocks associated with this process.

Table 10 – Reinvested Benefits of FDU, cumulated & Outstanding Loans to Municipalities, Hypothetical Case, Years 1 to 21

Year	DS	DP	Reinvested	Cumulated	Capital	
1	24.7	-5.0	19.7	119.7	100.0	
2	29.6	-5.4	24.2	143.9	111.0	
3	35.3	-5.8	29.7	173.6	123.4	
4	42.9	-16.1	26.8	200.3	137.2	
5	49.5	-16.2	33.3	233.6	143.2	
6	57.7	-20.8	36.9	270.5	149.8	
7	66.8	-27.6	39.2	309.7	153.0	
8	51.8	-26.6	25.2	334.9	148.8	
9	53.1	-26.6	26.5	361.4	146.3	
10	53.7	-26.6	27.1	389.6	142.8	
11	54.0	-26.6	26.5	417.0	138.4	
12	53.8	-26.6	26.4	444.2	134.3	
13	52.0	-26.6	24.7	469.6	137.8	
14	48.9	-26.6	21.7	491.9	125.9	
15	44.4	-26.6	17.4	509.7	119.2	
16	42.3	-26.6	15.5	525.5	111.5	
17	39.4	-26.6	12.8	538.2	101.8	
18	35.8	-26.6	9.2	547.4	86.4	
19	31.6	-26.6	5.0	552.4	73.4	
20	26.3	-26.6	-0.3	552.0	58.4	
21	20.2	0.0	20.2	572.2	78.6	

Notes : DS = debt service paid by municipalities to FDU ; DP = debt payment to the IADB taking into account the 1999-2002 devaluations, and assuming stability thereafter (column DS1 in Table 9); Cumulated = the total amount of loans at year end ; capital = outstanding debt of municipalities at the beginning of the year.

Several conclusions can be drawn from Table 10.

First, the yearly flow of debt service from municipalities to FDU is always greater than the flow of debt service to the IADB (except in year 20). This result is obtained with a reasonable investment rule: the difference between the two flows is re-lent to municipalities. Note that this result is obtained in the presence of major exchange rate changes (those that prevailed in 1999-2002). It is true that it assumes no further exchange rate changes after year 8, a questionable assumption. But introducing moderate changes would not alter the picture very much.

Second, over a 20 year period, the total amount of lending to municipalities —and of the local investments they finance— made possible by the system is more than five times the initial amount of the IADB loan. Thanks to this formidable multiplier effect, the 250 M. US$ loan will have financed much more than a billion US$ of municipal investments.

Third, the system is self-sustainable. Table 10 does not show what will happen after year 21, but this can easily be forecasted (and calculated). In year 20, the outstanding debt of municipalities to the FDU stands at about 60 M., and yearly debt service is about 26 M. This might not sound like much, but after year 20, the IADB loan will be fully repaid, and it will be possible to re-lend all of the debt service proceeds. Outstanding capital will be quickly replenished, and debt service paid by municipalities to the FDU will soon increase substantially. This is already apparent in the figures for year 21: incoming debt service (to the FDU) is modest (20.2), but since there is no outgoing debt service to the IADB, this is entirely benefit. When re-lent to municipalities, it increases outstanding debt from 60 to 80 M. It is important to note that, at this stage, the system will be fully protected from foreign exchange risks.

Some of the simplified assumptions used in this model are probably over-optimistic. Reality has been slightly different. Disbursement and re-lending of the initial IADB loan was obviously not instantaneous and did not take place on January 1 of year 1. The interest rate of the IADB loan was variable and has been, at least at times, higher than the 5% used here. The re-investment rule used in the model (the difference between debt service received and debt service paid is immediately re-lent to municipalities) did not entirely prevail in reality, and part of the benefits remained in cash or in the bank. This last point, however, would not much change the calculations because money in bank accounts pays an interest as high or (generally) higher than the interest paid by municipalities. Finally, the calculations made assume a fixed exchange rate for years 8 to 21, an optimistic hypothesis. Nevertheless, there are reasons to believe that this model provides a first approximation of the outcome of the mechanisms involved. The conclusions drawn certainly hold up, even though they should probably be qualified or toned down.

Expertise in Municipal Lending

The existing system's other achievement is the development of a solid expertise in municipal lending at Paranacidade. Over the past decade, Paranacidade has made thousands of loans to municipal governments. It has developed a unique data base to that effect, an intimate knowledge of municipal finance, a good understanding of municipal needs, and a recognized ability to assist and influence municipalities —including weak ones— in facing their infrastructure programs and investments.

Municipal lending is a highly specialized job. This is illustrated by the experience of the French Crédit Local de France. Crédit Local de France started as a subsidiary of the publicly-owned Caisse des Dépôts et Consignations in the 1970's, at a time when municipal lending was State-subsidized and in practice a monopoly of Caisse des Dépôts and Crédit Local de France. Over the course of time, State subsidies were eliminated (municipalities now borrow at the same rate as

enterprises), the monopoly of Caisse des Dépôts was also eliminated (any bank can lend to municipalities), and in addition Crédit Local de France was privatized. One could therefore have expected the powerful French and international banks to significantly reduce Crédit Local de France's share in lending to municipalities. They tried, but they did not succeed. Crédit Local de France (now called DEXIA) has remained the dominant lender by a large margin. This can only be explained by the specialized expertise it had acquired over time, and which could not be matched by the other private banks.

V – Last but not least : Intergovernmental Transfers

Each decentralized country is characterized by a specific assignment of revenue raising responsibilities across the various levels of government. The most observed is one that provides for assignment to each level of government its own sources of revenue in combination with various types of intergovernmental transfers to bridge any resulting gap between revenue and expenditure.

Magnitude and Types of transfers

Intergovernmental transfers play an important role in Parana, although as mentioned above this role is much more important for municipalities (relative to their total income) than for the State. Transfers are broadly divided into two types: general or specific.

Specific transfers are transfers made with strings attached; they can only be used for a specific purpose. Specific transfers are often, but not always, negotiated (convenios). General transfers, in contrast, come without strings attached. The recipient can do what he pleases with the money, just as in the case of tax money.

General transfers are generally, although not necessarily, automatic, that is the result of the application of formulas. Both types of transfers have advantages and drawbacks. Recipients prefer general transfers that give them more freedom. They (the recipients) think they better know what their electorate wants, and therefore that a $ given in the form of a general transfer will produce more welfare than a $ given in the form of specific transfers. Givers, on the other hand, tend to prefer specific transfers, either because specific transfers give them more power or because specific transfers make it possible for them to conduct national or State policies, for which, they say —quite rightly— that they are also accountable for to their electorate. Figure 11 presents the transfer flows in Parana having this distinction.

Figure 4 - Diagrammatic Presentation of Intergovernmental Transfers in Parana, 2002
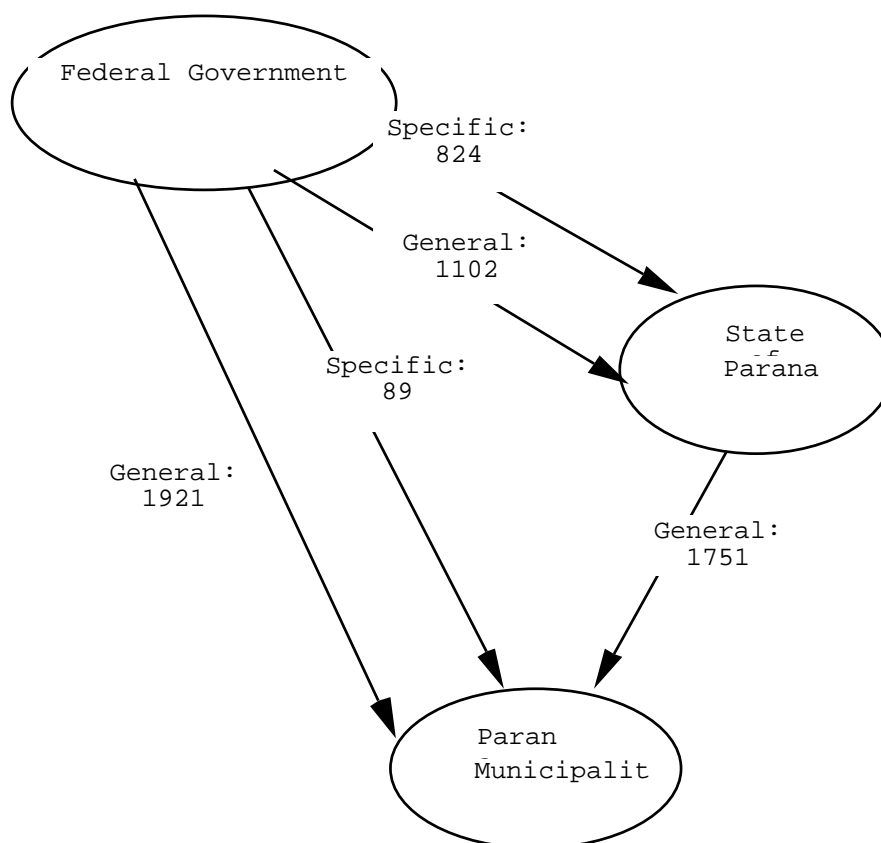
Notes: see table 9. Figures are in MR

Transfers from the Federal government to the State government

    The structure of Federal transfers to the government of the State of Parana appears in Table 11.

Table 11 - Federal Transfers to the State of Parana, 2002

	In MR	In %
General transfers		
FPE (a)	601	31
Reimbursement of VAT/exports foregone	93	13
Fundo de exportacao	202	11
Total, general transfers	1102	57
Specific transfers		
Share of education tax (c)	769	40
Agreements reported in State budgets	30	1,56
Other agreements (d)	25	1,3
Total, specific transfers	824	43
Total, transfers	1926	100

Notes: (a) Fundo de Participao do Estado; (b) Transferencia do imposto de renda retido na fonte is a transfer equivalent to the amount of income tax withheld at source on State employee wages; (c) Share of contribucao do salario educacao; (d) total agreement (convenios) transfers, as made by the Federal government minus agreements identified in the State of Parana accounts.

The total amount of transfer somewhat exaggerates the amount of resources contributed by the Federal government. At least one item can hardly be considered as « true transfer »: the reimbursement of the VAT forgone on exports. By decision of the Federal government, and for very good reasons, exports are not subject to VAT (ICMS). This Federal decision reduces the State CAT (ICMS) income. The Federal government therefore compensates the State for this loss of income, in the amount of 93 MR in 2002. It could be argued that Federal transfers only amount to 1833.[1]

About 60% of these transfers come without strings attached. Negotiated agreements (convenios) are of course an exception, since they are very specific. So is the share of the education tax (salario-educacao), which is specific in the sense that it must be spent on education.

Transfers from the Federal government to the municipalities

There are some uncertainties relative to the exact amount of Federal government transfers to municipalities. Municipal accounts do not seem to report (all) of the agreements (convenios) transfers, as recorded by the Federal government, and the amount of « other », unknown and unspecified, transfers in municipal accounts is quite large. What seems certain, and what has been used to construct Table 12 below, is the amount of current transfers recorded in municipal

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[1] Compared to 1996, the transfer structure has dramatically changed. In 1996, the general transfers corresponded to 65% of the overall transfer and in 2002 they correspond to 57%. The correlated increase of the share of specific transfers is mainly explained by the growth in the "education tax» share that has multiplied by 10 between 1996 and 2002, whereas the total transfer has multiplied by 2.6.

accounts, and the amount of agreement transfers as reported by Brasilia.

Table 12 - Federal Government Transfers to Municipalities, 2002

	In MR	In %
Identified transfers		
Municipal Fund (FPM)	1479	75
Share of tax on rural properties (ITR)	12	0,6
Other	430	21
Total, identified transfers	1921	95
Negotiated transfers (convenios))	89	4,5
Total transfers	2010	100

Not much can be said about the negotiated transfers (convenios). They cannot be identified by municipalities, either in municipal accounts or in the information provided by the Federal government. What can be analysed, is the information on identified transfers, and in practice on the transfers from the Municipal fund (FPM), which is available at the municipal level, and, fortunately accounts for the bulk (75%) of Federal transfers. This fund and its share of the total have grown with regard to 1996 : from 618 MR to 1479 (from 69% to 75%).

The FPM Federal transfer is first determined nationally, and is then allocated to all the municipalities of the country, according to rules prescribed in the Constitution. The total amount of the Fund is determined as a fraction (22.5%) of two important federal taxes: the income tax and the national value-added tax (IPI). It is allocated to the country's municipalities according to a complicated formula. A certain percentage of the FDM (10%) is set aside for the State capitals, and Curitiba gets its share (equal to 4%/1.187 or about 3.37%) of this amount. A second percentage of the FDM (3.6%) is set aside for non-capital municipalities of more than 150,000 inhabitants, of which there are six in Parana, and each of these six municipalities gets a certain share (2/231.8, or 0.86%) of this amount, independently of its size or wealth or needs. This means that the smallest of these six municipalities get more on a per capita basis than the larger ones. But all of them get less than Curitiba per capita[1]. The bulk of the FPM (86.4%) is allocated to the remaining municipalities of the country, those that have a population inferior to 150,000. This is first done on a regional basis, with a view to favouring the poorer Brazilian regions of the North and the North-East. A total for Parana (Te) is therefore calculated. It is then divided amongst the remaining Parana municipalities, with the help of the so-called coefficients (Ci) attached to each municipality. The FPM given to a municipality (Ti) is:

$$Ti = Te*Ci/\bullet Ci$$

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[1] It can be calculated that Curitiba gets 0.337% of the national total and each of these six municipalities 0.031% of the national total, but Curitiba's population is less than 10 times as large as that of these six municipalities.

The coefficients Ci are a decreasing function of municipality size. Municipalities are grouped into a dozen classes or brackets: municipalities with less than 10,000 inhabitants have a coefficient of 0.6, municipalities with a population of 10-13,000 inhabitants have a coefficient of 0.8, etc. The important point is that the function is not linear. The value of the coefficients is not proportional to size, but regressive relative to size, so that per capita transfers decrease with municipality size. We have seen that the coefficient for municipalities of 10-13,000 inhabitants is 0.8. The coefficient for municipalities of 100-130,000 inhabitants —ten times larger— is not 8, but only about 3.3. This means that the smaller municipalities will get, on a per capita basis, about 4 times as much as the larger ones.

Transfers from the State of Parana to Municipalities

Transfers from the State to the municipalities are important. They account for a billion R, which is for about a fourth of the expenditure of Parana State, and for more than a third of the income of Parana municipalities.

Table 13 - Transfers from the State of Parana to municipalities, 2002

	In MR	In %
Share of VAT (ICMS)	1414	81
Share of Automobile tax (IPVA)	199	10
Share of VAT Rebate on exports	50	3
Other	50	2,8
Negotiated transfer	44	2,51
Total	1751	100

A first State transfer is related to the automobile tax (IPVA) raised by the State government. Half of it is transferred to the municipalities, as prescribed in the Constitution. This is done pro-rata the amount of IPVA collected in each municipality, an implicit allocation criterion that favours richer municipalities. A second, relatively minor transfer is related to the Federal transfer associated with VAT foregone on exports, as discussed above; a fourth of this Federal transfer is transferred back to the municipalities. But the most important State transfer is the share of VAT (ICMS) raised by the State which is transferred back to municipalities. Its amount and share in transfer have increased since 1996 (from 731 MR and 74% to 1414 MR and 81%). The total amount of this transfer is not a State of Parana decision: it is prescribed by the Constitution. It is equal to 25% of the ICMS raised. The allocation of this so-called ICMS transfer amongst Parana municipalities is also largely mandated by the Constitution. The Parana formula appears in Table 15, for 1996.

Table 14 - Criteria for the Allocation of the ICMS Transfer to Parana Municipalities, 1996

Allocation criteria	Weight
Share of ICMS collected (V)	75%
Share of environmentally protected areas (E)	5%
Share of agro pastoral production (A)	8%
Share of total population (P)	6%
Share of number of rural properties (R)	2%
Share of State area (S)	2%
1/Number of municipalities (N)	2%

Note: With the above mentioned notations, with subscript i designating municipality i and subscript e designating the State total, with T the ICMS transfer, one has:

$$T_i = T_e (0.75 \cdot V_i/V_e + 0.05 \cdot E_i/E_e + 0.08 \cdot A_i/A_e + 0.06 \cdot P_i/P_e + 0.02 \cdot R_i/R_e + 0.02 \cdot S_i/S_e + 0.02/N)$$

The first criterion, the origin of ICMS collected, is prescribed by the Constitution. At least 75% of the ICMS transfer must be allocated pro rata ICMS collected. In other words, 18.75% of ICMS collected in a municipality goes back to the municipal budget: this is not enough to really interest the municipality in ICMS collection, and quite unfair, since it gives more transfer income to the municipalities that have more ICMS, that is presumably to the municipalities that are richer and have the largest property tax (IPTU) and business (ISS) tax bases. The State is unfair, but is not responsible for it. The other criteria are decided by the State. They apply to the remaining 25%.

They try to redress the urban bias of the Federal government mandated criteria. At least three of the criteria explicitly favour rural municipalities (agro-pastoral production, number of rural properties, and area). So does the fixed term, which can be calculated to be about 9,000 R per municipality, independent of its size. The population criterion introduces a neutral dimension (in contradiction with the previous one). The environmental criterion adds another, welcome, dimension.

Impacts of transfers to municipalities

Transfers account for about 72% of local government income —much more in many small municipalities— and are bound to influence their behaviour. The two main transfers, the Federal Fund for Municipalities transfer (FPM, for more than 1470 MR) and the State VAT transfer (ICMS, for more than 1400 MR) account for 47% of municipal the income. Two important questions can be raised: (i) does the transfer system reduce tax yield disparities? (ii) is it fair? The answer to the first question is: yes. The answer to the second is: no.

Is the transfer system equalizing?

There is no doubt that the transfer system reduces disparities in local government resources. This is illustrated in Table 15, which shows the amount of taxes and transfers that benefit groups of municipalities.

Table 15 - Taxes and Transfers in Parana, as a Function of Municipality Size, 2002

	Local Taxes (in R/cap)	Transfers (in R/cap)	Taxes + Transfers (in R/cap)
Curitiba	212	398	610
9 next largest municipalities	73	265	338
69 medium-size mun. (20,000-125,000 inh)	38	300	338
285 smaller mun. (<20,000 inh.)	16	424	440
Parana municipalities	70	341	411

Table 15 suggests that transfers to municipalities are inversely related to taxes raised by municipalities. This is due mostly to the Federal transfer (FPM). The State transfer (ICMS) appears to be unrelated to local taxes raised. The net result is obviously to partially equalize total resources (taxes plus transfers) of municipalities, on a per capita basis.

A fuller demonstration of this partial equalization is given in the comparison of before and after transfer disparities in per capita municipal resources. Table 16 gives two indicators of disparities for all the municipalities. One is the ratio of the 9th decile to the first decile. The other is the index of dispersion, defined as the standard error divided by the mean. Other indicators exist (such as the Gini coefficient, or the Theil index), but they would basically tell the same story.

Table 16 - Before and After Actual Transfer Disparities in Parana Municipality per capita Resources, 2002

Dispersion Index	9th decile	1st decile
Local taxes	1.0292	6,4034
Local taxes + Federal + State transfers	0.3661	2.3500
Change in indicators of disparities	-74%	-73%

Notes: The dispersion index is the ratio of the standard-error to the mean of the distribution; the first decile is the value such that 10% of the municipalities have a value lower than that; the 9th decile is the value such that 90% of the municipalities have a value lower than that; the 9th decile/1rst decile provides an indicator of disparities more meaningful than the maximum/minimum ratio, because it eliminates potentially erratic and non-significant cases at the extremes.

Clearly, transfers reduce disparities in municipal resources. All of the indexes of disparities are reduced, and by a large amount. In total, disparities are reduced by 70%.

Is this a big achievement? The answer is: no. Transfers nearly always reduce tax disparities. They need not even be an inverse function of taxes raised. A transfer system that is equalitarian, that is that would give the same amount per capita to every municipality, would also reduce disparities. In certain cases, even a regressive transfer system, one in which more is given to those who already have more, will reduce disparities, provided the unequal transfers are less unequal than the original tax yields.

Is the transfer system fair?

The issue therefore is not so much to know whether the transfer system is equalizing in terms of resources —all transfer systems are, and simpler ones would equalize even more. It is rather to find out whether the transfer system is fair and efficient. To give meaning to these concepts, we must refer to the objectives that can be assigned to a transfer system. A transfer system usually has several objectives. One is to compensate, at least partially, for differences between municipalities in tax bases, so that municipalities can compete with each other on an equal footing in terms of resources. Note that the compensation should be in terms of tax base, not in terms of tax yield; compensating in terms of yield would penalize those municipalities that impose high tax rates, and in practice induce them not to do so. A second objective is to compensate for differences in terms of needs. The concept of need is difficult to handle (and often alien to the economist's language), but it is easy to understand that not all municipalities have the same needs for public expenditure; large cities, for instance, often have greater needs because they offer services which are in part consumed by households or enterprises living outside their borders; municipalities with more children than others will have greater expenditures for education. A third objective may be to compensate for differences in economic development, and to give more to those municipalities that have a lower

GDP/capita, although not everyone agrees with this third objective. It is in part redundant with the first, because a low GDP is usually associated with a low tax base. And it is not sure that the most efficient way of supporting local government is to give more money to local government.

In the case of Parana municipalities, the lack of data on tax bases makes it impossible to directly test whether the objective of tax base equalization is achieved by the transfer system. The lack of data on needs also makes it difficult to test the performance of the system relative to the objective of needs equalization.

To approach this issue, we tried to explain the amount of transfer per capita received by each municipality by three variables: (i) the amount of local taxes raised, (ii) the size of the municipality, and (iii) the GDP per capita of the municipality. The second explanatory variable can be interpreted as a proxy for needs, and the third as a proxy for tax bases. Regression analysis is conducted for the sum of these transfers. Results are presented in Table r. Simple regression analysis results are not presented, because they are included, with additional meaning, in the multiple regressions. Table 18 tells us a number of important things.

Table 17 - Transfers to Parana Municipalities as a Function of Taxes, Size and GDP, 2002: Regressions Results

Dependent var.	Taxes (R/cap)	Size	GDP (in 1000)	Intercept	R2	Form ($/cap.)
(1)Transfers/cap Linear	-1.301 (-3.04)	-0.1 359 (-1,29)	0.016 (6.7)	381 21.0)	0.14	
(2)Transfers/cap Expon.	-0,30 (10,62)	-0.40 359 (-17,76)	0.17 (3,21)	7,5 (14,6)	0.52	

Notes: The figures in parentheses are the t-values; FPM (Fundo do Participacao dos Municipios) is the main Federal government transfer; ICMS is the most important State transfer and the total amount to 25% of the State yield of the VAT (ICMS)

A few reports may be derived from table 17. Not surprisingly, it appears that transfers overall are clearly inversely proportional to municipality size, strongly proportional to GDP per capita, and inversely proportional to local taxes per capita.

Firstly, it appears that transfers do not equalize for tax base differences. They are very insensitive to GDP per capita, the proxy for tax bases. A poor municipality (in terms of GDP per capita) does not receive less than a rich municipality. More accurately, when the GDP per capita of the city increases by 1%, the transfer increases by 0.2%. This is very much the opposite of what theory would suggest. Theory

would want transfers to compensate for tax base disparities, that is, if GDP is taken as proxy for tax bases, to favour poor municipalities, on the one hand. Theory would also want transfers to compensate for need disparity, that is, if size is taken as a proxy for need, to favour large municipalities.

Secondly, transfers are instead very sensitive to municipality size. As a matter of fact, municipality size is the dominant explanatory variable of federal transfers per capita. This is obviously the result of the allocation formula utilized. The smaller the municipality, the greater the transfer. When population decreases by 10,000 inhabitants, all other things being equal, transfers per capita increase by 0.1 R. Another way to put it is to say that when population decreases by half, per capita transfers increase by 20%. A municipality that separates into two municipalities will get 20% more in transfers. If it separates into three, it will get 13% more. Local politicians are fully aware of this, which obviously constitutes a very strong incentive to the partition of municipalities, and explains why the number of municipalities in Parana increased by 24% in the last six years. If municipality size is taken to be proxy of municipality needs (admittedly a very poor proxy), then it can be said that Federal transfers exacerbate, rather than diminish, need disparities.

Thirdly, transfers seem to be equalizing in terms of tax yield per capita. The greater the tax yield per capita, the lower the amount of FPM received. Equation (1) tells us that for every additional 10 R collected in taxes per capita in a municipality, the Federal transfer received decreases by nearly 13 R per capita. This is true if all other things are constant, that is for a municipality of a given size and a given GDP per capita. And a tax income's increase of 1% leads to a decrease of 0.3 of the transfers.

In conclusion, to maximize transfers, a municipality must be small, rich, and not raise much in local taxes.

Figure 4 - Relationships Between Size, GDP Taxes raised, and Transfers Received of Municipalities, 1996
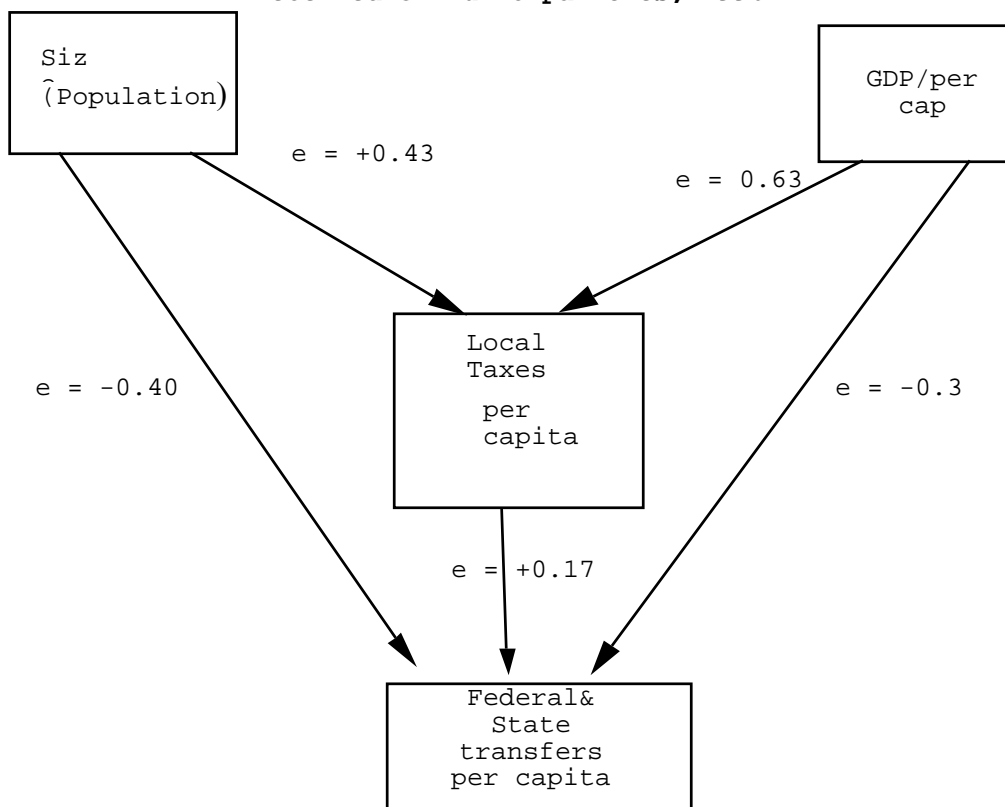

Figure 4 summarizes the relationships which have been shown to prevail. The numbers are elasticities (taken from equations (6) in Table 10 and equation (6) in Table 19 above. It shows that the size of municipalities, and their GDP per capita —two variables which have been shown not to be correlated— explain both the amount of local taxes raised per capita, and the transfers received, by municipalities. Two points must be added. One is that the link between size and local taxes is positive (the larger the municipality, the larger the taxes raised), whereas the link between size and transfers is negative (the larger the municipality, the smaller the transfer). The other is that size matters much more than GDP. The elasticities relative to both variables are similar, but the variance of size is much larger than that of GDP; differences in size are enormous (they range from 2,000 to 1,500,000 inhabitants), whereas differences in GDP per capita are only large; as a result, both local taxes raised and transfers received are much more influenced by size than by GDP. There are no strong economic or social justifications for this.

VI – Conclusion

The most important findings of this study can be summed up under five headings.

The weight of the Federal government. The Federal government dominates the picture of the public sector in

Parana. This is true in terms of taxes raised. Brazilia still pockets about two-thirds of the taxes paid by Parana people and enterprises. These 15 billion R represent about 18% of the Parana GDP. Brazilia, that is the Constitution, obviously decides what taxes will be raised by which level of government. For instance, it decides that the property tax on rural properties (as opposed to the property tax on urban properties) will be a Federal tax, not a municipal tax, a decision that has a great importance for the financing of rural municipalities. Brazilia also dominates the picture in terms of transfers. It transfers about 2 billion R, or 4% of the Parana GDP, to the State and Parana municipalities, and it mandates the State to transfer nearly one billion to municipalities. Equally important, the Federal government chooses the criteria used to allocate these transfers to the municipalities: it decides on how its own transfers are distributed (which is quite natural), but it also decides on how the State distributes 75% of its transfers (which is not so natural). The State then controls only the allocation of about 180 MR to municipalities, in addition to some negotiated transfers. All this means that the freedom of the State of Parana in terms of public finance is limited. The State can decide on the rate and the collection of its two main taxes (ICMS and IPTVA), on its own expenditures, and on the allocation to municipalities of 180 MR (plus negotiated transfers). It cannot much influence Parana municipalities. The key to most problems is in Brazilia, not in Curitiba.

The dilemma of the Value added tax (ICMS) — The ICMS is the backbone of sub national government finance in Parana. It has two major advantages in terms of public finance. The first is that it is highly « productive » as a tax: it brings in about 6 billion R, or nearly 6% of the State GDP. The second advantage is that it has proven to be highly elastic to GDP in the past decade. It increased faster than GDP: when GDP increases by 10%, the ICMS increases by 13%. The ICMS also has serious drawbacks. The main one being that it is a complex tax to assess and to collect, mostly because it is assessed and collected by each Brazilian State, and that this creates problems for inter-State trade, and also because it is « coupled » with the IPI, another value-added tax levied by the Federal government. This complexity irritates taxpayers, facilitates tax evasion, and introduces distortions. This is why many people are tempted to introduce tax reform that would simplify the entire system. The Federal government, in particular, is contemplating changes that would amount to a « nationalization » of the value-added tax (Pariente 1997). This would reduce, although not eliminate, the drawbacks associated with the ICMS. But it would also eliminate its advantages. Of course, the Federal government would grant other taxes to the States, such as excise taxes, and probably additional transfers. The net result would probably be bad for the States. The share of own taxes in their total resources would diminish, and so would, accordingly, their autonomy and responsibility. This raises a real dilemma: are the macro-economic benefits associated with such a reform of value-added taxation worth the loss in State autonomy and responsibility associated with it?

The weakness of the automobile tax — The automobile tax (IPTU) is much less important than the ICMS. It brings in only about 200 MR, half of which is transferred back to the municipalities. It is nevertheless the second State tax. It is a poorly assessed tax. Over the past years, its yield has been very erratic, and has been declining in real terms. It should have been very smooth and increasing, because the tax base, that is the vehicle fleet, is well known, increases, and increases smoothly. The average tax per vehicle, including trucks, in 1996, is about 100 R, which is significantly less than what it should be and suggests widespread evasion. The fact that only half the tax remains in the State coffers is probably not an inducement to strong and effective collection.

The failure of the municipal tax system — There are about 400 municipalities in Parana, and they are obviously very diverse, in terms of size and in terms of economic activity and wealth. It is often thought or assumed that size is a proxy for wealth, and that the smaller municipalities have smaller output per capita. This is not so in Parana. GDP per capita, the available indicator of output, is not correlated to size.

Overall, municipalities do not raise much tax: more than 1 BR, or less than 50 R per inhabitant, or to put it otherwise about 1% of GDP. Why? One reason, often put forward, is that they do not have access to good tax bases. They have access to IPTU, a property tax (with rural properties excluded from their tax base) and to ISS, a business tax (on income derived from services). This is as much or more than what is found in many countries. The lack of tax bases does not fully account for the poor performance of Parana municipalities. Two other reasons can be suggested. One is technical, the other is political.

Technically, municipalities have the responsibility to identify the tax bases, to assess the tax, and to collect it. This is difficult to do with a property tax and a business tax. The property tax, in particular, is one of the taxes best suited for local taxation, but it is also one of the most difficult taxes to administer, because of the very large number of taxpayers and the difficulties associated with evaluating property values. Municipalities, particularly small municipalities, are poorly equipped to do so.

Politically, it does not pay to raise local taxes, particularly in the smaller municipalities. This is because the share of local taxes in total local revenue is so low: it is 15% on average, and much less in smaller municipalities. Consider a municipality in which local taxes account for 10% of resources. Doubling the tax effort (by improving valuation or increasing rates or bettering collection) will only mean an increase in total resources and total expenditures of 10%. The political cost of increasing the tax effort by 100% is likely to be much greater than the political gain of increasing expenditures by 10%. There is no political incentive to do so.

This is shown by the much greater local tax collection in the larger municipalities. Curitiba raises 10 times more, per capita, than the smaller municipalities. It is often said or though that this is because larger municipalities have larger tax bases. But this is only partly true. We have no indicator of local tax bases, but if we take local GDP per capita as a proxy, we see that municipality size matters more than tax bases per capita in explaining local tax yields. It can be inferred that the (unknown) real effective tax rates decrease with municipality size.

The unsatisfactory transfer system — Transfers (to municipalities) constitute the backbone of the municipal finance system. They are massive: about 2 billion R, and they represent two-thirds of municipalities' resources. Two transfers stand out: the so-called FPM Federal transfer, and the ICMS State transfer.

Each of these two transfers reduces tax yield per capita disparities between municipalities, and the Federal transfer does it even more than the State transfer. But this is not much of an achievement. Nearly any transfer system does it, particularly when disparities are as large as they are in Parana. We verified that transfers of the same total amount allocated to municipalities in a simple egalitarian manner —so much per inhabitant— would also reduce tax disparities, and would even reduce them more than the existing complex transfers.

But is tax yield equalization the only or the most desirable objective of a transfer system? No. Many objectives can be assigned to a transfer system. Two stand out. One is to equalize tax bases, that is to compensate for existing differences in tax bases, at least in part, and to give more to those that have less in tax bases —not in tax yields. The other objective is to compensate for differences in « needs ». Need is a concept difficult to define and to operationalize; in many cases, it is associated with city size: large cities, partly because they serve territories wider than their own, partly because they tend to concentrate « problem people », are often considered to be particularly needy. In the case of Parana municipalities, we have no good indicators of tax bases or of needs. If we take GDP per capita as a proxy for tax bases per capita, and if we take municipality size as a proxy for needs (admittedly a questionable proxy), what do we see? Just the opposite of what would be expected.

We see that the present transfer system exaggerates rather than compensates differences in tax bases. The greater the GDP per capita, all other things constant, the greater the transfer received. This is the natural result of the allocation formula of the ICMS transfer that explicitly allocates money pro-rata the ICMS collected in each municipality, which is the dominant component of the GDP of a municipality.

We also see that the present system exaggerates rather than compensates differences in needs (when needs are defined

as a function of city size). The smaller the municipality, all other things constant, the greater the transfer received. Here again, it is not surprising. It is the natural result of the allocation formula of the FPM transfer that explicitly favours smaller municipalities.

A by-product of this feature of the transfer system is that it constitutes a strong inducement for municipalities to break apart and become smaller. Take a municipality that separates equally into two municipalities; our estimates suggest that the combined transfers received will increase by about 17%. With transfers being the most important source of municipal income, this is a way to increase local resources that is much less painful than increasing local taxes. No wonder the number of municipalities has increased by a quarter in the past seven years.

The first is that the State of Parana must be actively involved in the fiscal reform now considered in Brasilia. Its own interests, and the interest of its municipalities, are directly involved. There is no doubt that a fiscal reform is necessary. But it should leave States and municipalities with access to sufficient tax bases. The present system of a State value-added tax is indeed complicated, but it is not unmanageable. The benefit of eliminating (or reducing) this complexity is real, but it must be compared to the cost of financially weakening the Brazilian States. The replacement of own taxes by transfers would not do. As mentioned above, one R in transfers is not the same thing as one R in taxes, and an excessive reliance on transfers would have perverse effects on the collection of the remaining taxes.

There are no serious justifications for the present allocation formulas imposed (for the most part) by the Federal government. And the Federal government has no strong reasons to fight for the present system. The proposed reforms do not seem to discuss this issue much. Yet it is the key to municipal finance, since transfers are the main source of municipal finance. We realize that changes in allocation formulas are politically difficult. They mean that some municipalities will gain, and others lose; and those that will lose will be much more vocal than those that will gain. The criteria used in the allocation of the Federal FPM could be changed. And each State could be left free to decide on the criteria to be used in the allocation of its ICMS share.

In the meantime, the State of Parana can play with the 25% share of the ICMS transfer that it controls. A proposal has been made (Guarda 1997) to change one of the criterion used, total population, that commands 6% of the transfer, and to replace it with rural population. This would reinforce the pro-rural bias of the State-controlled criteria. At least three, if not four, of these criteria are already pro-rural. This is probably justified by the fact that the Federal government-imposed criteria (GDP or ICMS collected) have an anti-rural bias. But one should also consider the total transfer picture, and note that the Federal FPM as it is allocated has a strong pro-rural bias, as a result of its bias

in favour of small municipalities. What is needed is a complete revamping of the transfer allocation formulae.

A third point has to do with municipal finance. Property taxation should be strengthened. It is widely recognized to be one of the (few) relatively good tax bases for municipal taxation. There is no reason why rural properties should be treated differently from urban properties. The main issue here is: should property identification and valuation as well as tax collection be done by the municipalities? These are technical matters. Many municipalities are clearly unable to undertake them correctly, and there is certainly no uniformity in the way they are being done. These technical tasks could be done by other bodies, such as the State tax administration, or even private bodies, as is the case in many other countries. In France, for instance, the national tax administration performs these tasks on behalf of local governments (for a fee): municipalities decide on the tax rates, and the national tax administration does the rest, and sends municipalities the check. Far from reducing the political responsibility of municipalities, the externalisation of these technical tasks strengthens it. The political decision is in the setting of rates. An additional important benefit of the devolution of these technical functions is that it ensures uniformity in tax base assessment. This tends to reduce fraud. It makes it possible to compare nominal tax rates between municipalities —which contributes to strengthening the political responsibility dimension. And it makes it possible to design transfer systems that compensate for differences in tax bases.

VII- References

AZZONI, C. R.. 1997. « Concentracao Regional e Dispersao das Rendas per Capita Estaduais - Analise a Partir de Series Historicas Estaduais de PIB 1939-95 ». *Estudios Economicos*. Vol. 27, n°3, pp. 341-93

FREIRE, M.E., HUERTAS M., DARCHE B.. 1998. Sub-national Access to the Capital Markets: The Latin American Experience. Washington, D.C.

GUARDA, G.C. 1997. *A Proposed Method for the Distribution of FDU Credit Rsouces to the Municipalities of Parana*. UNDP Project BRA/95/005. Mimeo. dated October 30, 1997. 9p.

IPARDES. 1995. *Participaçao dos Municipios Paranenses na Economia do Estado 1990-93*. mimeo. IPARDES. 51p.

IBGE : http://www.ibge.gov.br/english/default.php

OATES W.E. (1972), Fiscal Federalism, New York, Harcourt Race Jovanovitch.

PARIENTES, P. 1997. *Reforma Tributaria ou Reforma Fiscal?* . Ministerio do Fazenda. Mimeo. dated 17.9.1995. 24p.

R.PRUD'HOMME (1998) « State and Local Public Finance in Parana: Structure and Issues » United Nations Development Program Project BRA/95/005Strategic Actions in Support of Urban Development.

PRUD'HOMME, R. 1995. "The Dangers of Decentralization", *The World Bank Research Observer*, vol. 10, N° 2, pp.201-220