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Fiscal Competition

1. Introduction

Federalism may be defined as a system in which a central government and a number of decentralised units, which are to some degree autonomous, cooperate to some extent to attain common goals. Though some may prefer a stricter definition, this one is convenient for the treatment of fiscal competition. First, it includes not only countries with federal constitutions, but also those where public service provision and taxation are decentralised, as well as sovereign units forming an economic union. Second, it makes clear that fiscal competition is an event related to one of the extremes of the continuum of possible federal arrangements, namely when autonomy is fully exerted and no coordination exists among the units.[1]

Inter-jurisdictional competition may be passive, in the sense that independent actions do not intentionally influence conditions faced by the unit or by other jurisdictions. Or it may be active, meaning that tax or expenditure is deliberately used as an instrument to pursue a given goal. Fiscal competition may be horizontal, involving governments at the same level, or vertical, involving competition between higher and lower levels of government. In either case one cannot presume that fiscal competition is either welfare enhancing or harmful.

This is the main question addressed by the vast and fast-growing literature on fiscal competition originating from a seminal article by Tiebout (1956), and from Oates's systematisation of the existing economic theory on federalism in the early 1970s (Oates, 1972). There is no simple answer. The general inference is that the answer depends on several issues, prominent among them the objectives of competing governments; what they are competing for; how they compete; the behaviour of economic agents, especially their mobility in response to fiscal stimuli; and the characteristics of the economic environment, particularly the possibility of inter-jurisdictional externalities arising from government actions.

This article does not set out to be a comprehensive survey of the extensive literature on fiscal competition, but rather to extract from it typologies, and some analyses and results that may help to organise a debate on the subject. Therefore, this paper deals firstly with the objects and instruments of fiscal competition. Secondly it presents some empirical evidence on the existence of fiscal competition, and on the reaction of economic agents to inter-jurisdictional differences in tax burdens and benefits from public spending. Thirdly it considers the main tools that may be used to avoid or counteract possible harmful effects of fiscal competition. Finally it summarises the argument presented and speculates on the effect of globalisation on the roles of central and decentralised government units.

2. How to compete, for what?

The traditional theory of fiscal federalism discusses the assignment of economic functions of the public sector – allocation, distribution and stabilisation – to different levels of government. The general conclusion is that central governments should be responsible for macroeconomic stabilisation and income redistribution, as well as for the provision of national public goods, i.e. those for which the benefit area is the whole country (or economic union).[2] The economic case for decentralised governments rests on the existence of public goods, the benefits from which are limited to a specific area or subset of the population (local public goods).

The financing of local public goods in federations comes mainly from three sources: taxes assigned to lower-level governments, inter-governmental grants, and debt. Grants are inherently cooperative instruments, which if well designed can serve several different objectives in a federation. Decentralised taxation on the other hand, unless some degree of harmonisation exists, is independently exerted and may distort resource allocation when economic agents are mobile. To avoid distortions, theory recommends that only benefit taxation should be applied to potentially mobile tax bases. But in the real world, non-benefit taxation is the norm, being frequently used as an instrument of active governmental competition. According to its object, fiscal competition may be classified in three categories. First, decentralised units compete in the provision of a bundle of public goods and services, trying to improve their quality, reduce their cost and adjust supply to match residents' preferences. Second, they compete for funds to finance the provision of public goods at the lowest possible tax price for residents. And third, competition may have business investment as its object, to increase production, employment levels and income within the unit.

2.1. Competition in the provision of public goods

Competition in the provision of public goods is the subject of the original Tiebout model (Tiebout, 1956), as well as of more recent and richer models

(Oates and Schwab, 1988), which conclude, under a set of strong assumptions, that this kind of competition is efficiency improving. In brief, uncoordinated decision making would result in the provision of a variety of fiscal packages (a bundle of public goods plus a tax price), so that mobile individuals (or firms) could enjoy their preferred package by choosing to reside in the locality where it is provided ("voting with the feet"). Competition is also said to promote innovation in the provision of public goods and their diffusion, and by benchmarking with other governments, to minimise organisational costs of the public sector and reinforce accountability. Shah (2001) reports that in Chile and Canada, school financing mechanisms encourage informal benchmarking by citizens to guide their choice of schools.

Models that relax some of the strong assumptions mentioned in the preceding paragraph show the reverse side of the coin. For instance, models employing game theory drop the assumption that there is no strategic interaction in response to policies of neighbouring jurisdictions, and find outcomes that involve sub-optimal levels of public outputs (Wildasin, 1988).

When strategic behaviour exists, competition may stimulate the under-provision of merit goods and social policies. In Brazil, for example, municipalities are responsible for a large share of expenditures in public health, financed partly by earmarked federal block grants and partly by their own revenues. In metropolitan areas, individuals commute frequently across cities, and since eligibility for public health services is not attached to residence, municipalities providing better quality services are prone to attract clients from surrounding cities. In fact, Ferreira (2002) found that municipalities neighbouring the city of Rio de Janeiro spend less than the expected value in public health services, both in per capita terms and as a percentage of their respective tax revenues. In turn, the government of the city of Rio de Janeiro did not seem to take into account the positive externalities generated by its expenditures. The overall result is under-provision of public health services in the metropolitan area.[3]

Another interesting example is provided by the United States welfare system. A 1996 reform decentralised welfare policy. States now have a large degree of autonomy to decide on forms and levels of assistance to the poor. However, if a state decides to increase its welfare benefits, it runs the risk of attracting the poor from other localities. Their immigration increases state welfare expenditures, but not the income tax revenue. To avoid becoming a "welfare magnet", and hence increasing the tax burden on the state's better-off residents, each state tends to reduce the value of the benefits provided. As Brueckner (2000) points out:

"because the concern about welfare migration depresses benefits in every state, no state succeeds in repelling the poor by keeping its benefits low, and each ends up being less generous than it would have been in the absence of migration."

This reasoning points to a downward bias in the value of welfare benefits under current institutional arrangements.

Oates (1999) recognised the shortcomings of decentralised systems in terms of relief to the poor, but argued that a decision was made to accept the downward bias as a price to be paid for the possibility of abandoning unsatisfactory federal welfare programs, and looking for superior policy alternatives. He asserted:

"in a setting of imperfect information with learning-by-doing, there are potential gains from experimentation with a variety of policies for addressing social and economic problems. And a federal system may offer some real opportunities for encouraging such experimentation and thereby promoting 'technical progress' in public policy."

He called policy experimentation in decentralised units "laboratory federalism".

2.2. Competition for funds

The second category of fiscal competition is competition for funds to finance the provision of public goods to residents at the lowest possible tax price. This includes policies that aim to enlarge tax bases (or revenues), as well as disputes for usually scarce costless or low-cost funds, provided by a higher level of government.

Where the personal income tax is assigned to sub-national governments, these units may attract the wealthy from other jurisdictions by reducing tax rates or by providing a package of public goods tailored to their taste. Insofar as pure (or almost pure) public goods are provided – and therefore additional consumers do not imply increase in the total cost of production – newcomers reduce the tax bill of the other residents. This beggar-thy-neighbour policy, if successful, would imply higher tax prices for public goods elsewhere, and therefore their under-provision. It might also weaken the power of income redistribution policies. On the other hand, fiscally induced mobility may result in a more homogeneous population in each jurisdiction, and lead to a closer match between provision of and demand for local public goods.

Switzerland offers the best conditions for undertaking empirical analysis of these points. Though there is a small federal income tax, cantons have the basic power to tax income and wealth, while local jurisdictions levy property taxes and a surcharge on cantonal direct taxes. Public spending is very decentralised, and social assistance is a concern only of local and cantonal governments.[4]

Feld and Kirchgässner (2000) addressed their work to the question of whether fiscal competition exists and what its effects might be. They concluded that there is competition both among cantons and among cities; that taxes are more important instruments than social transfers; and that tax competition is stronger at local than at cantonal level. High-income earners' choice of where to reside depends on the amount of income tax they have to pay. Self-employed earners are more responsive to tax stimulus than dependent employees or retirees. For this last group, provision of public services plays a more important role than taxation in making residence decisions. Feld and Kirchgässner could not find any evidence that homogenisation of the population brought any efficiency improvement. Fiscal competition on the other hand, has not harmed decentralised income redistribution.

When origin-based commodity taxes are used, a jurisdiction may attract consumers as opposed to residents by setting its tax rate below that of neighbouring units. In this case, residents of higher tax areas can escape taxation by incurring the transportation cost necessary to purchase certain private goods in the low-tax jurisdiction. They will do so whenever the tax differential exceeds the extra cost incurred.

Though cross-border trade and distance selling have always posed a problem to tax designers, the recent expansion of e-commerce has made the need for a solution more pressing. One such solution is the adoption of destination-based commodity taxation. In this case, cross-border shopping and e-commerce would compete in equal conditions with local retailers' sales. Nonetheless, destination principle schemes are administratively difficult to implement.[5]

When business, capital income or property taxes are in force in decentralised government units, depending on economic conditions, tax exporting may occur. Income and property taxes may be exported to foreign owners of domestic companies or land. Business taxes may be shifted to residents of other jurisdictions who consume the goods, through increases in the prices of local output. Tax shifting is more likely when a locality produces a highly specialised commodity like natural resources or tourist attractions. When tax exporting occurs, residents of a particular area do not bear the full cost of the public goods provided by the local government. This may give rise to inefficient over-provision of these goods.

Brazilian municipalities provide a case in which tax exporting is preceded by tax-base importing. These units levy an origin-based tax on services. The tax base is determined nationally by means of a list of taxable services; and municipalities are autonomous to set the tax rate. Most units charge a rate of (or near) 5%; but some, which in normal conditions would have almost no tax base, charge a lower rate of 2% or less, in order to attract tax base. Note that, in contrast to the type of fiscal competition to be considered later on, the lower rate does not attract investment or production to the territory of the unit, but only the fiscal residence of the firm. To qualify as a resident, all a firm needs, besides a signboard, is a rented room with a chair, a table, a telephone and an attendant, costs which may be shared with several other firms. After the tax base is imported, business continues to take place elsewhere; but the tax on the services there rendered and consumed is paid to the municipality where the "headquarters" is located.

Vertical tax competition may provide additional revenue to a sub-national government at no extra cost for its constituency. This can happen whenever central and decentralised units impose a tax on the same tax base, and the lower-level tax may be credited against federal tax liability. If the compensation takes the form of a deduction from the federal tax base, there will be some increase in the overall burden faced by the taxpayer. This may result in a reduction of the tax base available to both units, amplifying the loss of revenue for the central government and reducing the gain of the decentralised unit.

As noted by Wilson (1999), the negative externality imposed by the sub-national unit – reduction of the tax base – does not necessarily imply that taxes are inefficiently high in the new equilibrium. Under certain conditions, the federal government may use its policy instruments to partially offset inefficiencies at the sub-national level, or in some cases to achieve even an efficient equilibrium.

Another form of lowering residents' payments for public services is to compete for access to funds provided at low or no cost by higher levels of government. Shah (2001) notes that these funds are often allocated by programs, the objectives of which are vaguely specified, and which lack focus on service delivery and accountability to residents. This may give rise to pork-barrel politics and waste. He illustrates his arguments with examples from Brazil and Pakistan, where the president (prime minister) directed a substantial parcel of disposable resources to his (her) home state (district), and from South Africa, where provinces strategically overspent in local functions. They then claimed they had no funds to provide the national functions, such as health and education, which they administer. Of course, this is not to say that inter-governmental transfers are undesirable. On the contrary, well-defined grants play important roles in federal systems, including that of counteracting the possible ill effects of fiscal competition.

2.3. Competition for business investment

Fiscal competition may aim to attract business investment to increase production, employment levels and income within the jurisdiction. Passive competition – with the use of different non-benefit tax burdens being explained, for example, by differences in tastes – may lead to the same or the opposite result. Instruments of this type of competition may be the tax structure, the expenditures mix and regulatory policies, as well as tax incentives and public services provided to specific firms.

Tax competition through lowering corporate income tax has been one of the major fiscal issues in the European Union (EU) for many years. Those who fear that fiscal competition will bring taxes on capital income to unduly low levels, claim some degree of tax coordination. Another significant group takes the opposite view that tax competition is welfare improving, and therefore that corporate income tax should not be harmonised.

A recent paper (Zodrow, 2001) provides an overview of what economic literature has to say in support of each of these opposite views. Zodrow starts from a basic model (Zodrow and Mieszkowsky, 1986) which, under a set of assumptions, concludes that tax competition leads to an inefficiently low level of public services in all jurisdictions. Next, he reviews a wide variety of extensions of the basic model that alter one or more of its assumptions. The results are mixed: some identify potential gains, and others losses, from tax competition; little is said about their magnitude. Coupling these results with the observable reluctance of countries to give up their fiscal sovereignty, and with the fact that some countries would be net losers from tax harmonisation, Zodrow concludes that the case for it is tenuous. He suggests that modest initiatives, like the Code of Conduct on Business Taxation (European Commission, 1997), instead of attempts at full harmonisation of the income tax, should be preferred.

However, unfettered tax competition in the EU ushers in a concern about the future of re-distributive policies in the area (Sinn, 1994; Oates, 2001). Though redistribution should preferably be assigned to central governments, the European Community budget is too small to provide such programs, and there is no intention to enlarge it significantly in the future. Therefore, each member of the EU will have to support its own programs. The contention is that increased factor mobility in the EU, in the absence of income tax coordination, will force countries to rely more heavily on benefit taxation (which rules out redistribution programs), or to incur a significant cost in terms of economic growth, by taxing mobile factors to finance such programs. Furthermore, as capital supply is generally more price-elastic than the labour supply, and skilled labour is more mobile than unskilled, it may be expected that a wage tax will fall more heavily on unskilled than on skilled labour, and that taxation of capital income will be low, resulting in a more regressive tax system.

Another interesting question, addressed by Keen and Merchant (1997), concerns the composition rather than the level of public spending in the context of fiscal competition. They divide public spending into two categories: utility enhancing (either public goods which complement private consumption like recreational facilities, or re-distributional payments to some poorer groups), and production improving (public inputs such as infrastructure or general training). Since they assume that citizens are immobile and firms are mobile, their conclusion is quite intuitive. In their own words, “fiscal competition leads to too many business centres and airports but not enough parks or libraries”.

Has this trend been observed in federal systems? And what is the impact of expenditure competition among countries in a world with increasing mobility of capital across borders? Those are open questions. But Keen and Merchant’s result suggests that there is a case for coordination not only of taxes on mobile bases, but also of domestic public expenditures.

A case may also exist for coordination of regulatory policies. The purpose of regulation is to remedy market failures such as externalities and monopolistic power. But it can affect a jurisdiction’s competitiveness. In particular, if profitmaximising manufacturers take into account the compliance costs of local regulation, governments may use lax regulation to attract business to the territory of the unit. For example, there is a flow of literature on fiscal competition that looks at the impact of environmental regulations on business location (Levinson, 1996). In addition, the design of financial regulation can potentially be used as an instrument to attract portfolio investment. Since banking regulations are usually set at federal level, such competition generally takes place among sovereign governments.

Instead of lowering taxes in an attempt to attract business, decentralised governments may resort to concession of tax incentives, subsidies, and provision of public inputs to specific firms. These are typical regional development policy instruments. When used for decentralised industrial policies, they may bring about destructive competition. The so-called fiscal war among Brazilian states illustrates this point.

The practice of reducing state value added taxes (VATs) to attract investment has been unlawful in Brazil since 1975, except in cases in which the intended reduction is unanimously approved by the 26 states and the Federal District. Yet the law has been disregarded, and tax competition among Brazilian states has intensified since the beginning of the nineties. Foremost, in many cases, is the competition for the wave of new automotive vehicle industrial plants that have looked for a location in the country since 1995.[6]

From the standpoint of any particular state, granting fiscal incentives to attract investment seems worthwhile. Unless the beneficiary would choose to locate his business in the state even in the absence of the incentive, the tax revenue forgone would not exist anyway. In addition, aside from their direct impact on production and employment, newly attracted firms induce additional economic activity, creating still more jobs and income, and, of course, some tax revenue.

If this were the whole story, state tax incentive would be a valuable development tool. But when other states replicate the successful experience of one, a destructive tax competition starts.

As the practice of granting incentives spreads, its efficacy fades. Since taxes have been equally reduced everywhere, the fiscal benefit ultimately loses its power to induce relocation of production. But revenue goes down in all states. When the process reaches this stage, firms choose their location considering only market and production conditions.

Pressed by greater spending and reduced tax collection, the less developed, financially weaker states become unable to provide the services and public works necessary to attract new business. In the final stages of the fiscal war, the more developed states win all battles. Disparities – already very large in the case of Brazil – naturally tend to increase.

The fiscal cost of the tax war for the country is very high. A recent dissertation analysing three cases of newly installed vehicle factories (Silva, 2001), concludes that in two cases the present value of the flow of subsidies exceeds the value of private investment, and that the fiscal cost of creating a job is over US$ 350, 000.

Furthermore, this does not seem to be a cost incurred to attract investment to the country. The plants would probably be located in Brazil even in the absence of the tax break.[7] Rather, this is the cost of attracting the investment to one particular location within the country that, if the incentive had been truly effective, would not be the one recommended by efficiency considerations.

An implicit assumption of most of the preceding discussion is that governments are benevolent, i.e. they act in the best interests of the residents of the jurisdiction. Public choice literature contends that a more realistic assumption is that government officials and politicians have their own objectives, act in their own interest or serve the interests of powerful interest groups. In both these cases, instead of maximising the welfare of the population, they will seek to maximise the size of the government budget. Under this assumption, tax competition has the welfare-improving role of counteracting Leviathan state tendency to over-expansion. In this context, harmonisation of tax policies would serve the interest of the bureaucrats, assuring monopoly of power to keep government revenue higher than it would otherwise be.[8]

3. Some empirical evidence

Do firms and individuals, as beneficiaries of welfare programs, consumers of public and private goods, or factory owners, respond to fiscal stimuli? This is an important question. A negative answer would mean that one should not expect benefits or worry about the costs of fiscal competition. Though there is substantial theoretical material on how economic agents react to tax and expenditure differences across jurisdictions, there is not much empirical work strictly related to the elasticity of tax bases in relation to observed differences in the pattern of public spending or taxation.

One extensively debated question in the literature on expenditure competition is whether there is welfare-motivated migration, i.e. whether or not welfare recipients move from low to high-benefit jurisdictions. Considering the case of welfare migration across US states, six out of a sample of eight studies found evidence of migration, though two of them concluded that its magnitude is small.[9] By contrast, Walker (1994), and Levine and Zimmerman (1995) could not detect any evidence of welfare migration. Hence, the evidence is moderately in favour of the hypothesis that migration exists, which may indicate that states in the United States are in a non-cooperative equilibrium, under-providing relief to their poor compared to what would be the optimal outcome. However, the sensitivity of migration to welfare benefits is not high. Meyer (1998), for example, found that a US$1000 increase in the annual welfare benefit raises migration of single women to a region by only 6% over a five-year period.[10]

Instead of reducing overall welfare spending, states may protect themselves from in-migration of the poor by limiting access to public goods. This is generally done by restricting the status of residence. One can say that welfare spending becomes a “club” good, since it is possible to exclude some individuals from its consumption. Such action reduces incentives for the poor to move, and as a consequence should lead to higher welfare transfers compared to a situation without any exclusion. Evidence of such restrictions is common in the history of the United States.[11] The existence of eligibility conditions may partly explain why empirical studies do not find more significant effects of welfare benefit differences on migration of the poor.

The studies of Figlio et al. (1997) and Saavedra (1998), instead of looking at the responses to differences in welfare transfers, test the existence of strategic interdependence between different states directly.[12] They provide strong evidence that benefit levels in nearby states affect a given state's choice of benefit level.

Turning to tax competition, since there are not many federal systems where sub-national governments have great freedom to set tax rates, the existing evidence pertains to a few countries. Countries belonging to the Organisation for Economic Cooperation and Development (OECD) for which there is enough data available are the United States, Canada, Germany and Switzerland. Even in Germany, the local taxing autonomy is mainly confined to the business tax. Most of the literature does not test the existence of tax competition, but the sensitivity of a given tax base to the level of the tax rate.

There is a vast set of empirical studies looking at the impact of capital taxes on several different measures of business activity. Most of the studies are applied to the United States, studying the impacts of differences in income tax rate across states, and differences in property taxation within a given state. Table 1 summarises the results found in a survey of the United States (Wasylenko, 1997). The cells of the table report the number of studies where an elasticity measure was estimated, the number of those studies in which the tax elasticity was statistically significant (in parenthesis), the range of elasticity estimates (in brackets), and the median elasticity.

Estimates in Table 1 indicate the percentage decrease in the dependent variable when the tax rate in a given location is 1% higher than in a nearby location. For example, the impact of a business tax 1% higher in a given state, compared to other states, is a 0.11% decrease in employment in that state (column 2, line 1). The main conclusions are summarised below.

- Estimates of response to tax differentials vary widely. Intra-regional differences in tax rate have a larger impact on business location than differences across states (or inter-regional). The inference is that once the locality is chosen (taking into account a set of regional attributes like agglomeration, cost of labour, size of the market, quality of education, infrastructure of transportation etc), the specific location (in which neighbourhood or suburb) will be strongly determined by tax considerations.[13]

Table 1 Summary of econometric results of tax effects on business location

Dependent Variable	Inter-regional or Inter-state Studies	Intra-regional Studies	
	Overall Tax Elasticity	Business Tax Elasticity	Property or Business Tax Elasticity
Aggregate Data			
Total Employment	6 studies (5) [-0.85, 0] -0.58	3 studies (2) [-0.16, 0] -0.11	4 studies (3) [-1.95, -0.81] -1.85
Manufacturing Employment	13 studies (8) [-1.54, 0.05] -0.10	2 studies (1) [-0.26, 0]	1 study (1) -0.79
Investment in Manufacturing	6 studies (3) [-1.02, 0.54] -0.60 or 0	7studies (6) [-0.36, -0.10] -0.20	
Gross State Product, Income or Value Added	12 studies (7) [-0.88, 0.27] -0.07	1 study (0) -0.14	
Micro Data			

Manufacturing Plant Berths or Location	3 studies (2) [-0.40, 0] -0.18	19 studies (15) [-15.7, 0.6] -0.20	5 studies (4) -2.70, 0.62] -1.59

- The wide range of the elasticity estimates has less to do with the type of activity being measured than with the variations in data, time periods, and other variables used in the estimation equation. In effect, the results change depending on which variables are included in the estimation equation, or which time period is analysed.
- In particular, adding controls for the type and level of public goods supplied by each location significantly affects the econometric results. Business-friendly regulations and public spending that enhances productivity enable a given location to set a higher capital and/or property tax rate. In other words, local attributes increase the "tax setting power" of a given jurisdiction and should be taken into account when estimating business responses to tax differences.

In a different vein, some studies test the existence of strategic complementarity on business tax setting between jurisdictions. Ladd (1992) found statistical support for the hypothesis that neighbouring jurisdictions mimic each other's tax policy in the United States. Büttner (1999) tested the existence of tax competition from the relationships between the levels of capital income tax rate in German districts. Like Ladd (1992), he found evidence that tax rates are positively related to neighbours' tax rates.[14]

Some evidence on cross-border shopping may also be found in the empirical literature on tax competition. Using data from the United States, Due and

Mikesell (1994) find that a 1% differential in sales taxes results in a shift from 1% to 6% of purchases from higher to lower tax areas. In Canada, a study of this phenomenon found little evidence of cross-border trade in the Ottawa-Hull area in the 1970s, when the inter-provincial rate differential was 3% (Dufour and Vaillancourt, 1982).

In Europe, some regimes of tax exemption for non-residents lead to “cross-country” shopping. For example, in the Schleswig-Holstein border between Denmark and Germany, Germans used to buy cars in Denmark while Danes bought spare parts in Germany. This was a consequence of regulation and taxation, which led to completely different final prices in the two countries (*Economist*, 29.11.2001).

4. How to cope with fiscal competition

One of the challenges facing areas (countries, unions or even the whole world) where fiscal competition develops is how to reduce the welfare loss from its many facets without sacrificing the benefits of decentralisation.

A country may impose restrictions on beggar-thy-neighbour policies by means of a constitutional provision or national laws binding the decentralised units. However, such restrictions may be difficult to enforce. Authorities would have to keep track of a large assortment of fiscal instruments, including disguised ones. It would be difficult to tell whether these instruments were directed to competition, or to other objectives that they can also serve. And long judicial battles might be necessary to determine whether or not the act of one decentralised unit caused any damage to the affairs of another. Besides, there is a risk of putting welfare-enhancing competition in the same bag, and preventing it as well.

A high degree of centralisation of taxing powers, coupled either with transfers to decentralised units (as is the case of Argentina), or the assignment of tax legislation to the federal government (as in Germany), are possible solutions. They have in common the disadvantage of eliminating one important facet of federalism, namely the autonomous determination of the size of each sub-national unit's budget. Vertical coordination (tax collection agreements, tax-base sharing, abatement of sub-national from federal taxes), which is extensively used in Canada, results in more uniform tax bases, leaving space for decentralised decisions on the size of the budget, but also for some competition.

Inter-governmental transfer mechanisms can be designed to reduce the detrimental effects of fiscal competition without sacrificing the benefits of decentralisation. The theory of fiscal competition is concerned with the existence of externalities generated by the action of a given jurisdiction over the residents of another, and with the consequences when tax and expenditure decisions do not take such externalities into account. Economic theory prescribes the use of a system of inter-jurisdictional transfers whereby a given unit pays taxes for the negative spillovers, and receives subsidies for the positive spillovers that it promotes. Such "Pigouvian" transfer systems would theoretically drive the system to an efficient decentralised equilibrium (Varian, 1992). Unfortunately, implementation of this ideal transfer scheme is impossible, and federal countries use non-optimal schemes.

In the case of expenditure competition, the under-provision of transfers to the poor resulting from decentralisation may be partially offset by earmarked grants from the central to sub-national governments. This is the case with the decentralised provision of public education and health in Brazil, as well as that of US states' direct assistance to families below poverty line.

Earmarked transfers may either take the form of block grants or matching grants. Under the block grant each jurisdiction receives a lump sum from the central government, the magnitude of which is independent of the level of jurisdiction contribution to the provision of the public good. Under the matching grant, individual jurisdictions determine the level of expenditure, and the central government pays a fixed share of a jurisdiction's total outlay. The theory of expenditure competition prescribes a matching-grant system because it reduces the marginal cost (faced by the states) of providing welfare programs, leading to a higher equilibrium level of expenditure. Under the block grant system, states tend to spend only the amount of the lump-sum transfer coming from the central government.[15]

Harmonisation of fiscal policies may also be used as a tool to reduce the negative effects of fiscal competition, while preserving the advantages of decentralised policies. In the case of unions where "central governments" have a very small budget and decentralised units are sovereign jurisdictions that cannot be legally bound except by voluntary subscription to a treaty, harmonisation may well be the only feasible instrument to cope with fiscal competition's undesirable effects.

As mentioned in the introduction, fiscal competition is an extreme case in which members of a federation act independently, without any scope for cooperation. Harmonisation is a move to a position in which some cooperation exists. This may range from token coordination, which is presently the position with respect to EU corporate income taxes, to full integration, a position in which the units give up their autonomy or sovereignty, as is the case with the monetary policies of countries in the European Monetary Union.

Much has been said about the need for harmonisation of fiscal policies among the European countries as they engage in deeper integration. And much has been said against harmonisation, particularly by those who believe in Leviathan. But even discarding the hypothesis that harmonisation will be the instrument to assure large-scale government, it must be recognised that the implementation of such a coordination scheme is far from trivial, especially in the economic union.

Firstly, a contract among sovereign countries must consider a wide range of possible non-cooperative strategies that should be ruled out. It is probably impossible to cover every alternative. For example, harmonisation of the tax structure may be put at risk by lenient enforcement in a given jurisdiction.

Secondly, when dealing with sovereign countries, such a “federalist pact” is not enforceable if one party decides to act uncooperatively. Hence, an organism to supervise and enforce the agreement must be built before such a contract is designed. The question is: are EU members prepared to give up their fiscal sovereignty? This is a sine qua non condition for deepening the harmonisation process.

The answer to this question is dependent on a number of factors, important among them the answer to another question: how significant are the gains to be reaped from tax coordination? There are few answers to this question in economic literature, and most of them are provided in the context of highly simplified models.

A recent paper (Sorensen, 2001) developed a tax competition model that relaxes many of the restrictive assumptions of previous modelling efforts, in an attempt to provide more reliable guidance to policy makers. Sorensen uses the model to offer quantitative estimates of the welfare gains from tax coordination. He considers the example of global coordination, whereby all countries worldwide coordinate their tax policies, and of regional coordination whereby only a subset of countries (the “union”) coordinates their policies. His main conclusions are:

“that the gain from regional tax coordination is only a small fraction of the potential gain from global coordination if capital mobility is perfect. With imperfect capital mobility between the tax union and the rest of the world, there is greater scope for regional tax coordination, although the welfare gain will almost certainly be well below 1% of Gross Domestic Product (GDP) and will accrue mainly to countries with high initial capital income tax rates.”

In short, the reward for surrendering fiscal sovereignty seems to be too low.

5. Summary and a note on globalisation

Fiscal competition is a natural companion of decentralisation. Potentially it always exists, since it is the consequence of differences among jurisdictions, and not necessarily of intentionally promoted discrepancies; there are no two identical government units in the world. Practically, the manifestation of fiscal competition depends on the intensity of the divergences, and on the reaction of the economic entities in face of the array of options offered by decentralisation.

Fiscal competition takes several forms, uses diverse instruments and may bring about a number of different outcomes. An impressive amount of theoretical work tries to model the phenomenon. Overall the results are quite sensitive to the set of assumptions adopted in the analysis. Therefore there are results to almost all tastes. The state of the art, as expressed by Wilson (1999), is that "competition among governments is now seen as a less straightforward phenomenon than perhaps originally envisioned." And of course, there is space for further modelling, with the introduction of complexity that may bring the ideal closer to the real world.

Proving the practical existence of fiscal competition, and verifying its impact on factors of production and consumer movement across jurisdictions is an important step. Knowledge about the effects of competition on the economic agents, and on the intensity of their reaction to the fiscal stimulus, is helpful for the conception of mechanisms to curb or invigorate government competition, whichever is the case. But which is the case?

The results given by what may be called the traditional tax competition models show that tax competition tends to distort the allocation of resources, promoting welfare losses. Given that these losses exist, they should be weighed against the possible concomitant gains from expenditure competition (e.g. ideal environment for public policy innovations, and a closer match between public goods provision and local preferences). The existing literature provides almost no evidence about the magnitude of these gains and losses, and further research on this difficult empirical problem is necessary to fill this fundamental gap.

In the absence of clear-cut conclusions from either theoretical or empirical literature, the wisest attitude toward fiscal competition seems to be to avoid extreme measures either to impede or to enhance competition. Hence, controls or re-centralisation may be welfare-reducing measures insofar as they eliminate political competition among jurisdictions or create the environment for the Leviathan to rise. Of course the best course of action is, whenever possible, to adopt measures that reduce welfare losses without sacrificing the benefits of decentralisation. Carefully designed inter-governmental transfers and cautiously conducted harmonisation processes seem to be the most promising instruments.

Finally, some conjectures should be made on the impact of the globalisation of economic activities on fiscal competition. Globalisation and regional integration restrain fiscal sovereignty, insofar as factor mobility and growing trade-flows require that domestic policies, including taxation, follow international patterns more closely. Homogenisation of central governments' practices may induce decentralised units to assume the task of attracting foreign direct investment by increasing the provision of local public inputs. Furthermore, international competitiveness is increasingly contingent on the existence of skilled labour, which depends on education and training outlays that are typically decentralised government functions.

Therefore, it should be expected that the intensity of fiscal competition will increase in the near future, and that sub-national units will be competing not only among themselves, but also in the world market. They will probably bypass the national governments and negotiate directly with firms regarding the location of their business.

Given that skilled labour, infrastructure and other local public inputs are tokens in these negotiations, the less developed regions of a country, or indeed the world, will be at a disadvantage. Regional disparities (as well as personal income concentration) will tend to increase, which suggests that central governments and international institutions should amplify their personal and regional re-distributive efforts in order to neutralise this undesirable trend.

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[1] Fiscal competition occurs in a situation in which each federate unit independently decides a tax or expenditure policy. This does not preclude concomitant cooperation in other fiscal and non-fiscal policies.

[2] Typically, decentralised units do not have monetary policy instruments, and being highly open, are unable to influence macroeconomic conditions using fiscal devices. Income redistribution policies on the other hand, are constrained by the mobility of economic agents. If a tax-the-rich-benefit-the-poor policy were locally pursued, higher-income households would tend to leave a jurisdiction and an inflow of poor families would be stimulated. Notwithstanding, decentralised government units often perform functions financed by the wealthy or by all, where benefits accrue mainly to the poor; local programs that provide cash or in-kind relief to the poor are not uncommon.

[3] It is said as a joke – but it is not too far from reality – that Osasco, a municipality in the metropolitan area of São Paulo, solved all its health problems by buying ambulances that remove its sick residents to hospitals in the city of São Paulo.

[4] It should be noted, however, that social assistance expenditures are a small fraction of total expenditures.

[5] On the design of such schemes see Poddar, 1999; Varsano, 2000; Bird and Gendron, 2000; McLure, 2000; and Keen, 2000.

[6] This and the next few paragraphs on Brazilian states' fiscal war draw from Mora and Varsano, 2001.

[7] A possible but improbable alternative location, given that the market to serve is chiefly the Mercosur, would be Argentina. If this alternative had, in fact, been considered and discarded because of the incentives, the fiscal cost cannot be said to be in vain. But Brazilian state policy would be unduly inflicting a loss on the partner.

[8] Some formal Leviathan-type models are presented in Sinn (1992), Edwards and Keen (1996), Rauscher (1998), and Gordon and Wilson (2001).

[9] Southwick, 1981; Blank, 1988; Borjas, 1997; Enchautegui, 1997; Meyer, 1998.

[10] Most of these studies are based on the AFDC (Aid to Families with Dependent Children), in which money is given to the single mother. Meyer (1998), for example, finds that single mothers migrate more readily in response to higher welfare benefits than single women without children, who are not eligible for the benefit. This is additional evidence of welfare migration.

[11] Brueckner (2000) observes that some states imposed severe restrictions by denying any welfare benefits to poor migrants over a waiting period as long as one year. Such restrictions were struck down by the Supreme Court in 1969, but states responded by instituting a "two-tier" benefit scheme, under which the benefits earned by migrants during their waiting period corresponded to the benefit level in their state of origin. The most well known case is that of Wisconsin, which protected itself against migration from Illinois, a traditionally less generous state.

[12] In the presence of fiscal competition, one should expect strategic complementarity among governments. For example, when the neighbour increases the tax rate on capital, the given state (or country, or municipality) will act in the same direction, and vice versa.

[13] At the intra-provincial level, two papers concerning tax competition in Canada should be mentioned. Locke and Tassounyi (1996) found that business migrates from metropolitan Toronto to the vicinities which charge lower non-residential property tax. Slack (1994), looking at data from Ontario, inferred that higher non-residential property taxes may discourage businesses from location in a given municipality. She also concluded that property tax differentials are not a major factor in the decision to locate in one metropolitan area or another; but once a metropolitan area is chosen, they affect the decision about the specific municipality in which to locate.

[14] The explanation for a positive correlation between tax rates in a neighbourhood may be a result of classic competition, since the tax base is volatile. Alternatively, it might be a result of political competition. Voters compare policies in the neighbouring district with those of their own district. The mayor does not get re-elected if his (or her) policy happens to be worse than the one in the neighbouring district (Besley and Case, 1995).

[15] The United States welfare reform of 1996 transited from a matching grant to a block grant system, and gave more freedom to the states to define their own policies. Brueckner (1999) argues that this switch may cause a reduction in welfare spending in the long run, which could only be corrected by going back to the matching grant mechanism.