FISCAL COMPETITION IN DEVELOPING COUNTRIES: A SURVEY OF THE THEORETICAL AND EMPIRICAL LITERATURE

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Fiscal competition between governments to attract investment can take the form of business tax rebates, productivity-enhancing public infrastructure, tax holidays, accelerated depreciation allowances or loss carry-forward for income tax purposes. This paper surveys the recent theoretical and empirical economic literature and deals with three issues. First, it examines if the theoretical literature on fiscal competition and bidding races contribute to a better understanding of these phenomena in developing countries. Second, it examines whether FDI inflows in developing countries are sensitive to fiscal incentives and if there is empirical evidence of strategic behavior by developing country governments in order to attract FDI. Finally, it reviews the literature’s conclusions about fiscal competition among local governments in developing countries.

Keywords: Fiscal competition; fiscal incentives; decentralization; developing countries.

JEL Classifications: H2, H5, H7, H25, H54

1. Introduction

The last two decades have witnessed a sharp increase in foreign direct investment (FDI) flows to developing countries in the context of globalization. This increase has been accompanied by an increase in competition among the developing countries to attract FDI, resulting in many investment incentives offered by host governments and reductions in the restrictions on operations of foreign enterprises in these countries.¹

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¹The border effect literature, in line with the seminal paper by McCallum (1995), shows that regional integration should not be over-estimated and that national borders still matter. There is also empirical evidence that Chinese provinces’ greater involvement in international trade went hand in hand with a decrease in domestic trade flow intensity between the mid 1980s and 2000.

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For instance, the 10 member countries of the Association of South-East Asian Nations (ASEAN) seem to be engaged in a perpetual “incentive war” to attract FDI, especially since the financial crisis in 1997 that has severely affected the region. This competition became even fiercer as the ASEAN Free Trade Agreement (AFTA) came into force. The AFTA made it easier for multinational firms from outside the region to locate their activities in a single country from which they could supply the entire ASEAN market. Another example is the fact that more than 70% of African countries use tax holidays as an incentive to attract FDI compared to only 20% of OECD countries. These examples raise the following questions: Are economically integrated areas more likely to enter “bidding races” for business? Can tax incentives offset handicaps such as political instability and poor governance in those countries?

Fiscal competition is likely to take place not only between countries but also among local governments within developing countries. Indeed, over the last two decades, many developing countries have implemented a decentralization process. One can expect decentralization to empower local governments and to give them more fiscal autonomy, which in turn may increase scope for fiscal competition. However, as we will see below, things are more complicated in developing countries, and an appropriate analytical framework has to take this specificity into account. Thomas (2009) reports that, in Vietnam, desperate provincial officials are engaged in pitched battles for inward FDI projects, and that many offered investment incentives beyond what was allowed by law. Arze del Granado et al. (2008) detect some forms of fiscal competition and yardstick competition between Indonesia’s districts after the so-called Big Bang decentralization reform. Fiscal competition also takes place between Chinese provinces raising questions such as: Are lagging regions racing to the bottom by lowering taxation or to the top by levying heavy taxes on existing enterprises knowing that provinces have little tax autonomy? Does competition between provinces lead to modifications in the pattern of public expenditures in favor of infrastructure?

Fiscal competition can take several forms. Governments may compete over the corporate income tax (CIT) or, more generally, over business taxation. In developing countries, central governments very often keep the CIT while local governments are left with other, less productive business taxes. From a theoretical viewpoint, the same kind of models can be used for international tax competition and inter-jurisdictional tax competition. The main difference lies in the fact that the former extensively deals with the effects of the use of double taxation and tax-shifting issues (even if to some extent tax planning can also take place between local jurisdictions whenever business tax is not territorialized). As we will see, the impact of double taxation on FDI inflows in developing countries should not be underestimated.

While both countries and local governments compete among themselves using business taxes, they also compete with investments in productivity-enhancing public infrastructure, which, in certain cases, may mitigate the intensity of tax competition. This point deserves to be underlined since, in most developing countries, local
governments have little or no discretionary control over the tax rate and the tax-base definition of their own tax resources. Both are set at the national level, raising doubts about the effectiveness of decentralization. Finally, many governments believe that they can attract FDI and, more generally, new businesses through investment promotion activities and more specifically by granting fiscal incentives (such as tax holidays, reduced corporate income tax rates, accelerated depreciation allowances on industrial machinery and other capital equipment, investment allowances, or loss carry-forward for income tax purposes). The theoretical public finance literature regarding fiscal incentives is, to some extent, less developed than the tax competition literature. Fiscal incentives, because they are discretionary regimes, pave the way for “bidding wars” between governments and induce firms to adopt a strategic behavior in order to get the highest incentives before locating in a given place. Furthermore some incentives (such as industrial land subsidies) may drive governments into a race for infrastructure — which may be inefficient for those governments that did not manage to get the project.

The empirical literature on tax competition has to a large extent be focused on OECD countries. It is now widely acknowledged that FDI flows are highly sensitive to differentials in corporate income tax rates. This view was not the prevalent one among FDI experts 15 years ago — see for instance Markusen (1995). Similarly, the number of papers dealing with fiscal interactions between local governments was very low 15 years ago but is now increasing at a rapid pace. They generally conclude that local governments behave strategically when setting tax rates.

The purpose of this paper is to survey the recent theoretical and empirical literature addressing three questions related to developing countries:

(i) Does the theoretical literature on fiscal competition and bidding races contribute to a better understanding of these phenomena in developing countries?
(ii) Are FDI inflows in developing countries sensitive to fiscal incentives and is there empirical evidence of strategic behavior on the part of developing country governments in order to attract FDI?
(iii) What does the literature conclude about fiscal competition among local governments in developing countries?

2. Insights from the Literature on Fiscal Competition and Bidding Wars

We begin by discussing the existing theoretical literature on intergovernmental competition and fiscal incentives. There is a homogeneous literature dealing with this topic (see Wilson (1999) for a survey on theories of tax competition). We draw on three strands of literature including public finance, strategic trade, and new economic geography. The papers reviewed use a game theoretic approach to address two types of questions: Does fiscal competition lead to “a race to the bottom” and to an under provision of public goods? How can tax holidays and subsidies be the result of a
bargaining process between firms and governments? This literature allows a better understanding of the following situations (examples from Easson (2004)):

- In January 2003, the French automobile group PSA Citroën chose Trnava in Slovakia as the location for its new manufacturing plant in Central Europe, rejecting bids from Poland and Hungary. Apparently, the tax and investment incentives offered by Poland, Slovakia, and Hungary were identical. In December 2001, Toyota and Peugeot decided to locate a new manufacturing plant in Kolin in the Czech Republic rather than in Dabrowa Gornicza in Southern Poland. In July 2001, BMW finally chose to locate its new plant in Leipzig, Germany; the Kolin site in the Czech Republic (subsequently selected by Toyota) was among the short-listed contenders, along with sites in Hungary and Spain. All of the countries offered attractive incentives packages.
- Within days of Philips concluding an agreement (in April 2000) with the Czech government, under which it was to receive tax incentives for establishing a television manufacturing plant, two rival producers — Matsushita and Tyco — negotiated similar concessions.
- In 1999, Romania introduced special tax incentives for large investments that met certain conditions. The legislation was commonly known as the “Renault Act”, since the qualifying conditions were obviously tailored to accommodate the planned acquisition by Renault of a major share in the Dacia motor company. At around the same time, other tax incentives were being eliminated.

2.1. Fiscal competition and business taxation: “Race to the Bottom” versus “Taming the Leviathan”

2.1.1. The basic model of tax competition

The basic model of tax competition (which also addresses issues of competition over public inputs and public infrastructure) comes from the public finance and fiscal federalism literature. The theoretical foundations of numerous papers are the pioneer works by Zodrow and Mieszkowski (1986); Wildasin (1991), and Hoyt (1991). A thorough review of this literature is offered in Wilson (1999) and Madiès et al. (2004).

Public decision-makers are assumed to be benevolent in the sense that their objective is to maximize the welfare of their own citizens. Households are assumed to be immobile and consume both a private good and a regional public good. The latter is financed by a source-based tax on capital. Since capital is assumed to be perfectly mobile across regions, when a given government raises its tax rate, the net return on capital in that location decreases and firms decide to relocate their capital. The marginal productivity of capital within the jurisdiction of departure increases, while the marginal productivity of capital in the destination jurisdiction decreases. Capital flows continue until the net return on capital becomes identical everywhere.
Tax competition is thus modeled as a non-cooperative game where strategic variables are tax rates. The main result is that, at the Nash equilibrium, tax rates are too low and public goods are under-provided. In the case where the government can also tax labor, the source-based tax on capital tends to zero at equilibrium leading to the so-called race to the bottom. Note that Razin and Sadka (1991) show that perfect international capital mobility can lead to a zero taxation of capital earnings. This inefficiency results from the fact that each jurisdiction sees capital flight driven by a tax increase as a cost and does not consider the positive fiscal externality generated for other jurisdictions. Consequently, competing jurisdictions perceive the marginal cost of public funds as higher than it is in reality for the economy as a whole. Furthermore, it can be straightforwardly shown that the higher the elasticity of capital (or to put it differently, the greater the number of competing jurisdictions), the greater the difference to the social optimum (Hoyt, 1991).

2.1.2. Some useful extensions to developing countries

The basic model of tax competition has been the object of numerous refinements without questioning the main result of sub-optimality. Here we only deal with those extensions that shed some light on empirical evidence presented below.

(i) Asymmetric tax competition

Bucovetsky (1991) and Wilson (1991) show that when tax competition takes place between a small and a large country (or region), at the asymmetric equilibrium, the small country sets a low tax rate and is a net capital importer while the large country sets a higher tax rate and is a net capital exporter (see also Hwang and Choe (1995) for a more general model).

(ii) Leviathan hypothesis, fiscal competition and corruption

Previous literature supposed that decision-makers were benevolent. Other papers in line with Brennan and Buchanan (1980) challenge this view and conversely assume that governments behave like Leviathans or highly predatory governments. The general result is that intergovernmental competition — and more generally greater decentralization — helps to tame the Leviathan and to increase efficiency of the public sector together with curbing corruption (this last argument is partly supported by Shleifer and Robert (1993) but challenged by Treisman (2000)). An interesting point

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2 For a survey on international tax competition and coordination, see for instance Fuest et al. (2005) and Vondra (2006).
3 Edwards and Keen (1996) assume that regional policymakers act as Leviathans but look, to some extent, after their citizens’ utility. Their conclusion is that tax coordination is better than tax competition if the marginal propensity of governments to misappropriate resources (used a measure of “political inefficiency”) is lower than the elasticity of capital demand to the tax (used as a measure of “economic inefficiency”).
4 Gurgur and Shah (2005) and Weingast (2006) provide further discussion and references about the long strand of literature dealing with the very controversial relationship between decentralization and corruption (Fisman and Gatti (2002) provide empirical evidence that fiscal decentralization in government expenditure is strongly and negatively associated with lower corruption).
made by Cai and Treisman (2005) using a fiscal competition model is that competition over public inputs (productivity-enhancing public goods) leads to a situation where poorly endowed regions invest less in infrastructure and focus instead on non-productive public consumption (not to say on incumbent officials’ consumption of public funds).

(iii) **Vertical externalities**

The local public finance literature has focused on fiscal interdependence due to tax base mobility among similar local jurisdictions, generating what is known as the tax competition phenomenon. However, this literature has for a long time ignored the possibility of vertical externality arising from the existence of a federal government acting as a player (in the sense that it exercises some discretion over tax rates) and not only as a mechanical device aimed at internalizing fiscal inefficiencies at the local level (Keen, 1998). The recent literature, drawing on the seminal paper by Flowers (1988), has focused on a particular vertical externality that arises from interactions between overlapping governments that share one (or several) tax bases. Indeed, tax base sharing (also called concurrent taxation) is a widely spread tax arrangement in both developed and developing countries.

The usual theoretical analysis assumes that each layer of government acts either as a Leviathan (Flowers, 1988); Wrede 1996 (Flochel and Madiès, 2002; Keen and Kotsogiannis, 2004) or as benevolent (Keen, 1998; Keen and Kotsogiannis, 2002). Theoretical models generally show that the combined (aggregated) equilibrium tax rate of two overlapping revenue-maximizing governments, which share a common tax base, is higher than a single revenue-maximizing government tax rate (see e.g., Flowers, 1988). However, inter-jurisdictional tax competition at the local level will reduce the combined tax rate set by the two overlapping governments and hence result in rising (and not reducing) aggregated tax revenues since the combined tax rate lies initially on the downward-sloping section of the Laffer curve (see e.g., Keen, 1998; Flochel and Madiès, 2002). The explanation behind this result is clear-cut: “As states compete more intensively against one another, setting lower tax rates, so the position of the federal policy maker becomes closer to that of an untrammeled monopolist” (Keen, 1998: 473). For the same kind of reasons, note that if there are two levels of governments who are corrupted and set bribes, there is no reason to think that decentralization would decrease the aggregate bribe burden (technically, as

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5 It can also be straightforwardly shown that the global tax rate is increasing with respect to the number of vertically related governments.

6 More generally, when vertical and horizontal externalities are at work in a federation, they generally distort levels of taxation in opposite directions Keen and Kotsogiannis (2002). On the one hand, inter-jurisdictional tax competition (some observers also call it horizontal tax competition) leads to tax rates being too low since each local government ignores that it harms others when it cuts its tax rate in order to attract a mobile base (which is very often capital). On the other hand, co-occupation of a common tax base results in taxes being too high. Indeed, when a policy-maker raises its tax rate unilaterally, it ignores the loss in revenues due to the induced contraction of the common tax base that the other level of government will suffer from.
for tax-base sharing arrangements, it will depend on whether central and local bribery are strategic substitutes or complements). Treisman (2007: 155) underlines that “if fiscal decentralization motivates local governments to become less predatory, by the same logic it should render the central government more predatory”.

Finally, when there are several overlapping governments (central government and middle-tier governments) who offer subsidies and tax incentives in order to attract the same investment, the aggregated incentives enjoyed by investors will tend to be too high. Similarly, when there are two overlapping revenue-maximizing governments, Beck (1993) shows that tax abatements as a form of discriminatory taxation have a different impact on the tax revenues of the two levels of governments, depending on whether they abate only their own taxes, or the central government is allowed to abate all taxes (its own and those of the lower level).

(iv) Soft budget constraint

This issue concerns both government borrowing and vertical transfers among levels of governments, and is relevant for developing countries (see e.g. Rodden et al., 2001). It has been argued that tax competition may lead to harder regional budget constraints as tax induced mobility increases the opportunity cost of government to bail-out and, hence, strengthens their commitment vis-à-vis lower levels of governments and state-own enterprises (Qian and Roland, 1998).

Breuillé and Vigneault (2010) challenge this view using a theoretical multi-tier federation composed of an upper layer of government (central or federal), an intermediate layer and a lower layer of governments (cities). Vertical transfers are granted according to an overlapping upward equalization scheme. Each region allocates transfers to the cities located within its jurisdiction in order to equalize marginal utilities from the local public good provision. Tax competition among regional rescuers does not act as a commitment device to harden budget constraints at the bottom-most tier. Whether the bailout to cities is financed by a regional lump-sum tax or a distortive tax on mobile capital has no impact on the inability of the region to commit dynamically not to bail out. This result, which goes against the earlier result by Qian and Roland (1998), is due to the fact that tax competition externalities are perfectly internalized by regions. The equalization scheme implemented by the central government insulates regions from harmful tax competition (Köthenberger, 2004).

(v) Yardstick competition: An alternative to tax competition

Salmon (1987) and Besley and Case (1995) have used alternative or complementary explanations of public decision-making processes in a setting of fiscal federalism. These authors explain fiscal interactions not with the concept of mobility, but with the idea of information asymmetries between voters and their representatives. In a world of

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7 For a theoretical analysis and further recent references regarding the soft budget constraint issue see for instance Treisman (2007); Weingast (2006); Vignault (2007); Bréuille et al. (2010), and Bréuille and Vigneault (2010).
imperfect and asymmetric information, voters have restricted possibilities to evaluate the performance of the representatives in their polity. Selfish representatives aim at gathering political rents and hence have incentives to withhold information about their opportunistic behavior from voters. However, voters can draw inferences on the politician’s behavior by comparing it to the performance of governments in neighboring jurisdictions. Other things being equal, neighboring jurisdictions serve as yardsticks for voter evaluation. A bad performance in their own jurisdiction compared to other jurisdictions will penalize representatives and they will not be re-elected. In such a view, public choice is not only driven by information gathering from neighboring jurisdictions but also by mimicking behavior. Because representatives anticipate the yardstick mechanism, they are able to stay in power by adapting to the policies of their neighbors.

2.2. Justifications for tax incentives and subsidies, and bidding wars between governments

2.2.1. Rationale for tax holidays

One common feature of many tax incentives and subsidies is that benefits to firms are concentrated in the early years of location. The archetype is the tax holiday in which the firm receives a reduced tax rate for a fixed period of time but pays taxes at a higher rate when the holiday comes to an end. The puzzling question which arises is the following: Why is the reduction in tax rate concentrated on a short period rather than being evenly distributed over the investment time period if we assume that both the country and the firm have the same discounted rate and that both reductions in tax rates have equivalent present value? One explanation is given by Doyle and Van Wijnbergen (1994) who examine the intertemporal structure of a firm’s tax payments when governments are not able to commit not to raise taxes in the future. They note that a firm will lose part of its bargaining power vis-à-vis public authorities once it has incurred the sunk costs associated with locating in a particular jurisdiction (which make it partially immobile). As a result, the firms will use their extra bargaining power to extract concessions before deciding to locate somewhere. The two authors show that in a multi-period model the outcome of the bargaining process will then be a tax rate that increases over time, reflecting the increased bargaining power of the country.8

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8 The same kind of results is obtained by Lee (1997) who considers a two-period model of tax competition (in line with the public finance literature) where transaction costs are limiting capital mobility. While the budget needs to be balanced during both periods, the author shows that if tax rates in both periods are compared with the symmetric model without transaction costs, lower tax rates are imposed during the first period, and higher rates later on. Comparing the equilibrium obtained at Nash equilibrium in the static model of tax competition, there is even less public good offered in the first period. However, the public good is overprovided during the second period (along the same line, Coates (1993) using a repeated tax game shows that equilibrium tax rates are negative in the first period).
Bond and Samuelson (1986) present an alternative explanation of the same phenomenon underlining the role that signaling may play in tax holidays. The basic setting is the following. The main assumption is that a firm is uncertain as to the productivity of the country in which it will potentially locate (countries are of two types: low and high productivity). A tax holiday and even a subsidy (as opposed to uniform tax rates) may play the role of a signal in this model because it potentially allows high-productivity countries to distinguish themselves in the early period in which a country’s productivity is unknown. Tax payments occur in subsequent periods in which the country exploits the fixed investment made by the firm. The firm will accept relatively high subsequent tax rates in a high-productivity country, allowing the latter to recoup its initial subsidies. However, the firm will abandon a low-productivity country rather than pay such tax rates, preventing the low-productivity country from recovering its initial subsidies and profitably offering a similar tax holiday. The high-productivity country can then use tax holidays to identify itself (technically it is shown that there exists a separating equilibrium) and then induce firms to enter at higher tax rates than would be the case without such tax holidays. Two results distinguish the Bond and Samuelson (1986) model of tax holidays from the model offered by Doyle and Van Wijnbergen (1994). First, the latter requires the presence of fixed costs in order to generate a tax holiday. This is not the case in the Bond and Samuelson model, as long as the source country is sufficiently attractive relative to the host country: A tax holiday will appear in spite of the absence of any fixed cost. Secondly, the presence of uncertainty can even lead a first-period tax rate to be negative (i.e., a subsidy).

2.2.2. Intergovernmental competition as a menu auction

Intergovernmental competition can be modeled as an auction in which governments (principals) are bidders who want to induce firms (agents) to locate within their own jurisdiction. In such a setting, competition between governments arises because the location and output decisions of firms create benefits for the region in which they take place (knowledge spillovers, reduction of unemployment, etc.). However, firms’ decisions may also create externalities for other countries or regions. We focus here on a simple model by Besley and Seabright (1999) where it is assumed that valuation of benefits and costs associated to any firm’s location is public information. The possibility of an efficient outcome when governments compete to attract a firm that generates externalities can be illustrated with a numerical example. Suppose that a single firm must decide whether to locate in one of two countries (or regions): A or B. The payoffs to country A and B from having the firm locate in either country are as follows:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Payoff Vector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm in A</td>
<td>(5,0)</td>
</tr>
<tr>
<td>Firm in B</td>
<td>(3,3)</td>
</tr>
</tbody>
</table>
where the first element of the payoff vector refers to A’s payoff and the second to B’s. It is clear that there is an externality as the firm affects the payoff in the other country when it makes its location decision. In a menu auction, each government formulates a bidding strategy that details the payment offered to the firm for each location choice. It is assumed that the firm is indifferent between the two locations. With these payoffs, country A has the highest private value from having the firm located in its own country. However, social surplus is highest when the firm locates in B. Hence, we need to show that the Nash equilibrium in truthful bids will lead to the firm deciding to locate in B. Since country A has a true marginal willingness to pay of two for location in A and country B has true marginal willingness to pay for location in B of three, the firm will get the highest subsidy from locating in B and the efficient outcome will prevail. This logic prevails in more general settings, as Berhmein and Whinston (1986) have shown. However, this basic model assumes implicitly that governments are benevolent in the sense that they aim at maximizing the payoffs of their citizens. Relaxing this assumption and supposing that governments are partly selfish or corrupted may breakdown the former result. Indeed, when government preferences fail to meet those preferences of the citizens and divert part of the resources for its own, a common agency problem arises and it may be the case that the firm locates in country A which is the welfare-maximizing location (applied to the citizens’ payoffs).

A number of earlier papers have offered explanations of the tax breaks given to mobile firms but these papers have described the negotiations between a single firm and one or two governments (see Han and Leach, 2008) for a bargaining model of tax competition). The dynamic model developed by King et al. (1993) introduces uncertainties about firm productivity. In particular, the social value of a firm is given by the surplus that it generates by producing in a given region, but this surplus is uncertain to both the firm and regional governments prior to actual production. Two regions compete for the firm over two periods. After choosing a location in the first period the firm is free to relocate in the second period. However, since a sunk cost is incurred when the plant is built in the first period, mobility in subsequent periods is limited. This allows the region in which the firm initially locates to extract a share of the surplus produced in subsequent periods, without fear of the firm moving to another region. One of the main results is that the subsidy is increasing in the level of the sunk cost, and decreasing in the disparity of the expected productivity between regions. This is an interesting result as it means that “bidding wars” are more likely to occur when competing regions are not differentiated from each other. Along the same line, a strand of the literature models tax competition between two or more governments for a firm whose characteristics are partly unobservable (for instance the degree to which it is mobile) as a common-agency problem with the governments serving as multiple principals and the firm as the agent (e.g. Osmunden et al., 1998). In this case, it is

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9 For example, governments can be interested in a firm being located in their area, so that they can extort bribes from it and then spend the collected money to gain the support of voters in elections.
shown that governments must base tax decisions on observable decisions of the firm such as its investment decisions, and that the firm extracts an information rent from its private information (see Wilson (1999: 286–287) for more details).

2.3. **Infrastructure competition: A wasteful process or a way to attenuate tax competition?**

There are many ways in which governments can compete for mobile factors. One possibility is to compete through the use of public inputs (such as public infrastructures) that improve the productivity of private capital or firms (see Noiset, 1995; Bayindir-Upman, 1998; Matsumoto, 1998, 2000; Bénassy-Quéré et al., 2007; Hauptmeier et al., 2009). The literature on fiscal competition shows that, in this case, public inputs may be overprovided and tax rates may be too high. This finding challenges the main “race to the bottom” result. However, Madiés (2008) shows that this result does not necessarily hold where there is an overarching government that shares a common tax base with lower levels of governments. Along the same line, Keen and Marchand (1997) argue that the equilibrium pattern of expenditures is distorted toward too much public infrastructure provision and too little public good provision. Breuillé et al. (2010) partly challenge this view in a decentralized leadership model where the central government aims at equalizing public good provision. They show that the optimal composition of public expenditure depends on whether the equalization scheme at work in the federation is a net or gross equalization scheme.

2.3.1. **Competition for infrastructure: Analogy with the innovation race**

Jurisdictions competing for an industrial project by building infrastructure may well be wasting resources. The problem is analogous to models of “innovation races” in the private sector — namely, public authorities expect a reward in terms of additional tax resources and jobs, which is similar to a rent afforded by a patent when innovators are successful. The faster a jurisdiction spends money, the faster it develops its infrastructure. This boosts its chance of winning the industrial project. Each jurisdiction seeks the rate of spending that will maximize its expected gain from competing. Taylor (1992) shows that infrastructure competition might lead to a waste of substantial resources when it takes place between regions that start out with the same level of initial infrastructure (and incur sunk costs) but only one will gain the “prize”. Conversely, when regions significantly differ in their initial endowment in infrastructure, the weak regions drop out as their chances of winning are very low and they do not want to throw their money away. Infrastructure competition leads to increasing inequalities between regions, which pleads in turn for federal subsidies on regional expenditures on infrastructure.

2.3.2. **Infrastructure investment as a way to differentiate regions**

King et al. (1993) are not as pessimistic as Taylor (1992) in their conclusions. Their basic assumption is that each region can invest in infrastructure. More precisely, before
the sequential auction takes place, the two regions play a Nash game in investment levels, under which each region sets its investment level optimally, given the level chosen by the other region. They demonstrate that only an asymmetric equilibrium exists where the equilibrium investment levels differ. In the first period, the firm locates where the investment is higher. However, the losing region may choose a lower but positive investment level in order to induce the firm to switch location in the second period. This implies that the losing region’s investment is not socially wasteful (as in Taylor’s model).

Justman et al. (2005) propose a model where regions can offer infrastructure services that are differentiated. The two polar cases of full and incomplete information about investors’ needs are studied. In both cases, there is regional differentiation. However, fiscal competition is efficient in the former case but not in the latter. Finally, it is shown that free entry in the location market calls for some regulation because of the excessive number of competing regions that would prevail in equilibrium. By the same token, Zissimos and Wooders (2006) argue that, because governments are able to relax tax competition through public good differentiation, traditionally high-tax countries can continue to set taxes at a relatively high rate even as markets have become more integrated. The key assumption is that firms vary in the extent to which public good provision reduces their costs. The authors show that Leviathan (i.e., revenue-maximizing) governments are therefore able to use this fact to relax tax competition, thus reducing efficiency. When firms can vote with their feet, tax competition leads firms to locate in “too many” jurisdictions (for a closely-related model where regions compete in taxes and investment under fiscal equalization, see Hindriks et al. (2008)).

Jayet and Paty (2006) go one step further in giving an explanation for the evidence that business area and industrial premises are often under-occupied or empty, i.e., over-provided. The authors propose a model where local jurisdictions must engage a development cost before competing for hosting a firm with uncertain preferences among possible sites. They first show that even an optimizing central planner managing all jurisdictions would develop more sites than there are plants to host because by doing so, he diversifies his supply and has a higher probability of hosting the firm. Then they show that, if every jurisdiction is managed by a local government, there are more developed sites than with the central planner, which implies excess supply. The outcome is analogous to over entry of firms on a market of diversified products, a point long ignored in the literature on tax competition.

2.4. Economic integration and fiscal competition: A bell-shaped relation?

The existence of increasing returns to scale and of monopolistic competition corresponds to an agglomeration force which makes the idea of mobile factors marginally reacting to slight changes in tax rates illusory.10 Inertia resulting from agglomeration

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10 See Ludema and Wooton (1998); Kind et al. (1998); Andersson and Forslid (2003); Forslid and Ottaviano (2003).
forces implies a situation where fiscal competition does not necessarily lead to tax rates which are too low (as it is the case in non-increasing returns to scale models), since the mobile factor is concentrated and produces a taxable rent (see Baldwin and Krugman, 2004). Furthermore, recent literature shows that the agglomeration rent is bell-shaped in trade openness: economic integration, characterized by the diminution of transportation costs, at first reduces the intensity of fiscal competition then increases it later on. Agglomeration effects — and thus the taxable rent — are the highest for intermediate transportation costs, in other words, for costs that are sufficiently low to make agglomeration happen and sufficiently high for spatial concentration to be a necessity. The consequences for tax competition are (i) that the equilibrium tax gap is also bell-shaped. Starting from a low level of openness and making trade freer first increases the tax gap, but then decreases it; (ii) that core countries can engage in a “limit tax” game in which they set a tax rate sufficiently low to make the periphery countries abandon the idea of trying to attract the core (Baldwin and Krugman, 2004). Gilbert et al. (2005) run an econometric study of the bell-shaped relationship between economic integration and the tax gap between countries in order to determine a threshold of openness beyond which core countries lie below this threshold. Most EU country pairs lie below this threshold so that more integration may come along with high tax gaps.

We conclude from this brief survey of the theoretical literature on intergovernmental competition and fiscal incentives that, contrary to common wisdom, there are various reasons why tax competition is not likely to lead to a race to the bottom. Public infrastructure that has a positive impact on firms’ productivity, as well as agglomeration effects, lessens tax competition.

3. Does Foreign Direct Investment Respond to Fiscal Incentives in Developing Countries?

Two main questions arise when it comes to the analysis of the decision of multinational firms to engage in FDI: Why do firms choose to invest abroad and what causes them to invest in one country rather than another? These are often distinct questions since, in most cases, a decision is made to invest abroad first and only then does the multistage process of selecting the investment location starts (Harding and Smarzynska-Javorcik, 2007). First, a particular region of the world may be selected by the multinational firm, and then a shortlist of potential host countries is drawn up. Finally, one country is chosen and a precise location is selected.

11 Baldwin and Krugman (2004) present data to show that corporate tax rates in core countries (France, Germany, Italy, and Benelux) have always been higher than tax rates in the poorer periphery countries (Ireland, Greece, Spain, and Portugal). Data on the effective average tax rate developed by Devereux and Griffith (2003) appears to confirm Baldwin and Krugman’s assertions. In 2003, the average tax rate in the periphery was significantly below that in the core, at 23% compared to 31% respectively.
The purpose of this section is not to list the main determinants of FDI location in developing countries — this would drive us far beyond the purpose of our paper. Rather we want to check whether corporate income taxation and fiscal incentives in host countries have an impact on FDI location. This question would not have been raised 10 years ago since it was considered that tax motives played a secondary role in comparison to more traditional FDI determinants. But the increasing economic integration of regions (e.g., through regional trade agreements) has caused tax incentives to become a decision factor of growing importance for FDI location.

Some 20 non-OECD countries cut their corporate income tax rates in 2007 including Bulgaria, Turkey, South Africa, Colombia, Israel and Malaysia (World Bank, 2008). Asian countries, including China, Korea, Taiwan and Hong Kong, have been very aggressive on this front. In response to these developments, an advisory panel has called upon the Japanese government to cut its corporate tax rate to remain competitive and avoid discouraging foreign investment.

3.1. Are fiscal incentives good or bad for developing countries?

Fiscal incentives do not require direct payments of scarce public funds. This fact is a major reason why they are widely used instruments in developing countries (see Easson, 2004) for an extensive survey of tax incentives in both developed and developing countries). Fiscal incentives are defined as any tax provision granted to a qualified investment project that represents a favorable deviation from the usual provisions applicable to investment projects. Thus, the key feature is that it applies only to certain projects (Fletcher, 2002). All fiscal incentives will have an impact on the cost of capital, effective tax rates and, ultimately, on where FDI locates. A debate is currently ongoing over whether fiscal incentives for FDI are beneficial or detrimental to host developing countries (Blomström and Kokko, 2003; Morisset, 2003). Among tax incentives, tax holidays have been favored by policymakers. Cleeve (2008) reports that, in 2004, 70% of African countries used tax holidays to attract FDI compared to only 20% of OECD countries. Tax holidays provide benefits as soon as companies begin earning income, while the benefits of a corporate tax rate cut accrue more slowly and over a longer period.

Supporters of fiscal incentives for FDI argue that they are needed to increase investment which, in turn, creates jobs and generates economic and social benefits such as positive externalities or spillovers conveyed by foreign firms. Local firms may be able to improve their productivity as a result of forward and backward linkages with multinational firm affiliates. Several other arguments in favor of public support to FDI have been identified by case studies and econometric studies (see Boadway and Shah, 1992; Blomström and Kokko, 2003; Easson, 2004). However, the point is that

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12 For an analysis of the impact of tax incentives on the cost of capital, see (Boadway and Shah, 1992) and Shah (2004) for an application of the cost-of-capital methodology to fiscal incentives in Pakistan.
foreign firms differ from local firms, and possess specific intangible assets (for instance knowledge and technology that can spillover to local companies). Multinational firms will not include these spillovers in their private assessment of the costs and benefits of investing abroad and may consequently invest less than what would be socially optimal. Therefore, the question is to check empirically whether spillovers and externalities associated with FDI are strong enough to justify fiscal incentives. The earliest discussions of spillovers in the FDI literature date back to the 1960s, but a complete survey of this vast empirical literature would lead us too far. (Blomström and Kokko, 2003) conclude that there is strong evidence pointing to a potential for significant spillovers benefits from FDI, but also that spillovers do not occur automatically. The latter conclusion is mainly due to the fact that most developing countries do not have the capability in terms of technical skills and human capital to benefit from FDI. The most favorable tax treatment should, therefore, be focused on foreign investment generating ample spillovers. The problem is that it is difficult for the host country to measure the social benefits derived from FDI location. An interesting point is that in the presence of FDI spillovers, not only should foreign investment be subsidized, but also local firms should be encouraged to strengthen their capacity to absorb foreign technology.

There are numerous arguments against tax incentives. First, these tax regimes are costly to administrate, and are subject to delays and uncertainties for investors. The duration of tax breaks (especially for tax holidays) together with their design (targeted versus universal) influence their attractiveness for investors.

Also, discretionary tax incentives are susceptible to corruption and are fertile ground for rent-seekers. Non-discretionary regimes granting incentives to any company meeting clear requirements are easier to implement and are not necessarily less efficient in attracting FDI. (Often, developing countries grant bundles of tax incentives that end up offsetting each other — e.g., when both capital allowances and tax holidays are jointly granted.) Moreover, tax holidays and tax breaks are not innocuous incentives: They can lead to transfer pricing and other distortions. Firms try to shift as many transactions as possible to the sector of activity with the lowest taxation, or set up new firms as existing tax preferences expire (McLure, 1999).

It is also noted that the effectiveness of tax incentives is likely to vary depending on a firm’s activity and motivation for investing abroad. Tax incentives are crucial factor for mobile firms or firms operating in many markets such as banks, insurance companies and internet-related businesses because they can better exploit different tax regimes across countries. Similarly, tax rates generally have a greater effect on the investment decisions of export-oriented companies than on the decisions of firms seeking domestic-market or location-specific advantages, because the latter are more mobile and operate in competitive markets with very slim margins.

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13 This argument is in line with the theoretical point by Besley and Seabright (1999) mentioned above.
Furthermore, bilateral tax treaty agreements and in particular the so-called tax sparing provisions must be taken into account. The aim of this provision is to ensure that fiscal incentives to foreign investors in the host country are not nullified by income taxation in the home country. The literature demonstrates that fiscal advantages provided by tax sparing provisions have the opportunity to increase the location and volume of FDI in developing countries (Hines, 2007; Azémar and Mucchielli, 2007). With regards to tax sparing, Azémar and Dalios (2008) provide a good explanation:

“The analysis of the effect of taxes on FDI location in developing countries cannot be done without taking into account bilateral tax treaty agreements and more precisely a specific provision called “tax sparing” which can play an important role in the attractiveness of these countries. The purpose of this provision which is signed only between a developed and a developing country is to promote economic development by ensuring that fiscal grants to foreign investors in the host country are not nullified by the taxation of income in the home country. Indeed, when investors are coming from tax credit countries like Japan they are subject to taxes on their worldwide income. In order to avoid double taxation on foreign-earned income, Japanese investors are allowed to claim for foreign tax credits for income taxes paid in the host country. If the host country grants tax holidays, or simply decreases its level of taxes, no benefits remain in the hands of the investors, as the spared amount is transferred to the treasury of the home country. However, under a tax sparing provision, the amount of tax exempted or reduced under certain incentives is deemed to have been paid and thus becomes creditable with respect to the payment of Japanese taxes”. (Azémar and Dalios, 2008)

Finally, another argument against tax incentives is that tax policy appears to have some effect on the location decisions of foreign firms, especially within regional markets. The concern is that countries may end up in a bidding war favoring foreign firms at the expense of the welfare of citizens. Tax incentives could also reduce fiscal revenue and create opportunities for illicit behavior by enterprises and tax administrators — as observed in many developing and transition countries, which face more severe budgetary constraints and corruption than industrial countries.

3.2. Effect of taxation and fiscal incentives on FDI location in developing countries

There is a long strand of literature dealing with the impact of corporate tax discrepancies on FDI. It has been comprehensively reviewed by Hines (1999), de Mooij and Ederven (2003, 2008) and Djankov et al. (2009). One of the main problems empirical researchers face in measuring the CIT burden is choosing the appropriate tax
measure. There is a vast literature dealing with this topic (see e.g., Haufler and Stöwhase (2003) who compare the different measures in an OECD country sample). Devereux and Griffith (1998, 2003) mentioned that the effective marginal tax rate should be used to measure the impact of the CIT on additional investment, while the effective average tax rate should be used for choosing a discrete location (incurring a sunk cost). However, estimates are generally run using the statutory tax rate for developing countries because effective average tax rates are not available. Estimates of the semi-elasticity of FDI vary across empirical studies, depending on geographic coverage, time coverage, definition of the CIT burden and econometric method. According to the meta-analysis by de de Mooij and Ederveen (2008) based on 427 individual estimates, the mean semi-elasticity of FDI to tax rates is \(-3.3\) (a 1% point increase in a tax measure in a certain location reduces foreign investment by 3.3% points), while the median is \(-2.9\). The standard deviation of 4.4 suggests that the variation across studies is large. The elasticity of FDI to tax rates is usually negative and of an order of magnitude of \(-0.6\) in time-series samples but from \(-1.0\) to \(-2.8\) in cross-sectional estimates, which provide a much wider range of estimates (Desai and James, 2001). Bénassy-Quéré et al. (2005) use a panel of bilateral FDI flows across 11 OECD countries over the 1984–2000 period. They find that although market potential does matter, corporate tax differentials (captured through four different measures) also play a significant role in driving FDI flows. This impact is not symmetric since low tax rates fail to significantly attract FDI, while higher taxes tend to discourage new FDI inflows. In addition to tax rates, it is important to note that public expenditures also matter. In particular, it is found that the composition (and not the level) of public expenditures matters. For example, a higher provision of public investment expenditures has a positive impact on FDI.

The remainder of this section focuses on empirical studies of the elasticity of FDI with respect to both CIT and tax incentives in emerging and developing countries. Azémar and Dalios (2008) focus on Japanese firm implantation between 1990 and 2000 in Africa, Latin America and Asia. The vector of control variables used in the estimation includes measures of market size, GDP per capita, trade openness, an East Asia and Pacific indicator variable, the cost of production and the quality of institutions. A random negative binomial model is used in order to tackle the traditional concerns in panel data. Their results are the following: (i) Japanese firms implantations in developing countries are strongly and negatively influenced by the level of statutory tax rates in host developing countries. (ii) Investors from Japan, a tax credit country, do not react to tax rates in the same way in all developing countries (iii) The inclusion of an interaction term between taxes and public goods (proxies for level of education, infrastructure and health) on the one hand, and between taxes and public governance on the other hand, shows that increasing the quantity of public goods and the quality of

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14 We are mainly surveying large sample-based studies. For an example of sub-regional study, see e.g., Fletcher (2002) who studies the impact of tax incentives on FDI in the Mekong region.
governance reduces the impact of the statutory tax rate on the location choices of Japanese firms. Furthermore, it appears that low tax rates can help to offset disadvantages in terms of market potential in the host country and that productive public expenditures have a positive and significant impact on FDI bilateral inflows which in turn runs counter to the race to the bottom concern.

Banga (2003) analyzes the determinants of FDI inflows into 15 developing countries of South, East and South East Asia over 1986–1997 and, separately, for FDI coming from developed and developing countries into 10 developing countries of the same region for 1986–1997. Some interesting conclusions can be drawn from the econometric test based on a random effects model15: (i) Economic fundamentals (large market size, low labor cost, education and productivity of the labor force, and quality of transportation and communication) are found to be significant determinants of aggregate FDI. However, these factors differ in terms of significance in attracting FDI from developed and developing countries; (ii) After controlling for economic fundamentals, it is shown that FDI-fostering policies and lower tariff rates attract aggregate FDI inflows. However, while lower tariffs are significant determinants of FDI from developing countries, they do not help in attracting FDI from developed countries. Furthermore, fiscal incentives are found to attract FDI from developing countries but it is the removal of restrictions on their operations that is determinant for FDI from developed countries; (iii) Bilateral investment treaties (BITs) which emphasize non-discriminatory treatment of FDI matter. However, BITs with developed countries have a stronger and more significant impact on FDI inflows compared to BITs with developing countries.

Cleeve (2008) analyzes the impact of fiscal incentives in attracting foreign direct investment to Sub-Saharan Africa (SSA). Only SSA countries are considered on the grounds that the determinants of FDI inflows to SSA are different from those to other regions — a view supported among others by Asiedu (2006) and Barta et al. (2003). Cleeve uses cross-sectional time series data on 16 Sub-Saharan African countries for 1990–2000. He controls for variables such as host country market size (GDP), degree of openness to trade and FDI, political stability as a measure of country risk (using political freedom and civil liberties), and human capital (secondary school enrolment ratio). He also introduces a proxy for public infrastructure quality, believed to increase the productivity of investments. Finally, three proxy variables capture fiscal incentives offered to foreign investors with a special emphasis on tax holidays (the most popular fiscal incentive in SSA). Both random effects models and fixed effects models are estimated. The results show that traditional variables and government policies to attract foreign investment to Africa are important. Tax holidays turn out to be very important in attracting FDI, while other incentives generally have no significant effect. An interesting point is related to the fact that the United Kingdom, the United States,

15 One should be careful before drawing general conclusions from this study since FDI determinants are likely to be region- or subregion-specific.
Germany and France (which jointly account for almost 80% of FDI inflows to Africa in 1996–2000) provide their firms investing abroad with foreign tax credits. When these firms invest in SSA countries, and that these countries offer fiscal incentives by lowering their tax rates, these fiscal incentives lose some of their attractiveness since lower SSA taxes may be offset by a reduction in tax credits back home, and therefore higher taxes. In other words, tax incentives lead to a transfer of resources from SSA countries to rich countries.

Harding and Smarzynska-Javorcik (2007) deal with the impact of investment promotion agencies (IPA) on FDI inflows in 1972–2005 using a sample of 109 countries, three quarters of which are developing countries. Investment promotion includes activities through which governments aim at attracting FDI, which encompass a wide range of areas including national image building, investment generation (identifying potential investors interested in establishing a presence in the country, developing a strategy to contact them, and starting a dialogue to commit them to an investment project), investor servicing (assisting committed investors in analyzing business opportunities, and establishing or maintaining a business) and policy advocacy (initiatives aiming to improve the quality of the investment climate and identifying the views of the private sector in this area). Some issues are prevalent in this kind of analysis, including the potential endogeneity of IPA existence with respect to FDI inflows, and the potential reverse causality problem arising from the fact that sector targeting is a choice of the IPA. First, Harding and Smarzynska Javorcik find that investment promotion efforts lead to higher FDI inflows to developing countries (in line with Wells and Wint, 2000; Morisset and Andrews-Johnson, 2004; Bobonis and Shatz, 2007; Charlton and Davis, 2006). Second, they find that targeted sectors receive more than twice as much FDI as non-targeted sectors. Their third finding is that some agencies are more successful at enticing FDI than others, and that it depends on who they have to report to. Harding and Smarzynska Javorcik find it difficult to distinguish the effects of investment promotion from those of investment incentives because there is a high correlation between the two variables. FDI incentives granted by competing countries from the same region divert FDI inflows, while it is not the case for countries with similar income per capita. In other words, geographic distance matters in explaining competition among countries while economic distance does not. Also, the presence of IPA in neighboring countries has no impact on FDI flows, whatever the definition of proximity used. These results seem to suggest that competition over fiscal incentives takes place amongst geographically close countries, suggesting an opportunity for those countries to coordinate their policies.

3.3. Do we observe strategic behavior and fiscal mimicking in developing countries?

Most empirical studies presented in this paper conclude that FDI inflows in developing countries are sensitive, to various degrees, to corporate income taxation and fiscal
incentives. However, this does not mean that governments are strategically engaged in tax competition. Nor does it mean that governments mimic each other when choosing their fiscal policy, as the yardstick competition literature may suggest. This is important since fiscal mimicking is likely to result in a prisoner’s dilemma situation which is harmful for competing countries. The most common way to check whether public authorities behave strategically with each other is to estimate fiscal reaction functions. Besley et al. (2001); Devereux et al. (2002), and Altshuler and Goodspeed (2004) are more or less the only papers estimating an empirical model of strategic interactions in tax rates and public expenditure using large EU or OECD country datasets (though, as we will see below, there is a large number of papers dealing with tax interactions between local governments in the OECD). Redoano (2007), using annual data on Western Europe over the 1970–1999 period, shows that (i) the slope of the reaction function with respect to corporate income tax rates is positive and significant. (ii) The same result holds for personal income taxation. However, the explanation of tax interactions is different as there is no empirical evidence in Europe of tax-induced mobility (except for wealthy people who can enjoy special tax regimes). (iii) Governments behave strategically mainly with respect to those expenditures which are more directly comparable such as education spending.

This methodology has never been applied to developing countries so far due to a lack of data. An exception is the paper by (Klemm and van Parys, 2009), which addresses two empirical questions about CIT and tax incentives: Are CIT and tax incentives used as tools of tax competition, and how effective are incentives in attracting investment? They use a new dataset of tax incentives in over 40 Latin American, Caribbean and African countries for 1985–2004. Using spatial econometric techniques for panel data (spatial lag model), they find that there are strategic interactions in tax holidays as well as well-known interactions over the corporate income tax rate (however, Klemm and van Parys do not find evidence for interactions over investment allowances and tax credits). They also find evidence that lower corporate income tax rates and longer tax holidays are effective in attracting FDI (which is consistent with the related studies presented above), but not in boosting gross private fixed capital formation or economic growth.

4. Competition among Local Governments in Developing Countries

There is a rich tradition of econometric research dealing with fiscal interactions among subnational governments in OECD countries. Most of these studies have established the importance of spatial interactions between local governments in these countries (see Ladd (1992); Besley and Case (1995), and Rork (2003) for the United States; Heyndels and Vuchelen (1998), and Vermeir and Heyndels (2005) for Belgium; Buettner (2001) for Germany; Feld and Kirchgässner (2001) for Switzerland; Bordignon et al. (2003) for Italy; Revelli (2002) for the United Kingdom; Solé Ollé (2003), and Bosch and Albert (2007) for Spain; Allers and Elhorst (2005) for the
Netherlands; and Feld et al. (2003), and Foucault et al. (2008) for France). However, most of these papers fail to identify empirically the reason why such interactions take place. It is well known that different theoretical hypotheses (tax competition, yardstick competition, and public expenditure spillovers) lead to the same reduced form equation to be estimated (Revelli (2006) presents a survey). By contrast, little is known about the extent and significance of fiscal interactions among local governments in developing countries. The design of fiscal decentralization systems in these countries may drive one to conclude that there is no scope for strategic fiscal interactions among subnational governments, but until recently there was little empirical evidence. A number of recent papers, reviewed later in this section, examine fiscal and yardstick competition among subnational governments in developing countries. They include papers by Yao and Zhang (2008); Zhang and Chen (2007); Herrmann-Pillath and Feng (2004) for China; Thomas (2009) for Vietnam; Arze del Granado et al. (2008) for Indonesia; De Mello (2007) and Haddad et al. (2006) for Brazil; and finally Rota-Graziosi and Foucault (2010) for Benin.

Most empirical tests on strategic interaction use spatial econometrics to estimate the slope coefficients of the reaction functions connecting each government’s policy choices to the decisions of neighboring governments and to its own socio-economic characteristics Brueckner (2003); Revelli (2006); Madiès et al. (2004). The reaction function slope is non-zero when strategic interaction occurs.

4.1. Fiscal decentralization and fiscal autonomy in developing countries

Developing countries share some characteristics when it comes to decentralization. First, there is a huge gap between devolution of competencies as stated by the law and competencies that are actually implemented by subnational governments. Furthermore, in most developing and transition countries, subnational governments enjoy very little fiscal autonomy (i.e., they have a very limited discretionary control on their own expenditures) even if, in some cases, the subnational governments’ share in total government expenditure may look important at first glance. Second, tax revenues are very centralized and, for those limited resources which are under the control of local governments, subnational governments are granted little tax autonomy.

Third, vertical transfers (including revenue sharing arrangements) play an important role in filling the gap arising from the lack of balance between subnational revenue and expenditure responsibilities. The effects of both the vertical gap and the vertical transfers have been widely documented by the fiscal federalism literature (see Weingast (2006) for a survey). The disconnect between taxing and spending responsibilities and the resulting vertical transfers create a major accountability problem at the subnational level, since lower level governments do not really enjoy fiscal autonomy. Ensuring accountability means that the ability to raise tax revenue should be matched as closely as possible with expenditure needs (see Bahl and Linn (1992) and
Shah (1997a, b) for developing countries). Vertical transfers and revenue sharing systems should be designed to provide incentives for subnational governments (especially in terms of new revenue generation) to foster local economic growth.  

In most developing countries, jurisdictions face restrictions on trade or factor movements across jurisdictional boundaries. Both people and firms have limited opportunities to relocate from one location to another, due to mobility restrictions set by the central (federal) government, but also more generally because the set of location choices is narrow (few cities offer a public services bundle capable of attracting businesses and people). The failure of the common market condition creates a pathology in which sub-national governments become de facto national governments within their jurisdiction Weingast (2006). Along the same line, one can argue that “voice” and yardstick competition are less likely to be efficient in developing countries because of a lack of local political accountability and, to some extent, because of the perversion of democracy that (Weingast (2006: 38) calls “tragic brilliance”. However, some empirical studies (e.g., Alderman (2002) for Albania and Faguet (2004) for Bolivia) tend to qualify this blanket statement and show that there is scope for improvement in the delivery of public services when they are granted at the local level.

4.2. Empirical evidence of fiscal interactions between local governments

In the final section, we review a few studies providing empirical evidence of interactions between local governments in developing countries despite limited fiscal autonomy.

4.2.1. Fiscal competition and public spending pattern in China

China is considered to be the archetypal country for “market-preserving federalism” Weingast (2006). Administrative and fiscal decentralization in the 1980s led to the formation of local political interests and to a certain degree of regional and local autonomy with hard budget constraints for local governments Herrmann-Pillath and Feng (2004). However, both the tax rates and the tax bases are de facto kept under the central government’s control (local and upper-level of governments share the fiscal revenues according to a pre-determined formula). Nevertheless, fiscal decentralization has created scope for inter-provincial competition as local officials are appointed and assessed by higher levels of government on their ability to foster economic development Zhang and Chen (2007). Fiscal competition across provinces takes the form of a bundle of preferential tax regime and, more recently, of business-oriented public expenditures. To some extent, this is in line with a Tiebout-type “voting with your feet” hypothesis applied to business location. Businesses vote with their feet by locating in a particular province while the mobility of individuals is restricted.

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16 Careaga and Weingast (2003) call poor incentives created by fiscal transfers “the law of 1/n”.

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Zhang and Chen (2007) check whether fiscal competition has led to a distorted pattern of provincial public expenditure in favor of infrastructure and other productive public inputs at the expense of other public goods such as recreational facilities or health care (as discussed in Keen and Marchand, 1997). Zhang and Chen consider a sample of 30 provinces and cities that they divide into four categories based on an index of public goods provision and a measure of provincial tax burden. They use provincial level panel data for the 1995–2003 period to analyze the impact of regional infrastructure level, public services, health care, tax burden and labor costs on the share of provincial FDI. They find that the share of FDI in a given province is negatively correlated with the level of public services, the tax burden and health care but positively related to infrastructure development. This may suggest that tax competition has changed the pattern of provincial public expenditures in favor of infrastructure expenditures. Zhang and Chen argue that it is mainly due to the way local officials are evaluated and to the fact that the individuals’ mobility restrictions prevent them from voting with their feet. Zhang and Chen also show that fiscal competition among provincial governments has been shifting from tax preferential incentives to competition in public infrastructure improvements.

There is a huge discrepancy in terms of size and endowment between Chinese provinces. This fact is likely to have an influence on the fiscal setting, as suggested by the theoretical literature. Yao and Zhang (2008) use panel data on 2094 rural counties and county-level municipalities for 1993 to 2005. They include as endowments the level of economic development, stock of capital, natural resource endowment and labor skills. They find that (i) there is strong evidence for spatial clustering of tax rates for some regions and weak (or null) evidence in others; (ii) Tax reduction is more effective in attracting investment in coastal provinces than in inland regions; (iii) in 1994–2002, a cluster of rich counties competed with each other in cutting their tax rates (“race to the bottom”), while a cluster of poor counties facing much tighter budget constraints were engaged in a “race to the top” with their neighbors. As underlined by Yao and Zhang, poor counties may have been involved in predatory tax practices against the industrial and business sectors (in line with Cai and Treisman, 2005).

4.2.2. Yardstick competition in Indonesia

Arze del Granado et al. (2008) examined whether the so-called Big Bang decentralization reform, which took place in 2001 in Indonesia, has paved the way for fiscal competition among local governments. The main feature of the “Big Bang” reform was a massive devolution of responsibility to districts and, to a lesser extent, to provinces. As a result, the share of local and provincial governments in total government expenditure almost doubled. In East Asia, only China has more decentralized expenditures.

17 The tax burden is measured as the ratio between business-based regional fiscal revenue and non-agricultural regional GDP (as a proxy for the tax base).
than Indonesia (though it may be exaggerated to call this decentralization since subnational public expenditure autonomy is limited in Indonesia). Subnational governments have little autonomy with respect to taxation. Tax revenue sharing and transfers account for most subnational resources and the central government keeps control on all major tax sources. Arze del Granado, Martinez-Vazquez and Simatupang use fiscal data on local districts for 2004 and estimate a spatial regression model. They try to sort out the different reasons for fiscal interactions by estimating an auxiliary equation (popularity of the incumbent in the case of yardstick competition and changes in tax bases in the case of tax competition). The study does not find evidence of tax competition, as expected, but finds evidence of yardstick competition among local districts on both tax and expenditure sides, suggesting that accountability mechanisms in decentralized developing countries may be reinforced by inter-jurisdiction competition in terms of local governance performance.

4.2.3. Interactions in public expenditures in Beénin

Rota-Graziosi and Foucault (2010) test for the existence of strategic spending interactions between Beninese local governments using a spatial panel dataset. Since 1998, Benin has undergone a decentralization process that became effective with local elections in 2002–2003. The dataset covers the two local elections (2002 and 2008) in the 77 municipalities of Benin. The empirical analysis provides evidence of strategic interactions between Beninese local governments with respect to current expenditures, and of interactions among neighboring municipalities with similar ethnic compositions. Moreover, municipalities adopt opportunistic behavior before elections by increasing public spending, and municipalities whose mayor has the same political affiliation as the president enjoy higher public spending.

4.2.4. Tax war in Brazil

Brazilian states have considerable autonomy to set their value-added tax (VAT) rates and bases. De Mello (2007) tests for the presence of horizontal tax (VAT) competition for a sample of Brazilian states in 1985–2001. His empirical findings, based on the estimation of a tax reaction function in an error-correction model, confirm the hypothesis of horizontal tax competition. The states react strongly to changes in their neighbors’ VAT code, especially those that belong to the same region. There appears to be a Stackelberg leader among the states with remaining jurisdictions responding strongly to its policy moves. Haddad et al. (2006) use an interregional general equilibrium model to evaluate the welfare effects of an experimental game of tax competition between two regional governments in the Brazilian federal system. The model accounts for both horizontal and vertical fiscal relationships. The results display a welfare-improving Nash equilibrium, which runs counter to most theoretical results. The fiscal externalities of tax competition matter for such an outcome not only because
of the mobility of the regional tax base, but also because of the substitution effect between regional goods and international goods, since tax competition reduces domestic prices. Additionally, the constitutional rules impose a rigid mechanism of fiscal transfers from central to regional governments and contribute to alleviating pressures on regional public goods, because an increase in the central government tax base increases regional government revenues. Then, inter-jurisdictional tax competition in Brazil is associated with gains in private consumption that overcome the reduction in regional public good provision, reinforcing the welfare-improving equilibrium.

5. Conclusion

Both developing and emerging countries have been characterized over the last two decades by two phenomena that have strong implications for fiscal competition between and within countries. The first is the deepening of economic integration through the creation — or, in some cases, the resurgence — of regional agreements. The second is the wave of decentralization that has spread around the world.

One of the main fears of policymakers is that fiscal competition would lead to a “race to the bottom”. However, we have shown that it is not necessarily the most likely outcome. Indeed, differences in endowments and public infrastructure may lead some regions to a “race to the bottom” while others are likely to “race to the top”. Furthermore, New Economic Geography teaches us that economic integration has a bell-shaped effect on the intensity of tax competition. Indeed, some core countries that are currently enjoying agglomeration rents may decide to continue setting taxes at a relatively high rate without fearing the prospect of losing economic activity.

The literature reviewed in this paper showed that, empirically, fiscal incentives designed to attract FDI matter more in developing countries than in developed countries. Since most developing countries offer fiscal incentives to foreign investors, there is a risk that fiscal resources could be wasted, given that generally only one country wins. By the same token, we have pointed out that developing countries may behave strategically regarding both tax holidays and corporate income tax rates. A better strategy for developing countries as a whole would be to set a low and stable corporate income tax rate in order to attract FDI from developed countries, and to improve other features of the country which ultimately matter more than fiscal incentives, including its governance and the education of its labor force.

Finally, there is some doubt that there is any scope for fiscal competition between local governments within developing countries, given the fact that local governments do not really enjoy fiscal autonomy in these countries. However, the literature finds that there is some evidence of fiscal interactions between local governments in developing countries despite the little fiscal autonomy. It is likely explained by yardstick competition.
References


Harding, T and B Smarzynska-Javorcik (2007). Developing economies and international investors: Do investment Promotion Agencies bring them together? CEPR Discussion Papers No. 6418, CEPR.


