

**THE ECONOMICS AND EMPIRICS OF
TAX COMPETITION: A SURVEY**

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The economics and empirics of tax competition: a survey

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Abstract

We survey the theoretical and empirical literature on local and international tax competition in Economics. Based on this survey, we discuss whether EU countries should harmonize tax policies to prevent a “race to the bottom”. Much of the evidence suggests that tax competition does not lead to significant reductions in tax revenues. Therefore, we conclude that tax coordination is in all likelihood unnecessary to prevent inefficiently low levels of taxation in the EU. But since the evidence against adverse effects of tax competition is not unambiguous, we also discuss whether intergovernmental transfers might be a less invasive means than outright tax harmonization to prevent a race to the bottom.

Keywords: Tax competition, Tax coordination, European Union, Fiscal federalism

JEL codes: F59, H26, H77

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1 Introduction

One of the professed goals of the EU is create an ever closer union. In the last few decades, European governments have made considerable progress in pursuing this goal. They have established a free trade zone, a common currency, and harmonized educational and vocational standards. One area, however, where harmonization is markedly absent is tax policy. The lack of harmonization is not due to inaction by European institutions. The EU Commission, for example, has launched several initiatives for tax coordination over the years: the most recent one being the establishment of a EU-level tax policy group¹. Yet, member states remain reluctant to let go of their tax autonomy (Nicodeme, 2006).

Given the budgetary difficulties in many EU member states, it stands to reason that European policy makers will finally make a serious push toward more tax coordination in the near future. Timid steps have already been taken, such as the EU Commission's proposal for a Common Consolidated Corporate Tax Base (CCCTB), which is intended to facilitate the harmonization of tax bases.² One of the rationales cited by the proponents of increased coordination is that national tax autonomy causes harmful tax competition and a "race to the bottom". Indeed, if tax competition constrains the ability of governments to raise revenues, part of the solution to the recent budgetary problems may appear to lie in more coordination of tax policies.

The question is whether tax competition really represents such a severe constraint as to necessitate supranational intervention. Are European governments unable to raise sufficient revenues because they have to fear crumbling tax bases? Is tax competition constraining all countries equally or only countries that share certain characteristics? Are there no policies that could limit incentives to engage in tax competition while allowing national governments to retain a significant portion of their tax autonomy?

To answer these questions, this article surveys the theoretical and empirical literature on tax competition in the field of Economics. The theoretical literature was initially confined to local taxation, presumably because international tax competition was not an urgent issue before the acceleration of globalization during the eighties and nineties of the last century. But recently, a sizable literature specifically concerned with cross-country tax competition has evolved. Mirroring theoretical developments, the empirical

¹See e.g. http://ec.europa.eu/commission_2010-2014/semeta/headlines/news/2011/01/201101192_en.htm.

²See e.g. http://ec.europa.eu/taxation_customs/taxation/company_tax/common_tax_base/#ccctb.

literature, too, was initially focused on local taxation, but has expanded to international issues with the availability of appropriate datasets.

While the literature on tax competition has come a long way, there still remain unfortunate trade-offs. Tax competition can take place along many dimensions, but the requirements of formal modeling and issues of data availability force researchers to limit themselves to only a few decisive features of a country's tax system. We discuss in this article the advantages of the methodological choices usually made in Economics and the disadvantages that the associated simplifications and generalizations entail. We then proceed to a discussion of the conclusions advanced by the theoretical and the empirical literatures and a description of the current consensus. Finally, we discuss whether the results in the literature imply that there is need for further tax coordination in the European Union.

This paper adds to a large array of existing surveys on tax competition such as Wilson (1999), Gresik (2001), Zodrow (2003), Wilson and Wildasin (2004), Zodrow (2010), and Keen and Konrad (2012). The characteristic features of our survey are (i) an informal and intuitive summary of the theoretical and empirical literature, (ii) a description of the evidence both at the local and international level, and (iii) a discussion of the implications of the existing literature for tax harmonization in the EU. While many surveys have dealt with each of these issues separately, one of our main contributions is to discuss them in a unified framework.

2 The theory of tax competition

The first articles dealing with the consequences of uncoordinated tax policies by different political jurisdictions emerged in the context of the economic analysis of local fiscal policy. Tiebout (1956) argues that tax autonomy allows local governments to offer citizens different tax and expenditure bundles. As citizens can sort themselves across jurisdictions, tax competition leads to an efficient outcome where different preferences of citizens regarding public expenditure are translated into distinct tax rates. Tax competition in this framework has therefore a desirable normative connotation. Subsequent contributions have adapted the Tiebout model, which was originally conceived with respect to households, to mobile firms (White, 1975). The results in these papers mirror those of the original Tiebout model.

The modern literature on tax competition, however, puts relatively little emphasis on the “voting with one's feet” rationale that underlies Tiebout's model. Recent contributions instead advance the idea that political jurisdictions try to poach tax bases away from one another by offering a lighter tax

burden. This idea was initially formulated by Bradford and Oates (1971) and Oates (1972), albeit in an informal manner. These authors argue that jurisdictions engaging in tax competition end up providing too few public goods: in order to attract mobile production factors, they set lower than optimal tax rates.

It is, however, unclear whether a reduction in the size of the public sector due to tax competition is necessarily bad. The conclusion that low tax rates because of tax competition is harmful relies on the assumption that governments set their tax policy in order to maximize the welfare of their citizens. This assumption is questioned by the Public Choice tradition. Brennan and Buchanan (1980), in particular, argue that governments are “Leviathans” whose primary interest is to maximize tax revenues as such: governments do not tax to provide essential public goods but because higher tax revenues enhance, for example, the power and prestige of government officials.

Despite the long-standing debate around the two conflicting views on the normative implications of tax competition, a formal treatment emerged only in the late 1980s. The seminal papers by Wilson (1986) and Zodrow and Mieszkowski (1986) (from now on referred to as WZM model) adhere to the notion of benevolent governments. Mirroring the informal literature, these models predict a shift of taxes from mobile capital to immobile factors of production and hence a “race to the bottom” in the taxation of mobile factors.

The mechanism is as follows. The revenue loss of a tax rate cut for an individual jurisdiction is smaller than the revenue loss for the country as a whole because part of the decline in revenues in the tax-cutting jurisdiction is compensated by mobile factors migrating into it. This inward migration increases the size of the base in the tax-cutting jurisdiction, but this increase comes at the expense of all other jurisdictions. The choice of the tax rate thus involves a fundamental trade-off. High tax rates on mobile factors lead, on the one hand, to higher revenues for a given tax base. On the other hand, high tax rates drive away some of the tax base into other jurisdictions. The net-effect of an increase in the rate is thus ambiguous: when contemplating tax hikes, local governments have to weigh the rise in revenues because of a larger tax base against a decline because of lower rates.

Formal models that study the Leviathan hypothesis have been developed by Edwards and Keen (1996) and Rauscher (1996, 1998). In these frameworks, the aim of every jurisdiction is to maximize its own tax revenues. However, since citizens can emigrate from jurisdictions where the tax burden is too high, tax competition entails in equilibrium a lower average tax rates throughout the country. Even though these models hence predict that a re-

duction in the size of government, it is derived that this reduction is – as in the informal literature - beneficial.

Despite the disagreement, the prevailing view remains that tax competition is harmful and leads to sub-optimally low tax rates on the mobile production factors (Wilson, 1999). Consequently, the subsequent literature has extended the WZM model along different lines. One of the extensions was to focus on interregional commodity trade. Wilson (1987) shows that in such a framework, capital taxation creates an inefficient distribution of public goods and inefficient trade patterns. Nevertheless, he derives that in contrast to the WZM model overall public spending must not necessarily be lower than the efficient level.

Another natural extension of the WZM model was to dispense with the assumption that all jurisdictions are the same. By introducing asymmetry into the model, Wilson (1991) and Bucovetsky (1991) study the consequences of tax competition between large and small jurisdictions and show that economic and socio-demographic variables determine whether a particular jurisdiction benefits from competition. Wilson (1991) derives that small jurisdictions are better off under tax competition than under tax coordination. Bucovetsky (1991), while obtaining in general similar results, derives in addition that equilibrium tax rates are higher in larger jurisdictions.

Wildasin (1998) changes the focus from the purely competitive model with a large number of jurisdictions to an analysis of only a few local governments. Consequently, strategic interactions are explicitly studied.³ He shows that if governments use spending as the strategic choice variable and therefore let tax rates adjust residually, then tax rates of different jurisdictions are “strategic substitutes”. In this setting, a reduction in tax rates by other jurisdictions causes a given jurisdiction to increase its own tax rate. The rationale is that if a jurisdiction has to maintain a given level of spending, then an outflow of tax bases because of tax cuts in other jurisdictions necessitates the increase of one’s own tax rate.

A further strand of the literature on tax competition builds on so called New Economic Geography models (Ludema and Wooton, 2000, Baldwin and Krugman, 2004). In this framework, certain jurisdictions have agglomeration advantages. Because of these advantages, firms that settle in these jurisdictions can expect higher profits. Therefore, jurisdictions that offer more agglomeration advantages can afford to levy higher tax rates. Indeed,

³ Mintz and Tulkens (1986) and de Combrugghe and Tulkens (1990) develop similar models.

it can be derived in these models that economic integration may under certain circumstances lead to a race to the top rather than a race to the bottom.⁴

A relatively novel literature analyzes how features of the public sector distinct from yet related to issues of taxation affect tax competition. An institution that exists in most countries at the local level is a fiscal equalization scheme. Such scheme can be structured either vertically or horizontally: either the central government or the other jurisdictions at the same tier of government provide transfers to appropriately defined fiscally weak jurisdictions. The transfers are typically a function of the tax-raising capacity of a given jurisdiction, i. e. the value of the tax base. Theoretical contributions such as Fenge and Wrede (2007), Kelders and Koethenbueger (2010), Kotsogiannis (2010) show that incentives to engage in tax competition are lower in the presence of such equalization schemes.

Although the models reviewed above offer abstract analysis of tax competition that can be applied either to subnational jurisdictions or to sovereign countries, they were originally developed to study local rather than international settings. However, a large theoretical literature has recently developed that specifically models international tax competition.⁵

First, a set of models in this literature integrates both local and international tax competition within a unified framework. For example, Wilson and Janeba (2005) show that decentralization of tax policy and thus tax competition between subnational governments can serve as a commitment device for the central government in international tax competition and thus improve the welfare of a country as a whole. Similar contributions are Grazzini and Petretto (2007) and Kessing et al. (2009).

Yet, many papers that explicitly focus on international tax competition are concerned with how national tax policy as such affects mobile factors. Bjorvatn and Schjelderup (2002) study how tax competition between countries plays out when they provide international public goods. Razin and Sadka (1991) study how trade harmonization is related to international tax competition. Haufler and Wooton (1999) explore how country size interacts with tax competition. In the relevant models, the mobile factor is typically interpreted as capital or foreign direct investments.

A notable aspect of international tax competition is that it can take place over more bases than at the local level. For example, Becker and Fuest (2010) analyze the taxation of profits from international mergers and acquisitions and derive conditions for an optimal tax treatment of such profits. Fuest

⁴See Forslid (2005) for a review of the New Economic Geography literature with a specific focus on tax competition.

⁵See Keen and Konrad (2012) for a more technical survey than ours.

(2005) analyzes the role of foreign firm ownership for tax competition. He derives that taxes may fall with economic integration even if foreign ownership of firms is possible. Fuest et al. (2005) offer a survey that discusses various other features and peculiarities of international taxation.⁶

Finally, a strand of the literature on international tax competition is concerned with the consequences of tax coordination. Coordination, if it were possible and costless, would result in the optimal outcome. However, there are various limits to coordination. Peralta and Ypersele (2006) develop a model with asymmetric countries, where they derive that in the presence of a common lower bound for tax rates, some countries are better off while others are worse off. Konrad (2009) shows in a similar framework that minimum taxes might reduce rather than increase equilibrium taxes. Wang (1999) studies tax coordination in a sequential framework. He derives that if tax policy decisions are taken sequentially, then the Stackelberg Leader wins and the Follower loses from tax coordination. Consequently, it is not clear whether tax coordination improves welfare on average.

3 The empirical evidence

The literature on tax competition at the local level analyzes whether there are strategic interactions in tax setting behavior by subnational governments. The idea is that if tax competition exists, then there should be a systematic relationship between the tax choices of a given jurisdiction and those of its neighbors. As the theoretical literature shows, tax rates could be either strategic complements or strategic substitutes. Similarly, tax competition could lead to either a race to the bottom or to the top. At the outset, therefore, it is not only unclear whether local tax autonomy really entails tax competition; it is equally uncertain if tax competition, assuming it exists, will lead to higher or lower equilibrium tax rates.

Yet up until recently, the empirical results from the local level were fairly conclusive. The majority of studies finds that tax rates are strategic substitutes: a decrease in the tax rate by other jurisdictions leads to a decrease in one's own. This, in turn, suggests that tax competition leads to a race to the bottom, at least at the local level. Evidence to this effect has been provided in various settings. Typically, business and property taxes are analyzed. An overview of the early empirical literature on local tax competition is offered by Brueckner (2003). More recent contributions are Büttner (2001), who ex-

⁶For example, the implications of residence vs. source based taxation or the role of formula apportionment for transfer pricing have been discussed in the literature. See also Keen and Konrad (2012) and the references therein.

plores German municipalities; Brueckner and Saavedra (2001), who study the Boston metropolitan area; Leprince et al. (2007) and Charlot and Paty (2007) who explore French municipalities; and Feld and Reulier (2009) who study Swiss cantons. These studies find in general evidence for tax competition, and more specifically evidence indicating that tax rates are strategic substitutes. However, there are results in the literature indicating that tax rates are strategic complements: Rork (2003) and Chirinko and Wilson (2011), for example, find that in the US States, (some) taxes are strategic substitutes.

One criticism that has been voiced recently against much of the empirical literature on local tax competition is that the estimates rely on unreasonable identifying assumptions (Gibbons and Overman, 2012). More specifically, the effect of the neighbors' tax policy is typically identified either through functional form assumptions or by using neighbors' characteristics as instruments to induce quasi-exogenous variation in neighboring tax rates. It is unlikely that the functional form assumptions are valid or that neighbors' characteristics are truly exogenous.

A small number of papers use more elaborate identification strategies. Lyytikäinen (2012) exploits a reform that increased statutory lower limits in Finland to induce quasi-exogenous variation in local tax rates. He finds no evidence for tax competition (and more generally for tax "mimicking") in property tax rates. This result contrasts the findings based on the standard approach as described above, suggesting that the evidence for tax competition in much of the earlier literature might indeed be suspect. Parchet (2012) focuses on Swiss municipalities located close to cantonal borders. He uses variation in cantonal-level tax rates in neighboring cantons to induce quasi-exogenous variation in tax rates in a given municipality. His results suggest once more that standard approaches lead to wrong conclusions. While he finds evidence for tax competition with the standard methodology, the sign of the estimate indicates that tax rates are strategic complements. Once he uses his new methodology, he finds that tax rates are strategic substitutes.

The empirical literature on international tax competition is in many ways more complex than the one on local tax competition. One reason for this complexity is that it is difficult to identify an appropriate measure for the tax burden on mobile factors. At the local level, it is relatively easy to measure the tax burden on a specific mobile factor because bases tend to be the same. Second, any further taxes that could affect the decisions of this mobile factor are typically set by higher tiers of government and are therefore the same for all local governments. But at the national level, citizens' and firms' decisions are dependent on various taxes, which vary between countries not only in rates but also with respect to bases.

A second complication is that countries can compete over various mobile tax bases. Theoretical models typically model some abstract mobile production factor to which they refer to as “capital”. But as indicated previously, the mobile factor can assume many forms. It can be understood as financial capital, paper profits, foreign direct investments, or firms and high-skilled individuals. Each of these factors are subject to different taxes. Identifying a single measure that reflects for each country the tax burden on mobile factors is therefore difficult.

One strand of the literature uses total tax revenues or tax revenues from the corporate and related taxes (e. g. profit taxes) as share of GDP to proxy levels of taxation (Swank and Steinmo, 2002, Garrett and Mitchell, 2001), albeit sometimes with sophisticated modifications (Mendoza et al., 1994). The idea is that tax competition should increase with economic integration. Hence, there should be a negative relationship between economic integration and tax revenues. In general, studies following this approach find no evidence for a decline in tax revenues due to economic integration, and therefore no evidence for “harmful” tax competition (Devereux and Loretz, 2012). Similarly, using a novel method to calculate tax rates on factor incomes, Mendoza and Tezar (2005) find that tax competition has not triggered a race to the bottom in the EU with respect to capital taxation.⁷

However, revenue-based measures for tax competition have a number of shortcomings (Devereux et al., 2002). First, total tax revenues are endogenous to the tax burden on mobile factors, which can obviously migrate to countries with lower tax rates. Consequently, this measure will tend to underestimate the true tax burden. Second, total tax revenues do not only reflect the burden on mobile factors but also on immobile factors. Consequently, tax revenues as share of GDP or similar measures will proxy the true tax burden on mobile factors such as corporations with error. Third, this ratio is a backward looking measure: it is affected by past tax policies but does not accurately indicate how future policies will evolve. Mobile factors, however, will be primarily concerned with future developments.

Another strand of the literature, therefore, makes a different compromise. Rather than analyzing the full tax burden, these studies focus on a specific mobile factor. The taxation of corporations has received the most attention. Countries have strong incentives to attract corporations by offering lower tax burdens. Corporations not only present a valuable tax base, they also offer

⁷A related literature studies the effect of globalization on the welfare state. According to Garrett and Mitchell (2001), the effect of globalization on the welfare state can either reduce government spending (the efficiency hypothesis) or expand it (compensation hypothesis). Rodrik (1998) offers evidence for the compensation hypothesis, which indicates that globalization leads to higher rather than lower taxation.

employment to voters. The main aim of this literature is to uncover trends and co-movements in tax rates between different countries and to interpret these trends with respect to international tax competition.

While it is possible that corporations are affected by the statutory tax rate, it is a problematic that the statutory tax rate might not reflect the true tax burden at the national level as definitions of the bases vary between countries. To address this problem, researchers calculate effective tax rates that are distinct from the statutory ones and reflect both bases and rates.

Two types of effective tax rates have been used in the literature (Devereux et al., 2002). First, the effective marginal tax rate (EMTR). This measure reflects the increase in the pre-tax cost of capital of an investment whose post-tax returns just cover the interest rate, i. e. a marginal investment. The ratio between pre-tax to the pre-tax return is defined as the EMTR. Incentives to invest decline in the difference between post- and pre-tax returns to investments.

One feature of the EMTR is that only continuous investment decisions – how much to invest – are affected by this tax measure. Discrete choices – whether or not to invest at all – are not accurately captured by the EMTR. When deciding whether to invest at all, mobile factors will not be particularly concerned with the tax burden on an marginal investment but with the average tax burden on the investment as a whole. In order to model such discrete decisions, researchers calculate an alternative measure: the effective average tax rate (EATR). This measure is typically defined as the net-present value of all future tax payments divided by the net present value of all future pre-tax returns.

There are several studies that explore trends in statutory or effective tax rates and tax revenues. An early example is the report by the Ruding Committee that investigated capital taxation in the 1980s (Ruding Committee, 1992). This report finds that statutory tax rates have declined in Europe while bases have become broader. The committee concludes from this pattern that tax competition leads to lower tax rates. Devereux et al. (2002) establish that effective average corporate tax rates have declined while marginal tax rates have not changed much in the 1990s. These results, too, provide some evidence for tax competition causing lower tax rates.

While continuing to emphasize forward-looking statutory and effective tax rates, another strand of the literature uses formal econometric techniques to study tax competition instead of looking only at trends and patterns. Benassy-Quere et al. (2005) analyzes the effect of the statutory corporate tax rate on FDI and finds evidence for (imperfect) competition in a panel of eleven OECD countries. Bellak and Leibrecht (2009) provide similar evidence for a panel of Central- and Eastern-European countries. Wolff (2007), too,

finds evidence for a significant effect of taxes on FDI. However, the effect varies for different subcomponents of FDI.⁸

A further strand of the literature attempts to apply the spatial models through which local tax competition is analyzed to the international level. The idea is to explore whether tax rates in “neighboring” countries affect the rates in a given country. Devereux et al. (2008) find in a sample of 21 OECD countries that they compete over corporate tax rates only if their economies are “open”. This finding indicates that tax competition does not in general diminish revenues at the national level. Egger et al. (2007), on the other hand, find evidence for strategic interactions corporate (and personal) income tax rates in OECD countries. In a related contribution, Altshuler and Goodspeed (2002) study interactions between European countries and the US during the period 1968 to 1996. Their results suggest that competition among European countries in corporate tax rates has decreased over the sample period.

While corporate tax rates are a prominent indicator to measure tax competition, there are a number of alternative instruments that countries employ. Except for official and effective rates, countries can offer corporations and other mobile factors favorable tax treatments and facilitate tax evasion (OECD, 1998). Examples include tax holidays, favorable transfer pricing schemes, preferential regimes, or opportunities for profit shifting. In the extreme, countries can become tax havens. The incentive and actions along these dimensions are different than in the standard tax competition framework, but the results are often similar. In equilibrium, countries tend to over-provide favorable tax treatments. There are, however, some notable idiosyncrasies. Johannesen and Zucman (2013), for example, study the effect of G20 countries compelling tax havens to share bank information during the financial crisis. They find that this intervention did not lead to a repatriation of funds but rather to a shifting of money to havens that did not comply with the demands of the G20.⁹

Finally, following the theoretical contributions a relatively recent strand of the empirical literature explores how fiscal equalization is related to tax policy. Theory and evidence from the local level suggests that certain inter-governmental transfer schemes can be an effective means to limit tax competition. These so called capacity equalization schemes typically work as follows. For each jurisdiction, a measure of fiscal need is calculated. Typically, this measure is roughly equal to average local tax revenues per capita.

⁸In addition, Hines (1997, 1998) claims that international tax rules have a decisive influence on behavior of multinational firms, in particular on the location and scope of international business activity.

⁹Dharmapala (2009) reviews of the literature on tax havens.

The fiscal need measure is then compared to a measure of fiscal capacity. This second measure is roughly equal to local tax revenues per capita. A share of the difference between fiscal need and fiscal capacity is then compensated by central transfers. Smart (1998) and Koethenbueger (2002) show theoretically that equilibrium tax rates are higher if such a system of fiscal equalization is in place. Empirical evidence from the German state of Lower-Saxony to this effect is offered by Egger et al. (2010). Similar evidence for the state of Baden-Württemberg is offered by Büttner (2006).¹⁰

Naturally, no corresponding evidence is available at the international level as there are no formal inter-national fiscal equalization schemes yet. However, such an equalization scheme might become reality in the European Union in the foreseeable future.

4 Lessons for the European Union

What do the theoretical and empirical results imply for the future of tax coordination in the EU? The subsidiarity principle, which is enshrined in Article 5 of the European Union, states “that decisions are to be taken as closely as possible to the citizen and that constant checks are made to verify that action at Union level is justified”. Consequently, tax coordination at the EU-level should only be pursued if tax competition is truly a problem for public budgets and national-level measures are unable to resolve this problem adequately.

Is tax competition really a problem? Answering this question involves addressing two separate issues. First, the positive question of whether tax revenues really suffer because of tax competition. As shown, theoretical predictions are ambiguous and depend on the assumptions that underly each specific model.

While theoretical results are ambiguous, the general consensus, again as argued above, is that tax competition constitutes a binding constraint for political jurisdictions and thus causes a “race to the bottom”. Much of this consensus can be explained by the early empirical papers on tax competition at the local level, which typically found that local tax rates are strategic substitutes. However, recent papers that employ a credible identification strategy come to different conclusions. In short, there is little evidence for a race to the bottom at the local level.

Empirical studies that explore tax competition at the international level do not indicate that tax competition leads to large revenue losses either.

¹⁰Further related empirical evidence for Canada is provided by Hayashi and Boadway (2001) and Smart (2007). Dahlby and Warren (2003) provide evidence for Australia.

Even if (effective) tax rates seem to have declined in the last few years in European countries, revenues have remained largely stable (Devereux and Loretz, 2012).

From a positive perspective, therefore, tax competition does not seem to be an urgent problem for European countries. But even if tax competition were to lead to revenue losses, it is not obvious how to evaluate such consequences normatively. Much depends on whether governments are perceived as benevolent or as Leviathans. If governments are reasonably benevolent, the negative features of tax competition will dominate the positive ones. But if they are not, then it is not clear that a race to the bottom is necessarily undesirable. In reality, some governments will conform more to the ideal of benevolence than others. Whether the European Union as a whole will benefit from tax coordination is thus unclear for this reason alone.

But even if governments are benevolent and tax competition is truly a threat to public budgets, it can be questioned whether tax coordination is the appropriate answer. First, not all countries will benefit equally from coordination. Theoretical models that allow for asymmetry between political jurisdictions derive – depending on the specific model – that either larger or smaller jurisdictions benefit more from tax coordination. Thus the gains of coordination will be spread unevenly; some jurisdictions might even be worse off. It is not clear why those that will be hurt by tax coordination should support it. Indeed, that there are losers to tax coordination might be the reason why the EU has hitherto found it difficult to make much progress in this area. Second, it can be questioned whether tax coordination within the EU is the best way forward if there remains the possibility of tax competition with other regions of the world. Sorensen (2004) attempts to quantify the welfare gains from tax coordination within a group of countries and finds that such gains are modest relative to those that could be obtained if taxes were harmonized world-wide.

A further disadvantage of tax coordination is that national autonomy over an important policy area will be effectively abolished. This is a strong intervention. In view of the subsidiarity principle, we should ask whether there are weaker instruments to address any adverse effects of tax competition.

Efforts are underway to reshape the European Union to a full-fledged fiscal federation. In particular, the introduction of explicit intergovernmental transfers between countries is being discussed. This discussion is being held in view of the current budgetary difficulties in some of the Southern member states. However, intergovernmental transfer schemes can also be a means to address the negative aspects of tax competition in a less invasive way than outright tax harmonization. As argued above, capacity equalization schemes

provide incentives for jurisdictions to choose higher tax rates voluntarily and thus counteract any race to the bottom.

A reasonable compromise between excessive tax competition and outright harmonization might hence be the introduction of an intergovernmental transfer scheme. If structured appropriately, a transfer scheme is a milder and more efficient alternative to a centrally coordinated tax policy with no or only little room for national flexibility. As an added advantage, such a transfer scheme would offer the possibility for explicit side-payments between countries and thereby to achieve a mutually beneficial equilibrium. For example, countries that are particularly skeptical about tax coordination could be given either unconditional transfers or they could be offered a higher compensation rate in the equalization formula.

5 Conclusion

In this survey, we summarize the state of the theoretical and empirical literature on tax competition in the field of Economics. We argue that the theoretical predictions are ambiguous. Empirical results are inconclusive as well: early contributions pointing to a race to the bottom while more recent ones reaching more differentiated conclusions. Based on this evidence, we discuss whether increased tax coordination is a suitable way forward for the European Union. Our assessment is that the case for substantial tax coordination in the EU is rather weak.

This assessment, however, does not imply that there is no room at all for tax coordination in the EU. While tax coordination may not be necessary to combat a race to the bottom, some degree of harmonization in national tax laws will certainly be beneficial. Harmonized tax bases will lower administrative costs and thus benefit both firms and tax administrations. Joint action against tax loopholes and other means to evade taxes will be beneficial as well, both in terms of fostering the rule of law and to garner political support for a well-funded public sector. As long as such benefits to tax coordination exists, the debate about the best way forward will – and should – continue.

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