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Capital Taxation in an Enlarged EU: The Case for Tax Competition

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1. Introduction

The enlargement of the European Union by ten new members, mainly from Eastern Europe, in 2004 has again fuelled the discussions about tax competition and coordination in Europe. Although the EU has just established a Code of Conduct for business taxation and is still struggling to complete the agreed system of information exchange with respect to capital income taxation (allowing Austria, Belgium and Luxembourg a minimum source tax on capital income as an alternative), the Commission already proposes a more comprehensive tax harmonization in Europe. The Bolkestein Report (European Commission, 2001) argues that a uniform corporate tax base with formulary apportionment is the most feasible option for the EU. Some Member States, like Germany or France, are keen to achieve such tax harmonization and even aim at the introduction of minimum rates for corporate income taxes in the EU.

What is the background for such policies and policy proposals? The starting point of discussions about tax competition is a supposed "race to the bottom" in company taxation. It is usually argued that the increased capital mobility that is due to globalization provides incentives for states to reduce tax rates in order to attract businesses. Keeping other things equal, firms choose their location in countries with lower corporate income tax rates. The strategic reduction of tax rates of one country induces another country, perhaps the one in which a firm already has branches, to follow suit such that a ruinous competition between states presumably results. Consequently, public services are said to be provided inefficiently and capital owners are accused of not paying their "fair" share of taxes. Income redistribution could not be financed as before and welfare states are under pressure.

[1] I would like to thank the participants of the workshop, in particular Daniele Franco, Martin Zagler and Bernd Genser for valuable discussions and comments.

At first sight, descriptive empirical evidence appears to support those fears. On average, statutory corporate income tax rates in selected OECD countries (Devereux, Griffith and Klemm, 2002) fell from 47.9% in 1982 to 32.7% in 2004. For some countries, like Austria, Finland and Sweden, but also Germany, the reduction is even more important. The new EU members even have statutory corporate income tax rates of only about 20% on average, ranging from a tax rate of zero for retained earnings in Estonia (26% for distributed profits) and 15% in Lithuania and Latvia, over 19% in the Slovak Republic and in Poland, to 28% in the Czech Republic. Some of the old 15 EU Member States have already reacted with (announced) tax reforms. Austria has reduced statutory corporate income tax rates from 34% to 25% in 2005, the Netherlands will decrease the rates from 34.5% to 29% in 2007, Finland from 29% to 26% in 2007, and the Czech Republic from 28% to 24% in 2006 (BMF, 2005). It looks like tax competition has intensified in recent days.

Investment by firms is however not only influenced by statutory tax rates. Firms also consider any kind of tax deductions and relieves. The actual tax burden levied on new investment projects is measured by *effective* tax rates which are calculated on the basis of tax rate *and* tax base differentials. If a plant has already been established, firms take marginal investment decisions and consider *marginal* effective tax rates. Location choice is influenced by *average* effective tax rates.[2] Average effective corporate tax rates fell even more strongly from 42% in 1982 to 30.0% in 2003 on average (Devereux, Griffith and Klemm, 2002, Sachverständigenrat, 2004, p. 527, ZEW, 2005). Again Finland, Sweden, Austria and Germany, but also Portugal are the countries with strongest reductions in effective tax burdens. Similar to statutory rates, effective average corporate income tax rates of the New EU Member States are even lower than those of the old members in 2004. Aside Estonia, Lithuania has the lowest tax burden of 13.11%, followed by Hungary with 13.95%, Latvia 14.29%, the Slovak Republic 16.82%, the Czech Republic 17.05% and Poland 17.46% (Jacobs et al., 2003). Statutory tax rates are still important for international taxation. They influence in which countries firms locate their profits via transfer pricing. In addition, statutory rates serve as signals for foreign firms which do not sufficiently know the details of another country's tax code. But effective average tax rates finally attract business capital looking for a new location. Thus, the two figures perfectly reflect the concerns of policymakers in the OECD.

This descriptive evidence is taken by governments of EU welfare states as supporting the fears of a race to the bottom. It provides the basis for finance ministers and the Commission to develop far-reaching proposals for tax harmonization

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[2] For a broad discussion on the usefulness of different tax measures in the assessment of a country's tax policy see Giannini and Maggiulli (2002), Devereux and Klemm (2003), Ederveen and De Mooij (2003), Mendoza and Tesar (2003), Becker and Fuest (2004).

in Europe. Additionally, multinational firms argue that international differences in tax laws impose strong transaction costs and hence distort international investment decisions. Neither this descriptive evidence, nor the anecdotal evidence provided by multinationals suffices however to support such claims for tax harmonization. Any honest discussion of tax competition requires instead to, first, find out what impact tax competition *could* have on the allocation of scarce resources and how it *could* affect income redistribution by the state. Second, it is necessary to provide evidence for or against the arguments that are brought forward in the discussion. Hence, empirical evidence should be provided on the existence and the actual economic impact of tax competition. The questions that need to be asked are: How *does* tax competition work? What *is* the impact of tax competition on the efficiency of public goods' provision and on the effectiveness of income redistribution? *Is* there any influence of tax competition on regional convergence and economic growth? And finally: *Does* tax competition, in analogy to competition in private markets, serve as a discovery procedure in the public sector such that better public policies are more quickly detected and diffused?

In this paper, these issues are discussed by starting with the potential influence of tax competition on the efficiency of the public sector, the effectiveness of income redistribution and economic growth (section 2). The hypotheses that follow from this theoretical discussion are confronted with the results from econometric studies that provide more systematic empirical results than the above-mentioned descriptive evidence. In section *3*, the empirical evidence on the existence of tax competition is surveyed, while an overview on empirical tests of the effects of tax competition is presented in section 4. A discussion of the recent EU proposal of a common corporate income tax (CIT) base with formulary apportionment follows in section 5. Finally, a summary and some policy implications follow in section 6.

2. Theoretical Arguments on Fiscal Competition[3]

2.1 The Basics

Although the political discussion is mainly about tax competition, it must be recognized at the outset of the analysis that the state is also offering public services in exchange for the taxes that citizens pay and hence provides a bundle of goods and services for certain *tax prices*. In the following, fiscal competition is therefore discussed instead of tax competition. This switch in the terminology allows to avoid many mis-understandings that often come up in the political and scientific debates. Given that clarification, the analysis of fiscal competition can naturally

[3] This section draws on Feld (2005). For a somewhat similar perspective on tax competition issues see Griffith and Klemm (2004).

start from drawing an analogy between competition in private markets and competition between states. Since Smith (1776), economists perceive competition as the driving force for efficient market outcomes. The *invisible hand* leads private actors to follow individual preferences. In a dynamic perspective, competition serves as a discovery procedure and induces useful innovation and technological change. Competition is thus necessary for a growing economy. Tiebout (1956) argues that competition between jurisdictions works in a similar fashion. In a global world, different countries offer different tax rates and different levels of public services to mobile factors of production. Mobile production factors can choose their location or residence in a country whose public sector supply best fits their preferences and interests. Individuals and firms *vote by feet* and thereby reveal their preferences for public goods. This leads to an efficient provision of public services under certain conditions.

In addition, decentralized provision and financing of public services allows to use decentralized information to the largest possible extent. The closer a government is to the people, the better it is informed about their wishes and demands. Locally dispersed knowledge about public problem solutions can thus be used efficiently (Kerber, 1998). Finally, the frustration of citizens about public policy solutions is minimized, the more decentralized public goods‘ provision is. Finding median preferences across the national populace necessarily involves less differentiation among individuals. Decentralization allows to differentiate public goods and services such that those who want to have more or a better quality of public goods can move to the jurisdiction with higher levels of publicly provided goods. Citizens are willing to pay higher prices for that offer and could thus be charged higher tax prices. Similarly those who want to have less can move to jurisdictions with lower levels of public services. The migration process leads to more homogeneous jurisdictions and to lower frustration costs. In general, these arguments hold for competition between national, regional or local jurisdictions, and for labor and capital.

Oates (1972, p. 30) consequently proposes his *decentralization theorem* according to which a decentralized provision and financing of public goods at the lowest possible level is efficient in a world of high mobility of production factors and people with different preferences. However, the decentralization theorem only holds if the *correspondence principle* (Oates, 1972) or the *principle of fiscal equivalence* (Olson, 1969) is respected. Both principles similarly require that the jurisdiction that decides upon the level of public services should comprise the consumers of that good and those that bear the costs as taxpayers. Only in this case, the sum of the marginal willingness to pay for public goods corresponds to the marginal tax price. Whenever the principle of fiscal equivalence is violated, decentralized provision and financing of public goods may lead to inefficiencies. This could be the case if externalities or economies of scale in consumption exist. Likewise, income redistribution may be difficult in a system of fiscal competition.

2.2 Potential Distortions

Externalities from fiscal competition might result in the form of regional or fiscal externalities. Regional externalities are comprised of positive or negative benefit spillovers as well as cost spillovers. *Positive benefit spillovers* come up for example, if Dutch tourists use the German highway system, but do not contribute according to their marginal willingness to pay. Congestion externalities will arise. *Negative benefit spillovers* may exist in the case of cross-border pollution. *Cost spillovers* exist in the case of tax exporting, for example if multinational corporations whose shares are internationally distributed are taxed in a particular country. Because the shareholders of a multinational company cannot participate to the same extent in the political process as those of a national corporation, a government has incentives to raise corporate income taxes to inefficiently high levels above the willingness to pay of the shareholders of multinationals. The costs of public services are externalized because a part of the tax burden is paid by residents from other jurisdictions providing incentives for inefficiently high levels of public services or for excessive taxation (Huizinga and Nielsen, 1997).

Fiscal externalities work in the opposite direction of tax exporting. They may arise from strategic tax competition for mobile capital. Germany is for example in tax competition with Ireland. If Ireland drops the corporate income tax rate, it attracts German firms. This relocation reduces the tax burden of the Irish residents because provision costs can be distributed among more taxpayers. However, the relocation increases the tax burden of German residents because less taxpayers have to finance that given amount of German public services. If both countries do not consider the changes in tax burdens in each country when deciding about the level of public services, fiscal externalities arise (Zodrow and Mieszkowski, 1986, Wilson, 1986). This argument does not hold to the same extent if public infrastructure is becoming an additional parameter for relocation decisions. Infrastructure is then adjusted in the fiscal competition game such that fiscal externalities might finally vanish (Keen and Marchand, 1997, Borck, 2004, Wildasin, 2004). Moreover, cost or benefit spillovers on the one hand and fiscal externalities on the other hand might compensate for each other such that public goods can be efficiently provided (Bjorvatn and Schjelderup, 2002, Sørensen, 2000, 2004, Noiset, 2003). It has also been broadly discussed to what extent the distortions from fiscal competition are more severe under asymmetry conditions, e.g. if relatively small countries compete with relatively large countries. No clear-cut results have emerged however (Bucovetsky, 1991, Arnold, 2001, Eggert and Kolmar, 2001, Stöwhase, 2004, Marceau and Mongrain, 2004).

An inefficient provision of public services might particularly result if *economies of scale* (non-rivalness) in consumption exist, i.e. when the government provides public goods in the Samuelsonian sense (Sinn, 2003). Fiscal competition enforces the benefit principle of taxation such that mobile production factors can only be

charged the marginal costs of their use of public goods. Mobile taxpayers do however not contribute to cover the high inframarginal (fixed) costs of public infrastructure. If this is not to lead to an inefficiently low level of public services, the fixed costs must be covered by immobile taxpayers. This can lead to an undesired income distribution.

2.3 Redistribution Problems

With respect to personal income redistribution, fiscal competition poses more important problems. Continue the Germany-Ireland example: Germany presumably has a higher progressivity of income taxes and pays higher levels of social transfers than Ireland. Income redistribution is hence more pronounced in Germany than in Ireland. This provides incentives for Irish social welfare recipients to move to Germany because they can expect higher transfer payments. High income earners from Germany – ceteris paribus – follow the incentive to emigrate to Ireland. These migration incentives impede the decentralized income redistribution at the national levels (Stigler, 1957, Sinn, 2003).

There do not exist many theoretical arguments against this reasoning. A frequently heard argument is that high income and wealthy people have incentives to voluntarily contribute to the social welfare state in order to obtain social peace (Buchanan 1975). The voluntary income redistribution is the higher the more decentralized the organization of income redistribution is, because recipients are known or can be more easily identified by contributors (Pauly, 1973). Many observers question however whether the funds obtained from voluntary contributions to income redistribution suffice to secure a minimum income of the poor.

Tax competition thus supposedly leads to a more unequal distribution of income. A more unequal income distribution could however alternatively result in jurisdictions with an increased pre-tax income distribution and via the political process also obtain after income redistribution by the government. Bjorvatn and Cappelen (2001) show that tax competition may then exacerbate the adverse effects on distributive goals. A variant of such arguments aims at explaining the impact of fiscal competition on the structure of public spending (Wildasin, 2004) or of public revenue (Huber and Runkel, 2004). If fiscal competition reduces the ability of governments to redistribute income in an economy, then the fiscal instruments most prominently used for income redistribution should become less important in the government budget. With respect to public spending, this means a shift from social transfers to infrastructural spending from which firms supposedly benefit more heavily. In the case of revenue, it could be expected that the government more strongly relies on fees and user charges than on broad-based taxes while the choice of tax structure mainly depends on the elasticity of the tax base. Borck (2003) argues however that much depends on the location of the median voter in

the income distribution such that positive capital tax rates can prevail under tax competition.

2.4 Regional Convergence

In the political discussion, a frequently heard argument focuses on regional instead of personal income positions. It is contended that fiscal competition results in a situation of poor regions becoming poorer and rich regions becoming richer. The more "good" taxpayers reside in a region, the lower the tax burden needs to be to finance a "necessary" amount of infrastructure. Poor regions however need to increase the tax burden to finance such a "necessary" amount of infrastructure. Fiscal competition then perpetuates income differentials and exacerbates the convergence problems of the periphery. Such permanent differences in growth performances will however also prevail if agglomeration economies in central regions exist. The competition between inter-regionally active firms induces a concentration of industrial activities in economic centers because of an interaction between economies of scale in production, agglomeration economies and diseconomies, and transport costs. Economic activity is more concentrated in the center while the periphery has below average economic activity.

Ludema and Wooton (2000), Kind, Knarvik and Schjelderup (2000), Brakman, Garretsen and Van Marrewijk (2002) and Baldwin and Krugman (2004) analyze the impact of tax competition on the economic development of central and peripheral regions under the conditions normally emphasized by the theory of economic geography. Agglomeration economies in the centers allow them to a certain extent to levy relatively higher taxes than the periphery without inducing firms to relocate to the low tax periphery. Agglomeration economies partially compensate for the tax advantages in the periphery. The latter therefore has no alternative to a tax policy that compensates location disadvantages. Even a strong decrease of tax rates is necessary to compensate for agglomeration advantages of the center. For example, Ireland has followed this policy in the EU during the last decade and has been very successful. Tax harmonization would then be harmful because it would exacerbate the resource differences between center and periphery and easily lead to demands for higher fiscal equalization.

2.5 Alternatives to Tax Competition

These arguments deliberately accept the premise that tax competition describes a clear-cut behavior in the international fiscal competition game. This is however only a fiction. If tax rates are not available as policy instruments to attract mobile firms, alternative instruments will be used. The state may attempt to attract firms by offering subsidies or tax holidays. Governments bid for firms. *Subsidy competition* results if tax competition is precluded. Such subsidy competition follows how-

ever a different rationale. Capital already invested in a certain location can be more easily taxed than new investment of multinationals. When considering investment in a country, multinational enterprises anticipate that they will face problems in repatriating location specific investment after it has been undertaken such that a *hold-up* problem results. Firms will also recognize that danger of excessive taxation results from that hold-up and will abstain from investing in a country leading to adverse effects on economic growth. Firms thus aim at obtaining credible commitments from the governments of potential locations that their location specific rents are not taxed in a confiscatory way. Governments use the opportunity to commit themselves in order to induce firms to invest in their jurisdiction. Hence, they offer subsidies or *tax holidays* to compensate firms for the potential loss from the expected hold-up (Doyle and van Wijnbergen, 1994, Bond and Samuelson, 1986, Black and Hoyt, 1989). Haufler and Wooton (2004) show that tax and subsidy coordination is not necessarily leading to welfare improvements in such a political environment although it can. In contrast, Janeba (2000, 2002) argues that tax competition solves the problem of providing credible commitments more efficiently than tax holidays or subsidies. Governments do not need to provide subsidies as credible commitments because tax competition reduces corporate income taxes to a reasonable level.

Another alternative to tax and to subsidy competition is a competition in *tax enforcement* as the most inefficient kind of fiscal competition for firms (Stöwhase and Traxler, 2004). For example, some German federal states offer a lax tax enforcement to firms in order to attract them to their jurisdiction because they do not have the possibility of changing tax rates in the largely harmonized German tax system and are additionally restricted by European law to offer subsidies to firms. The lax tax enforcement invites tax evasion and tax fraud as the most detrimental way of avoiding taxation.

2.6 Political Economy Issues

These arguments shed some light on the actual behavior of governments. The state does not always do what it ought to. Political actors follow their own self-interest and seek to get rents from the political process. If a government of a member country attempts at securing private rents by increasing taxes, taxpayers can avoid excessive taxation by migrating to countries with lower tax burdens. The government cannot increase the tax burden of the mobile factor above the level of migration costs (Brennan and Buchanan, 1980). It therefore has to take the interests of the mobile factors into account. Wilson (2005) shows that the competition for mobile capital between self-interested governments leads to a strengthening of the positive relation between tax revenue and the public input. Tax harmonization would be counter-productive because it would facilitate the exploitation of tax bases to *Leviathan* governments.

In addition, fiscal competition enables citizens to comparatively evaluate the performances of representatives and thereby reduce the information asymmetries in political markets (*yardstick competition*). For example, German voters can compare the performance of the German federal government to that of the French government. If France has a relatively high level or quality of public services under otherwise same conditions, but offers them at lower tax prices than Germany, German voters have incentives to punish the German government at the next election day. The German government will anticipate this threat in its decision to increase tax rates. Hence, fiscal competition does not only work through the migration mechanism, but also improves citizens' ability to exert voice in the political process (Besley and Case, 1995, Bordignon, Cerniglia and Revelli, 2003, Salmon, 2003, Reulier, 2004). The government is forced to provide public services at relatively lower costs and at the level desired by citizens.

2.7 Political Innovation and Economic Growth

Yardstick competition may also be a mechanism to lead to a dispersion of knowledge in politics. It is well-known from private markets that competition induces product and process innovation. Competition between governments may as well lead to *political innovations*. Governments can experiment with new solutions for economic problems in a decentralized fashion. Better solutions succeed in a process of imitation, copycatting and adaptation by other jurisdictions. Competition between jurisdictions thus becomes a discovery procedure which contributes to the progress in the public sector. Supreme Court justice Louis Brandeis already contended in 1932: "*It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country*", (quote by Oates, 1999, p. 1132). In this context Oates (1999) speaks of *laboratory federalism* and points out that the reform of welfare in the U.S.A. in 1996 followed these considerations (Inman and Rubinfeld, 1997).

The higher innovative capacity of fiscal competition as a possible explanation for economic growth of countries is however contested. In a competitive system, a government is re-elected if it provides services that are at least not worse or not more expensive than those in other jurisdictions. Each government has incentives to wait initially in order to imitate only those policies of other jurisdictions that have turned out to be relatively successful. If the government of a state is uncertain about re-election, it has an incentive to act as a free-rider with respect to the policy innovations of other jurisdictions finally reducing their absolute amount (Rose-Ackerman 1980). Schnellenbach (2004) studies the incentives for policy innovations in systems competition by particularly focusing on the incentives of voters. As voters normally have little incentives to be politically informed before elections, policy innovations are mainly possible in times of crises. Citizens' incentives to

become informed on policy innovations are however improved by high mobility and elements of direct democracy in political decision-making processes. Political rents of governments can then be reduced by competition, and politicians can be offered incentives to innovate.

Given these arguments, it could be asked whether fiscal competition or fiscal cooperation between jurisdictions has an effect on their economic growth. Still, fiscal competition theoretically has ambiguous effects because on the one hand it might induce higher efficiency of public goods' provision and higher political innovation and hence a better economic performance of jurisdictions. On the other hand, fiscal competition might lead to a migration of mobile production factors to centers of economic activity where agglomeration economies can be realized such that single poorer regions suffer from that competition.

3. Empirical Evidence on the Existence of Fiscal Competition

All the potential outcomes of fiscal competition discussed in section 2 need not necessarily obtain in the real world. Theoretical arguments do not suffice to assess fiscal competition normatively. Insights as to the empirical validity of the arguments are necessary. In order to observe an impact of fiscal competition on efficiency, redistribution and growth, the existence of fiscal competition should be established. Fiscal competition exists if two conditions are met: First, taxes and public spending play a significant role in the choice of location of industry and/or of residence of individuals (*mobility hypothesis*). If there is no fiscally induced mobility, neither beneficial nor detrimental effects of fiscal competition can result. Second, governments actually use fiscal instruments to attract firms or individuals. If no strategic tax setting can be observed, a race to the bottom cannot develop (*strategy hypothesis*).

3.1 Location Choice

The evidence on fiscally induced capital mobility is clearly speaking in favor of fiscal competition. A large body of evidence that stems from international, regional or local data exists according to which taxes and public spending play a role for location decisions of firms. The weakest evidence is found with respect to foreign direct investments (Feld, 2000). More recent studies by Grubert and Mutti (1991) and Hines and Rice (1994) report that international direct investment of multinational firms depends on corporate income taxes. The higher taxes, the lower is foreign direct investment. Devereux and Freeman (1995) explain foreign direct investment in Germany, France, the U.K., Italy, Japan, the Netherlands and the U.S.A. between 1984 and 1989 by including a rich set of additional explanatory factors. They do however not find a robust influence of taxes on foreign direct investments if labor market characteristics of the countries are additionally

considered. Büttner (2002) reports evidence of a joint impact of marginal and statutory taxes on foreign direct investment (FDI) flows for 15 OECD countries between 1991 and 1998, while only weak evidence for countervailing effects of public expenditures are found. Stöwhase (2002) finds however for FDI of German multinationals in eight OECD countries and the same period that effective tax rates mainly affect real activity while statutory tax rates affect profit shifting activities. These inconclusive results might be grounded in the high aggregation level of FDI figures or may be attributed to the fact that statistics on FDI or on portfolio investment are not reliable.

This has induced an extensive empirical literature on investment behavior of multinational firms that mainly uses large firm level data sets (Hines, 1997). Grubert and Mutti (2000) focus on new investment of multinationals at particular locations in a cross section analysis for 500 firms in 60 countries in 1992. They find that higher average effective corporate income tax rates on distributed earnings reduce the probability that multinationals invest in a location. Mutti and Grubert (2002) present evidence for 728 U.S. multinationals in 1996 that a 10% increase in the cost of capital reduces the probability that a location is chosen by 1.4%. Altshuler, Grubert and Newlon (2001) find a relatively important impact of effective tax rates on investment of multinationals in 58 different countries for the years 1984 and 1992. The relative importance of taxes for international investment has doubled during that period. A very convincing study on location choice of multinationals has been conducted by Devereux and Griffith (1998). For more than 1,600 firms between 1980 and 1994, they analyze the impact of taxes on U.S. multinationals‘ investment in Germany, France or the U.K. as a two step decision. In the first step, multinationals decide whether to invest at all in Europe. The choice to invest at home or in Europe is largely independent from taxes and follows along long-term sales strategies of firms. The second step of the decision consists in the choice of the particular country if a firm has already decided to invest in Europe. Average effective corporate tax rates have an important impact on that second decision.

Recent meta-analyses on the impact of taxes on location decisions of multinationals have been provided by Gorter and de Mooij (2002), De Mooij and Ederveen (2003) and Ederveen and De Moooij (2003). They review the econometric studies analyzing the impact of taxes on the location of firms and on FDI and establish the characteristics of the study design that affect the size of the estimated tax rate (semi-)elasticities. According to their analyzes, the typical tax rate semi-elasticity of FDI is –1.2 exhibiting an important variation across the studies. Desai, Foley and Hines (2003) use the most extensive data set on multinationals location decisions with 20,346 observations to analyze the investment decision of multinationals. They report a tax rate elasticity of 7.7 for Europe and 2.3 for the countries outside of Europe. A 10% higher tax rate is associated with a 7.7%

reduction in investment. Desai, Foley and Hines (2004) report similar elasticities for indirect taxes.

Evidence corroborating the importance of taxes for location choice is found for federal states (Newman and Sullivan, 1988, Bartik, 1991, Wasylenko, 1991, Feld, 2000). Hines (1996) presents evidence that multinationals locate in U.S. states with lower taxes. Feld and Kirchgässner (2003) study the impact of personal and corporate income taxes on the distribution of firms between the Swiss cantons and on cantonal employment. They report significant negative effects of taxes on the number of small and medium sized firms in different classes of rates of return in 1981/82 and 1991/92 and on cantonal employment between 1985 and 1997. The higher taxes, the lower is the number of firms and employment. All in all, this is strong evidence that international and interregional location decisions are affected by taxes.

Tax rate differentials do however not only affect real investment of multinational corporations. They also have an effect on transfer prices that are set between parent companies and subsidiaries. If the parent locates in a high tax jurisdiction and the subsidiary is located in the low tax jurisdiction, the multinational corporation has incentives to set the prices for services provided by the subsidiary at higher levels in order to reduce profits and thus also taxes paid in the high tax jurisdiction. For the period 1981 to 1988, Swenson (2001) presents evidence that multinationals with parent companies in the U.S.A. and subsidiaries in Germany, France, the U.K., Japan and Canada increased transfer prices by 8.2% on average when foreign tax rates decreased by 1 percentage point. Mintz and Smart (2004) present similar evidence for Canada. Declared taxable profits of firms that have branches in more than one Canadian province declines by 4.3% in the case of tax hikes while otherwise similar firms that only have branches in one province declare profits that are by 1.6% lower. Finally, Grubert and Slemrod (1998) argue that transfer prices are particularly strongly influenced by taxes if a subsidiary's specialization is in research and development. In R&D, the internationally accepted dealing at arm's length principle cannot be used because most of the products of the subsidiary do not exist in the market such that market prices cannot serve for comparisons. They present evidence for U.S. parents with R&D subsidiaries in Puerto Rico that their transfer prices strongly depend on tax rate differentials.

3.2 Residence Choice

Support for the mobility hypothesis is also found with respect to migration and residence choice of individuals. Lower taxes and/or higher levels of public services attract individuals – ceteris paribus. There is however a first notable difference between location choice and residence choice. Because capital is internationally more mobile than labor, the international evidence on fiscally induced migration is not persuasive. This also holds for the EU although mobility between Member

States has considerably increased. Labor market conditions and general economic development of a country may serve as the main pull factors in international migration. Public finance still appears to be too unimportant for most researchers to take it into account. This holds although there is anecdotal evidence from firms which have difficulties to attract highly qualified people to high tax jurisdictions.

Many empirical studies do however exist for regional or local migration and the impact of fiscal policy on residence choice of individuals. These studies have been mainly performed by using U.S. and Swiss data because income tax differentials and differences in public services are high between the jurisdictions in both countries. For example, someone living in the canton and the city of Zurich who earns CHF 1 million taxable income per year pays more than three times the amount of taxes to the canton and the local jurisdiction of Zurich than in the community of Freienbach in the canton of Schwyz which is only half an hour away from Zurich. Looking at the evidence from federal states is also useful for an assessment of international fiscal competition because mobility costs are much lower, the lower the government level such that the potential for fiscal competition strongly increases. If fiscal competition turns out to be at least not harmful to economic outcomes of jurisdictions at the lower level of governments, it is probably having similar effects in international terms.

The studies for the U.S.A. broadly support the migration hypothesis (Feld 2000 for a survey). They find that tax rate differentials and differences in public services across U.S. states and local jurisdictions – *ceteris paribus* – influence individual residence choices. Welfare payments mainly affect migration of the poor. However, many studies also provide evidence that labor market conditions or the housing market are quantitatively more important than fiscal policy. In addition, the attraction of jurisdictions with favorable public or private infrastructure (in particular health and education) as well as a good quality of the natural environment (parks and other recreation facilities) should not be underestimated. The differences in tax rates and public services at state or local levels, moreover, capitalize in housing prices (Feld and Kirchgässner, 1997 and again Feld, 2000 for surveys on the U.S. studies). Higher taxes induce – *ceteris paribus* – lower housing prices, while a higher level of public services is associated with higher housing prices. The tax burden is shifted to the immobile factor land.

Similar evidence on fiscally induced migration is found for Switzerland. Frey (1981) reports only a small or no impact of income tax rate differentials on migration between and within Swiss cantons. Feld (2000) finds stronger effects for cantonal immigration between 1980 and 1990, but the results are not very robust to the inclusion of additional influences on migration. In an alternative approach, the impact of income taxes and public services on the distribution of taxpayers in different income classes across the Swiss cantons and local jurisdictions has been investigated. Kirchgässner and Pommerehne (1996) in a cross section analysis for the Swiss cantons in 1987, Pommerehne, Kirchgässner and Feld (1996), Feld

(1999, 2000, 2000a), Feld and Kirchgässner (2001) in cross section analyses for the Swiss cantons and for 137 Swiss cities and communities for 1990 as well as Feld and Frey (2000) in a panel data analysis for the cantons between 1981/82 and 1993/94 report a strong impact of income taxes on the distribution of taxpayers. The impact of income tax rate differentials is quantitatively more important in higher than in lower income classes. Tax competition appears to be more intense at the local than at the cantonal level and more important for self-employed than for dependent workers and for retirees. These results on the impact of public finance for the regional distribution of taxpayers is corroborated by the Swiss studies on capitalization of tax rate differentials in housing prices. Feld and Kirchgässner (1997), Hilber (1998) and Feld (2000) report that the higher income taxes, the lower are dwelling rents of apartments and houses. The income tax burden of high income taxpayers is capitalized more strongly than that of low income people. Welfare does not play any role. All in all, there is strong evidence from the regional level that fiscally induced migration and residence choice takes place. The *migration hypothesis* can thus not be rejected.

3.3 Strategic Fiscal Policy

Fiscally induced migration is a necessary condition for the existence of fiscal competition. A sufficient condition is the *strategy hypothesis*: Jurisdictions actually engage in strategic tax setting. How strategic tax setting emerges can be easily illustrated in the following example: In his tax policy, the Austrian finance minister has to consider several requirements many of which are derived from Austrian legislation or from EU law, and others stem from the influence of different interest groups on tax policy. In addition, he has to consider the international development in order to make Austria attractive for investments and locations of firms. If the Slovak Republic decreases its tax rate on individual and personal income to, say, 19%, the Austrian finance minister has to take that into account when announcing the next tax reform. Countries apparently look at what happens in other countries, or more generally speaking in other jurisdictions. They identify their competitors and react to their tax rate changes. According to the strategy hypothesis, the correlation between the changes of tax rates in different jurisdictions should be positive, i.e. if a country reduces individual and corporate income tax rates, another country reduces these rates as well.

Evidence on such a strategic tax setting exists, like for the location choice of firms, at all government levels. The first studies have again been conducted for the U.S. states and local jurisdictions (Ladd, 1992, Case, 1993, Brueckner and Saavedra, 2001), but there is meanwhile also evidence on strategic tax setting in Canada (Brett and Pinske, 2000 for municipalities and Hayashi and Boadway, 2000 for provinces), Belgian communities (Heyndels and Vuchelen, 1998), German local jurisdictions (Büttner, 1999, 2001), French regions and départements (Feld,

Josselin and Rocaboy, 2003, Leprince, Madiès and Paty, 2003, Reulier, 2004), Italian cities (Bordignon, Cerniglia and Revelli, 2003), Spanish local jurisdictions (Solé-Ollé 2003) and Swiss cantons (Feld and Reulier, 2001). Most of these studies focus on income, business and property taxation. They find that a reduction of the average tax rates of competitors induces a reduction of tax rates of an observed jurisdiction. Comparable evidence is presented by Figlio, Kolpin and Reid (1999) and Saavedra (2000) on welfare payments in the U.S.A. Again, reductions in welfare payments on average in competitor jurisdictions induce a reduction of welfare payments in an observed jurisdiction. Moreover, Fredriksson and Millimet (2002) provide evidence on strategic interaction in environmental policy. Brueckner (2003) provides a survey of these studies.

Most notably, such evidence could also be found at the international level. Devereux, Lockwood and Redoano (2001) analyze strategic tax setting for ten OECD countries between 1979 and 1999. They find that there is a positive spatial correlation between statutory corporate income taxes of these countries as well as between their effective average corporate income tax rates. The lower these tax rates in the other nine countries on average are, the lower are the tax rates in the remaining ten countries. Besley, Griffith and Klemm (2001) corroborate these results in a study on corporate income tax ratios (tax revenue in % of GDP) for 29 OECD countries between 1965 and 1997. Again, a positive spatial correlation of taxes exists. Altshuler and Goodspeed (2002) provide additional evidence on how the U.S.A. serves as a role model in international tax policy whose tax reforms are imitated by European countries. Evers, De Mooij and Vollebergh (2004) find strategic interaction in the case of European diesel excises for 15 EU Member States plus Norway and Switzerland between 1978 and 2001. Egger, Pfaffermayr and Winner (2004) complete these findings for VAT and excise tax ratios in 22 OECD countries between 1965 and 1997.

On the basis of this evidence, the *strategy hypothesis* cannot be rejected. Fiscal competition exists at the local, regional and international level at different intensities concerning different production factors. It is most intense at the local level in countries with local or regional fiscal autonomy. At the regional level, the intensity is lower compared with the local level, but higher compared to the international level. The evidence provides strong support for the existence of fiscal competition for firms and individual taxpayers and hence for corporate and individual income taxes as well as property taxes (the latter in particular in the U.S.A.). International evidence on fiscal competition is provided for corporate income taxation and indirect taxes, but not for individual income taxation or for public spending.

4. Evidence on the Economic Effects of Fiscal Competition

Stating that fiscal competition exists does not tell anything about its impact on the supply of public services, the welfare state or economic growth. These three classes

of economic outcomes must be considered explicitly. However, not much systematic international evidence on the impact of fiscal competition on these economic outcomes exists. The empirical studies have mainly been conducted for the federal countries Switzerland and the U.S.A., using regional or local data. What has been said in *section 3.2* however also holds with respect to economic outcomes: If fiscal competition is more intense at the local or regional level, the hypothesized positive or negative effects should be more easily observed in studies on federal states. In a *Sinatra-analogy*, we can state: "*If you can make it there, you can make it anywhere*."

4.1 The Efficiency of Public Goods' Provision

To measure economic efficiency in the provision of public goods is not easy. Public services are efficiently provided if the marginal cost of provision is equal to the sum of marginal rates of substitution of users. Though it is not impossible, finding out the marginal cost of provision is difficult, because most statistics on the public sector contain information on expenditure and not on cost. The real difficulty emerges however on the demand side. Consumers have incentives to hide their true willingness to pay for public services in order to get a free ride when they expect to pay actually. Consequently, direct evidence on the impact of fiscal competition on the efficiency of public goods' provision is relatively scarce.

The first evidence stems from a study by Bergstrom, Roberts, Rubinfeld and Shapiro (1988) who directly estimate the equality of marginal costs of provision of public services and the sum of individual marginal willingness to pay for public education (that is financed by property taxes in the U.S.A.). The demand for public services is estimated on the basis of individual survey data. In addition, aggregate data on local jurisdictions is used to assess marginal costs. The authors present evidence that the *efficiency hypothesis* according to which fiscal competition leads to an efficient decentralized provision of public goods cannot be rejected. Hoxby (2000) develops a less ambitious test by comparing the relative efficiency of education in jurisdictions with a higher and those with a lower intensity of fiscal competition. She presents evidence that the performance of students per input unit is increased by fiscal competition although it leads to significantly less spending per student. There is also evidence for Switzerland that fiscal decentralization is associated with a higher individual satisfaction of citizens with their lives in general (Frey and Stutzer, 2000, 2002).

In addition, there is a broad discussion in the literature on the impact of fiscal competition on the size of government. According to Brennan and Buchanan (1980), fiscal competition is a means to restrict Leviathan behavior of governments: *"The potential for fiscal exploitation varies inversely with the number of competing governmental units in the inclusive territory."* (p. 185). Most studies attempt at testing this hypothesis by looking at the impact of fiscal decentralization

on public spending or revenue. There is mixed evidence on this impact of fiscal decentralization, however. Only the more recent evidence by Shadbegian (1999) for the U.S.A., Schaltegger (2001) and Kirchgässner (2002) for Switzerland and Rodden (2003) in a cross-country study provides unambiguous support for such a relationship. Feld, Kirchgässner and Schaltegger (2003) focus more closely on the transmission channels by which fiscal decentralization in federal states might affect the size of government. They find that a more intense tax competition leads to lower public revenue. Moreover, tax competition shifts the revenue structure from broad-based taxes to user charges and fees. Tax competition thus leads to a stronger enforcement of the *benefit principle of taxation*. Kirchgässner and Feld (2004) provide evidence for the same data set that again tax competition induces lower spending. The estimated reduction of spending for the canton which stands most strongly in tax competition compared to that which is the least affected by tax competition amounts to CHF 2,114.– per capita and year.

In the theoretical discussion, externalities of fiscal competition are focused. Büttner (2003) reports relatively important fiscal externalities for small communities in Germany. Murdoch, Sandler and Sargent (1997) find evidence on the importance of negative benefit spillovers (sulfur and NO_x emissions) for 25 European states. As Sørensen (2000, 2004) in his simulation study shows, these fiscal and regional externalities can easily compensate for each other. Parry (2003) corroborates this analysis and also reports relatively low welfare costs of tax competition even excluding tax exporting. Hence the importance of externalities can be questioned. Pommerehne, Feld and Hart (1994), with evidence on local cross-border pollution, and Pommerehne and Krebs (1991), with evidence on spillovers of public services in the canton of Zurich, show how regional externalities are successfully internalized in Coase-like bargaining processes. On the basis of empirical evidence for the U.S.A., Haughwout (2003) argues as well that Coasian bargaining is particularly suited to internalize fiscal externalities. Swiss federalism is in general characterized by specific inter-jurisdictional compensations for spillovers. Although this leads to high transaction costs it also induces incentive compatibility of public goods' provision. Indeed, Schaltegger (2003) does not find any significant benefit spillovers between Swiss cantons in a panel study for the years 1980 to 1998. All in all, this evidence speaks in favor of fiscal competition. The *efficiency hypothesis* cannot be rejected on the basis of this evidence.

4.2 Income Redistribution

What is really surprising is the evidence on the *redistribution hypothesis* in its strong version according to which fiscal competition leads to a collapse of the welfare state. Remember that the supposed mechanism is a fiscally induced migration of the poor to jurisdictions with high transfers and the rich to jurisdictions with low income taxes – keeping all other factors constant that might attract migrants. As

discussed in *section 3.2*, this fiscally induced migration takes place in the U.S.A. and, to a lesser extent with respect to welfare payments at least, also in Switzerland. There is additional evidence on strategic tax setting in both countries. There is however no evidence that the welfare state in both countries has collapsed – given national redistribution preferences. This is particularly interesting for Switzerland because of its more pronounced income redistribution.

Feld, Kirchgässner and Schaltegger (2003) analyze the impact of tax competition between Swiss cantons on their revenue structure and report evidence that tax competition shifts revenue from broad-based taxes to user charges and fees as hypothesized by the theoretical literature. These results are in line with more recent evidence by Winner (2004) on the impact of tax competition on tax structure. For 23 OECD countries and the time period 1965 to 2000, he finds that capital mobility shifts the tax burden from capital taxation to labor taxes. The less mobile tax base has to bear a higher tax burden. According to the results of Feld, Fischer and Kirchgässner (2003) for the Swiss cantons, welfare spending is however not affected by tax competition such that no unambiguous result is found for the spending structure.

On the basis of data from 1977, Kirchgässner and Pommerehne (1996) indeed present evidence for Switzerland that two thirds of public income redistribution (without considering social security in that analysis) were conducted by sub-federal jurisdictions. The income distribution was not significantly more unequal for Switzerland in 1977 than in Germany in the beginning of the1970s. Since the1970s, the Swiss income distribution has become more unequal than in other European countries. This development can be attributed to the fact that the 10% of the population with the highest income have more than proportionally gained from income growth between 1977 and 1992. Still, excluding social security, the Swiss public sector redistributes as much income in 1992 as in the end of the seventies. The share of sub-federal jurisdictions from this amount of income redistribution has even increased during the same period (Feld, 2000, 2000a). In addition, cantons and local jurisdictions have relied more strongly on taxes than on spending to accomplish income redistribution. Although Feld, Fischer and Kirchgässner (2003) find some evidence that tax competition between cantons is leading to less income redistribution, this effect is not robust to the primary distribution of income. The strong *redistribution hypothesis* must therefore be rejected for Switzerland.

It should be noted that the most important differences between fiscal competition in federal states on the one hand and international fiscal competition on the other hand must be attributed to the distribution branch. The Swiss cantons and local jurisdictions as well as the U.S. states and local jurisdictions are indeed embedded in a system with much income redistribution undertaken by the federal level. The public acceptance of the effects of fiscal competition on the income distribution thus hinges on the fact that there is some redistribution of income at the federal level. In Switzerland, the progressive federal income tax, the source tax on

interest income and the pay-as-you-go part of the Swiss pension system are centralized and have a strong redistributive impact. Similarly, the U.S. federal income tax is most important for income redistribution. In addition, both countries had strong residence requirements for longer time periods. As it is well documented by the U.S. studies on migration and welfare (Moffitt, 1992), residential requirements could be crucial for decentralized redistribution to work. Until 1969, the U.S. states imposed residence requirements on potential welfare recipients according to which they could only obtain welfare payments in a state if they had worked at least two years in the same state in which they applied for social welfare. The residence requirement was declared unconstitutional by the Supreme Court in that year. Evidence for a harmful welfare migration has been provided only for the period after that Supreme Court decision. In Switzerland, a citizenship principle existed until 1979 according to which the places of citizenship were responsible for social welfare of their citizens. Citizenship has been inherited. If the place of residence of a welfare recipient was different from the place of citizenship, he could be forced to move back in the place of citizenship or obtained lower transfer payments than he would have received at the place of residence. Finally, the Swiss political decision-making process plays a role for income redistribution. Since Swiss cantons to differing degrees enable voters to participate directly in fiscal decision-making by referenda on tax rates, spending or budget deficits, and because institutional competition of direct with representative democratic cantons induces the latter to deviate not too much from basic redistributive concerns, fiscal competition in Switzerland may not lead to a collapse of the welfare state as well. Actually, tax competition is less pronounced in cantons with a tax referendum than in those without one (Feld, 1997).

4.3 Economic Growth, Regional Convergence and Political Innovation

The impact of fiscal competition on economic growth is even less intensively studied than that on efficiency or income redistribution. There is a more recent literature mainly with cross-country evidence, but also with evidence on Chinese provinces, German or U.S. states that attempts at analyzing whether fiscal decentralization has a positive or negative impact on economic growth. The main disadvantage of the empirical approach in those studies is that fiscal decentralization is almost exclusively measured by the share of spending (or revenue) of lower level jurisdictions from total spending (or revenue). This share is not measuring fiscal autonomy. It could easily be the case that sub-federal jurisdictions spend a relatively large share, but are forced to do so by federal mandates or do not raise funds autonomously to finance that spending such that they depend on the federal government. This holds for example for Mexico (Feld, 2003). It is thus not surprising that the existing studies do not find any clear-cut evidence on this relation-

ship (Feld, Zimmermann and Döring, 2003). There is one paper in which the impact of tax competition on economic performance is analyzed. Feld, Kirchgässner and Schaltegger (2004) present evidence for the Swiss cantons from 1980 to 1998 that tax competition has not been harmful to economic performance of the cantons. In addition, no evidence on the importance of economies of scale for economic performance is found in that study. The arguments for a merger of cantons are thus not supported by the evidence from this paper. Still no evidence on the impact of fiscal competition on regional convergence exists. However, Desai, Foley and Hines (2004a) analyze the economic effects of regional tax havens and finds that the use of tax havens indirectly stimulates growth of operations in non-haven countries in the same region while Hines (2004) points to the fact that tax havens particularly gain from tax competition. This evidence shows that regional tax havens have effects on economic performance although they do not tell anything about agglomeration effects in central regions and locational disadvantages of the periphery.

With respect to the impact of fiscal competition on political innovation only evidence from case studies can be found. Feld and Schnellenbach (2004) discuss the diffusion of administration reforms (new public management) at the Swiss local level during the 1990s and the welfare reform of the U.S.A. in 1996. In particular, the latter example has been explicitly conducted with the expectation of the federal government that the states as a laboratory for welfare policies are better suited to find the most reasonable solutions for welfare policy. Although the welfare reform is a success story and the expectations are thus not disappointed, it must be noted that there are still federal mandates aiming at a quality control of these reforms. The U.S. welfare reform is hence not exclusively providing evidence for the success of fiscal competition in inducing political innovation. Much needs to be done to get a more conclusive picture in this area.

5. The Common CIT Base and Formulary Apportionment

Summarizing these theoretical arguments and the empirical evidence, a relatively straightforward assessment obtains: As the findings from a large body of empirical literature suggest, fiscal competition exists. While it does apparently not lead to any efficiency problems, at least there is no evidence supporting this hypothesis, its impact on the ability of governments to conduct income redistribution is less favorable. Obviously, the collapse of the welfare state under decentralized income redistribution can be prevented by particular rules, like residence requirements, such that the question emerges as to the proper regulations that shape fiscal competition. Sinn (2003) proposes a kind of residence requirement which he calls a nationality principle for the EU that is supposed to eliminate the adverse effects of fiscal competition on European welfare states. Richter (2003) discusses under

which conditions a delayed integration in national welfare states in the sense of residence requirements leads to efficient policy outcomes.

The recent policy proposals by the Commission to coordinate corporate income taxation have gained more attention than these suggestions, however. As mentioned in the introduction, the Bolkestein Report (European Commission, 2001) argues that a uniform corporate tax base with formulary apportionment could be a feasible solution to problems emerging from tax competition in the EU. Indeed, one of the main problems in European corporate income taxation consists in the possibilities of multinational firms to shift profits to jurisdictions with low tax rates. The international evidence, as surveyed in *section 3*, suggests that profit shifting is not sufficiently restricted by the dealing at arm's length principle because financial transactions or services from R&D subsidiaries are insufficiently captured by this principle. In fact, profit shifting leads to a redistribution problem in the first place because the finance minister has to forego tax payments while no relocation of firms occurs. The Commission proposal aims at resolving these problems from profit shifting. With a uniform corporate income tax base, the incentives for profit shifting are supposedly reduced. The distribution of tax revenue to the different countries that host branches of multinational firms may be accomplished by using formulary apportionment. According to formulary apportionment, the multinational firm attributes the profits of the entire corporate group to the different countries according to a formula that includes factors like, e.g., property, payroll or gross receipts (sales) (Weiner, 2002). This formula is supposed to mimic the geographic incidence of a multinationals economic activity.

Formula apportionment has been criticized heavily by several authors for the distortions it induces. Gordon and Wilson (1986) show that formula apportionment reduces the incentives to manipulate transfer prices, but distorts optimal location choice. If the factor "property" in the formula is too crudely capturing the respective economic activity, an increased incentive for firms producing in different jurisdictions to merge their operations results. The payroll component of a formula discourages merger activities while the factor "sales" may lead to cross-hauling of output, with production in low-tax jurisdictions sold in high tax jurisdictions and vice versa. As Wellisch (2002) emphasizes the corporation income tax degenerates to a tax on the different components included in the formula.

Moreover, formulary apportionment does not discourage single states from reducing tax rates strategically in order to attract tax payments (Anand and Sansing, 2000, Nielsen, Raimondos-Møller and Schjelderup, 2001). Indeed, Pethig and Wagener (2003) argue that tax competition is the sharper the more tax elastic the apportionment formula is. This result is corroborated by Gérard and Weiner (2003) who moreover argue that formula apportionment boosts the sensitivity of firms to tax changes. Nielsen, Raimondos-Møller and Schjelderup (2001a) show additionally that the incentives for multinationals to set transfer prices strategically

are not reduced by formulary apportionment if strategic transfer pricing involves strategic advantages in local oligopolistic markets.

Independently from the ambiguous incentives provided by formulary apportionment, particularly intense difficulties of implementing such a system in international taxation could be expected. In his analysis of formula apportionment in the U.S.A., Kaminski (2001) discusses the potential conflicts that emerge if different formulas are used by the different jurisdictions. Like already McIntyre (1992), he expects positive outcomes from formulary apportionment only if there is a uniform formula in the EU which is not to be taken for granted, given the different distributive outcomes resulting from different formulas for the different Member States. In addition, the German Scientific Council to the Federal Finance Ministry (Wissenschaftliche Beirat beim Bundesfinanzministerium, 1999) points to the necessary re-negotiation of the double taxation treaties of EU Member States which would involve enormous transactions costs. It is thus no surprise that Weiner (2002) believes the time not to be ripe for formula apportionment in the EU. It may rather be both, "a dream come true" and the "EU's worst nightmare" (p. 530).

6. Policy Conclusions

In policy debates across Europe, tax competition is very critically perceived. Most finance ministers would rather harmonize taxes than allow for tax competition. They fear that mobile tax bases will not contribute to the financing of European welfare states anymore. In this paper, the main theoretical arguments are discussed and evaluated as to what impact tax competition has on the provision of public services, on income redistribution by the state and on economic development. Moreover, the arguments from the theoretical analysis are confronted with existing empirical evidence. Several conclusions can be drawn from that analysis:

1. It is misleading to talk about tax competition. Taxes are prices for public services and the public insurance provided by welfare states. Governments find themselves in a locational competition of which *fiscal competition* is an important part. It is also misleading to trace the development of statutory or average effective tax rates over time without controlling other factors that affect location or residence choices.
2. The international and regional evidence provide overwhelming support for the *existence of fiscal competition*. Firms' international or regional location choices – *ceteris paribus* – depend on corporate and personal income tax rate differentials and on differences in public services. Taxes also play a significant role for the choice of transfer prices of multinational firms. The higher taxes, the less attractive a jurisdiction. Residence choices depend on personal income taxes, public infrastructure and welfare payments. The evidence for the latter mainly stems from interregional fiscal competition in federal states. International evidence does not exist. Being aware of fiscally induced migration, governments

engage in strategic tax setting and enter a process of tax and welfare competition.
3. The arguments on the impact of fiscal competition focus on the efficiency of public goods' provision and the sustainability of decentralized income redistribution. While there are contradictory hypotheses on efficiency, fiscal competition is hypothesized to render decentralized income redistribution impossible. The empirical evidence speaks in favor of the *efficiency enhancing effect* of fiscal competition, while the deterioration of income redistribution is not necessarily found. It strongly depends on the rules shaping income redistribution. In particular residence requirements appear to be useful.
4. Not much help should be expected from the proposal of a uniform corporate income tax base with formulary apportionment in the EU. While the first component of this proposal, the uniform tax base, has the potential to reduce transaction costs of multinational firms, to reduce the incentives for profit shifting to low-tax jurisdictions and to increase the possibilities for yardstick competition in Europe, the second component, formulary apportionment, supposedly increases the distortions of corporate income taxation in Europe. It may well become the "EU's worst nightmare" (Weiner, 2002).

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