

Company Tax Competition in an Enlarged EU

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1. Introduction

There is unanimous consensus among economists that the deepening integration of national economies intensifies competition among nation states for internationally mobile production factors and activities. Tax policy – in particular the taxation of mobile firms or mobile investment – has evolved as one of the most theoretically and politically discussed competition instruments nation states have at hand. The fact that governments do engage in corporate tax competition is hardly a matter of dispute in the literature: Several recent empirical studies estimating tax reaction functions between countries (e.g. Brueckner/Saavedra 2001) suggest the existence of strategic interaction among governments concerning taxes on mobile capital; although – with respect to corporate taxation – it is disputed whether countries compete over the statutory or the effective corporate tax rate (e.g. Devereux/Lockwood/Redoano 2002; Devereux/Griffith 2003). The EU as the largest integrated economic area world-wide, with a single market in which formal barriers to international capital movements have been largely removed, is drawing sustained attention of tax theorists as a practical example to which theoretical results on the causes and consequences of international corporate tax competition are applied (e.g. Oates 2001; Zodrow 2003; Sorensen 2004).

At the eve of the eastern enlargement of the European Union in May, 2004, the majority of the accession countries lowered their (in comparison to the "old" member countries) on average already low corporate tax rates. It is often anticipated that the considerable tax rate differential between the EU-15 and the accession countries will trigger further rounds of corporate tax rate reductions in all member countries of the enlarged EU and intensify corporate tax competition between EU member states.

However, it is controversial in the theoretical and empirical literature whether the observable downward convergence of statutory corporate tax rates is necessarily leading to a "race to the bottom" within corporate taxation, eventually causing corporate taxation to vanish completely or at least to lose in significance within national tax systems. Some authors contend that due to revenue neutral tax rate cuts combined with measures to broaden the tax base (e.g. Gorter/de Mooij 2001) corporate tax bases, effective tax burdens on corporations and therefore also tax structures within the nation states involved can be expected to remain stable also in long run.

Those authors who do anticipate constraints on national tax and budget policy as an inevitable concomitant of the intensification of international tax competition which is expected to lead to a "race to the bottom" or at least to a downward convergence of corporate tax rates have controversial views concerning its budgetary effects.¹ One strand of the literature – inspired by the well-known contribution by Brennan/Buchanan (1980) – expects positive efficiency-enhancing effects, particularly with regard to the performance of the public sector. Here the potential of international tax competition to impose budgetary discipline on wasteful governments is emphasized. From this perspective corporate tax competition (as well as competition within other taxes levied on mobile tax bases) is beneficial. The European Stability and Growth Pact (SGP) can then be regarded as a useful instrument which intensifies the pressure on EU countries to cut wasteful public expenditures and to reduce the overall size of the public sector to compensate for tax losses due to tax competition.

Another branch in the literature, however, conceiving governments as benevolent dictators rather than as revenue-maximizing Leviathans, focuses on various potentially harmful economic consequences of international corporate tax competition. One specific concern

¹See e.g. Wilson (1999), Oates (2001) or Wilson/Wildasin (2004) for a review of the controversial views discussed in the literature.

relates to the potential erosion of the national tax base which could endanger the long-term sustainability of public finances. From this perspective tax competition is harmful as it may – together with the deficit constraints imposed by the SGP – necessitate welfare-reducing expenditure cuts.

The theoretical framework on which this pessimistic view on corporate tax competition draws is the basic tax competition model as summarized recently by Zodrow (2003) and Wilson/Wildasin (2004).² It was initially formulated for a scenario of interregional tax competition between a large number of identical jurisdictions within one country for capital which by assumption is perfectly mobile across jurisdictions (Zodrow/Mieszkowski 1983 and 1986). Ensuing theoretical work has applied the results of this model also to country groups or unions formed by independent jurisdictions (i.e. individual countries).

In this basic tax competition model governments can levy two kinds of taxes: a source-based property tax on capital income and a head tax on immobile production factors (land or labor) to finance public services. The model implies that international capital tax competition leads to a "race to the bottom" within capital taxation: Taxes on capital income disappear completely, and the tax burden is shifted onto the immobile factors. If governments are allowed to raise only a limited amount of head taxes and therefore also depend on the capital tax, public services will be underprovided as jurisdictions – fearing that the capital tax will induce capital flight – will lower their capital tax rates and consequently their expenditures for public services to an inefficiently low level.³ Within this framework, the only alternative to cutting back public expenditures to an undesirably low level would be to increase public debt.

² See Krogstrup (2002), Zodrow (2003) and Wilson/Wildasin (2004) for a more detailed presentation of the model as well as its assumptions and implications.

³ The same result is derived by Beck (1983) in a model where governments can only levy distortionary capital taxes.

This paper takes the basic tax competition model and the various possible effects of international corporate tax competition it suggests as starting point. In sections 2 and 3 we will try to find and evaluate empirical evidence on the long-term development of the corporate tax burden, of the tax mix, of public investment (as a proxy for public services), and of the budgetary position for the old as well as the new member states of the European Union. In section 4 we will apply the most important results of the more recent tax competition literature to the case of the EU enlargement to derive some tentative conclusions concerning the working and possible effects of corporate tax competition between old and new member countries of the EU. In this context particularly two questions are of interest: First, whether the engagement of the accession countries in international corporate tax competition is viable and useful to promote the catch-up process towards the old EU member states. Second, whether existing tax rate differentials between old and new member states can be expected to sustain in the long run.

Against the background of these considerations the proposed reforms of the taxation of corporate income in the EU will be assessed in the final section of the paper. The current harmonization/co-ordination efforts undertaken on the EU level concentrate on the harmonization of the corporate tax base on the one hand and on options for an efficient and equitable regional/international allocation of the corporate tax base on the other hand. The predominant goal of these harmonization/co-ordination initiatives is to remove tax obstacles for international business in the EU. Hardly any consideration is given to the question if a "one size fits all" company tax harmonization is appropriate when imposed on a heterogeneous group of countries characterized by cross-country asymmetries (such as agglomeration economies, country size, the existence of pure profits, and cost-reducing public benefits).

2. Is the corporate tax an “endangered species” within national tax systems? Some empirical evidence

This section tries to find empirical evidence for or against the hypothesis that international corporate tax competition endangers the future of national corporate tax systems in the (enlarged) EU. This is a task which cannot be solved easily, and the picture which emerges on the basis of the existing data is not clear-cut. Based on several measures for the corporate tax burden and on data on the composition of tax revenues, this section aims at tackling the question whether corporate taxes play an increasingly minor role as revenue source for public budgets in the long run.

2.1 Corporate tax rates

The literature offers a large variety of empirical measures for the corporate tax burden based on different methodological approaches. These measures have been developed to address a number of aspects related to international tax competition. In the following several of these corporate tax burden measures and the empirical results obtained for them are examined to assess the question whether international corporate tax competition reduces the quantitative significance of corporate tax revenues within national tax revenues and therefore results in budgetary pressures for nation states.

Statutory corporate tax rates

Statutory corporate tax rates are a simple and therefore often-used measure of the corporate tax burden. Statutory corporate tax rates have declined in the old as well as in the new member states of the EU.

Table 1: Corporate Income Tax rates EU-15 and Accession (Candidate) Countries 2003/2005

in %¹⁾

Country	2003	2005
Belgium	34	34
Denmark	30	30
Germany	27.9	26.4
Finland	29	26 ²⁾
France	35.4	35.4
Greece	25/35 ³⁾	25/35 ³⁾
Great Britain	30	30
Ireland	12.5	12.5
Italy	34	34
Luxembourg	22.9	22.9
Netherlands	34.5	34.5
Austria	34	25
Portugal	30	30
Sweden	28	28
Spain	35	35
<i>Mean</i>	<i>30.1</i>	<i>29.2</i>
<i>Median</i>	<i>30</i>	<i>30</i>
<i>Standard deviation</i>	<i>5.8</i>	<i>6.0</i>
Bulgaria	23.5	19.5
Estonia	0/26 ⁴⁾	0/26 ⁴⁾
Latvia	19	15
Lithuania	15	15
Malta	35	35
Poland	27	19
Romania	25	25
Slovak Republic	25	19
Slowenia	25	25
Czech Republic	31	26
Hungary	18	16
Cyprus	10/15 ⁵⁾	10/15 ⁵⁾
<i>Mean</i>	<i>21.5</i>	<i>19.1</i>
<i>Median</i>	<i>24.3</i>	<i>19</i>
<i>Standard deviation</i>	<i>8.7</i>	<i>8.1</i>

¹⁾ Including surcharges; excluding local taxes.

²⁾ Not yet adopted.

³⁾ 25% für non-incorporated companies which are subject to corporate taxation in Greece; 35% for corporations and financial institutions.

⁴⁾ Retained profits/distributed profits.

⁵⁾ 15% for profits over 1 mio. pounds.

Sources: German Ministry of Finance (2003); KPMG (2003 and 2004); Confederation Fiscale Europeenne (2004); own calculations.

Since the beginning of their transformation to market economies and the introduction of "western-style" tax systems and corporate income tax systems, many eastern European

transformation countries have gradually lowered their corporate income tax rates over the last decade. In 2003, the average corporate tax rate in the twelve (candidate) accession countries⁴ amounted to 21.5% (see table 1). The average tax rate for the ten countries joining the EU in 2004 was 21% in 2003. For 2005, an average corporate tax rate of 19.1% (18.5% for the accession countries of the 2004 enlargement round) is to be expected.

In contrast, the average corporate tax rate in the established member countries was 30.1% in 2003, thus having markedly decreased since the beginning of the 1980s when it reached about 45% (Schratzstaller 2002). The average corporate tax rate will be slightly lower in 2005 (29.2%), leaving a differential of about ten percentage points compared to the (candidate) accession countries.

Tax ratios

Now the question is of interest whether falling statutory tax rates necessarily imply that corporate taxes lose in significance as a revenue source for public budgets or – to put it in other words – whether declining statutory tax rates indeed are tantamount to a "race to the bottom" which lowers the corporate tax burden and imposes restrictions on public budgets. This is a much-debated question in the literature; unfortunately the available data and empirical results obtained do not yield a definite answer.

The hypothesis of a rate to the bottom has been refuted by several authors looking at corporate tax ratios, i.e. corporate tax rates as a percentage of GDP or of total tax revenues (e.g. Quinn 1997). The underlying argument is that corporate tax revenues are not only determined by statutory tax rates but also by the tax base which in turn is influenced by tax

⁴ Malta, Cyprus and eight central and eastern European countries (Estonia, Latvia, Lithuania, Poland, Slovak Republic, Slovenia, Czech Republic and Hungary) joined the EU in May, 2004; Bulgaria and Romania will join in 2007 at the earliest.

legislation. Indeed, corporate tax ratios have been remaining stable or were even increasing in most of the EU-15 countries, at least until the end of the 1990s. Based on this finding it is often concluded that declining corporate tax rates are not causing the corporate income tax to vanish: Which in turn implies that the long-term sustainability of public finances is not endangered by international corporate tax competition. In contrast, in four of the six accession countries for which data are available there is a trend of decreasing corporate tax ratios since 1995.

To explain the contradiction between decreasing statutory corporate tax rates and stable or increasing tax ratios, several authors contend that many old EU-countries compensated tax losses due to tax rate cuts by measures to broaden the tax base (e.g. Devereux/Griffith/Klemm 2002, who view this strategy of tax-cuts-cum-base-broadening even as a "stylized fact" characterizing many corporate tax reforms in the EU-15 countries during the last two decades). This explanation sounds convincing at first sight and is confirmed by a number of individual examples of countries that indeed restricted tax provisions concerning depreciation, reserves, valuation of inventories or losses.

However, some caveats do apply. Corporate tax revenues are not only determined by tax legislation but also by the development of taxable profits. Therefore tax losses caused by corporate tax reforms could have been disguised by improved profits – more precisely, by an increased share of corporate profits in GDP (Genschel 2001). In turn, it can be assumed that the decrease of corporate tax ratios which can be observed in a number of EU-15 countries after 2000 is the result of weak growth and consequently falling corporate profits rather than of intensified tax competition.

Table 2: Taxes on income or profits of corporations¹⁾ as a % of GDP and total taxes²⁾

Country	Tax ratios ³⁾	1990	1995	1996	1997	1998	1999	2000	2001	2002
Belgium	GDP	2,1	2.4	2.7	2.9	3.4	3.3	3.3	3.2	3.1
	TT	7.3	8.0	8.9	9.2	10.8	10.3	10.3	10.1	9.8
Denmark	GDP	n.a.	2.0	2.3	2.6	2.8	3.0	n.a.	n.a.	n.a.
	TT	n.a.	4.1	4.8	5.3	5.8	6.1	n.a.	n.a.	n.a.
France	GDP	n.a.	1.8	2.0	2.3	2.3	2.7	2.8	3.1	2.6
	TT	n.a.	7.0	7.7	8.4	8.0	9.2	9.8	10.9	9.5
Greece	GDP	n.a.	2.6	2.3	2.6	3.1	3.5	4.6	3.8	3.8
	TT	n.a.	11.8	10.2	11.1	12.6	13.6	17.2	14.9	15.3
Great Britain	GDP	4.0	2.7	3.1	3.8	3.8	3.4	3.4	3.3	2.7
	TT	13.1	9.2	10.8	13.1	12.5	11.0	10.8	10.6	9.2
Ireland	GDP	n.a.	2.8	3.1	3.2	3.4	3.8	3.8	3.6	3.7
	TT	n.a.	9.8	10.8	11.3	12.1	13.9	13.7	13.9	15.3
Italy	GDP	3.1	3.4	3.8	4.2	2.5	2.8	2.4	3.0	2.5
	TT	12.1	12.4	13.9	14.0	8.0	9.0	7.9	9.8	8.7
Luxembourg	GDP	6.5	7.5	7.7	7.9	7.8	7.1	7.2	7.5	8.6
	TT	21.7	24.1	24.5	25.5	26.1	23.6	23.8	25.3	28.2
Netherlands	GDP	n.a.	3.3	4.1	4.6	4.5	4.6	4.4	4.4	3.7
	TT	n.a.	13.3	16.2	18.2	18.2	17.8	17.4	17.0	14.5
Austria	GDP	n.a.	1.7	2.2	2.2	2.3	2.0	2.2	3.3	2.4
	TT	n.a.	6.1	7.7	7.5	8.0	6.8	7.7	10.9	8.3
Portugal	GDP	n.a.	2.5	2.9	3.3	3.3	3.8	4.1	3.6	3.7
	TT	n.a.	10.6	12.0	13.8	13.6	15.1	16.0	14.5	14.9
Sweden	GDP	n.a.	2.7	2.6	2.9	2.7	3.1	3.8	3.0	2.2
	TT	n.a.	7.3	6.9	7.5	6.8	7.6	9.6	8.1	6.2
Spain	GDP	n.a.	1.9	2.1	2.8	2.6	3.0	3.2	3.0	n.a.
	TT	n.a.	9.0	9.5	12.5	11.6	13.0	13.9	13.1	n.a.
Estonia	GDP	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1.3
	TT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	5.8
Latvia	GDP	n.a.	2.0	2.0	2.4	2.5	2.2	1.9	2.1	2.1
	TT	n.a.	6.0	5.9	7.4	5.7	3.6	3.3	2.7	3.0
Lithuania	GDP	n.a.	1.3	1.2	1.6	1.3	0.8	0.7	0.5	0.6
	TT	n.a.	6.0	5.9	7.4	5.7	3.6	3.3	2.7	3.0
Poland	GDP	n.a.	3.3	2.9	3.1	2.8	2.5	2.4	1.8	1.8
	TT	n.a.	11.4	10.4	11.3	10.7	10.5	10.8	8.2	8.3
Slovak Rep.	GDP	n.a.	6.1	4.2	3.7	3.4	3.1	2.8	n.a.	n.a.
	TT	n.a.	22.2	16.1	15.1	14.7	14.1	13.8	n.a.	n.a.
Slovenia	GDP	n.a.	0.5	0.7	1.0	1.0	1.1	1.2	1.2	1.4
	TT	n.a.	2.3	3.1	4.1	3.9	4.3	4.8	5.0	5.5
Czech Rep.	GDP	n.a.	4.9	3.9	3.2	3.5	3.7	3.5	4.1	n.a.
	TT	n.a.	21.3	17.9	14.5	16.8	16.9	17.7	20.6	n.a.

¹⁾ Including local profit taxes and other taxes.

²⁾ Excluding social security contributions.

³⁾ GDP: Taxes as a percentage of GDP; TT: Taxes as a percentage of total taxes.

Source: Eurostat New Cronos; own calculations.

Moreover, no comprehensive long-term information is available on the development of EU countries' rules for the determination of taxable income. Devereux/Griffith/Klemm (2002) use only depreciation allowances as an indicator for the long-term development of the rules to define the tax base, thus neglecting all other elements within tax legislation which influence taxable profits.

Therefore their finding that depreciation allowances were restricted in the majority of EU countries between 1982 and 2001 (from which they conclude that tax bases were broadened in this period) actually does not allow the conclusion of a general application of tax-cuts-cum-base-broadening strategies. It must also be noted that the tax payments related to GDP and total taxes, respectively, do not only comprise corporate taxes but also all other taxes borne by corporations.⁵ Shrinking corporate tax revenues therefore could have been compensated by other taxes on profits or incomes of corporations.

Effective tax rates

An alternative measure for the development of the corporate tax burden are effective corporate tax rates. The past 25 years have witnessed the elaboration and refinement of a broad range of methodologies to measure effective corporate taxation: Effective in the sense that the statutory tax rate as well as the rules to determine the tax base are accounted for.⁶ Basically two methodological approaches to determine effective corporate tax rates can be distinguished: Forward-looking and backward-looking effective tax rates.

⁵ The data provided by Eurostat do not allow a more detailed breakdown of the category "taxes on income or profits of corporations". This breakdown is possible for the data provided by the OECD's "Revenue Statistics"; which however only include four accession countries. The general trends showing in the Eurostat data also can be detected in the OECD data, however.

⁶ See Schratzenstaller (2003) for an overview over recent studies on effective corporate tax rates in the EU-15 and their results.

Forward-looking indicators measure the tax burden of a model investment project or of a model firm based on the existing tax code.⁷

Table 3: EMTR and EATR for EU-15 countries in %

Country	EMTR						EATR			
	BM		EC (2001)		DGK (2002)		EC (2001)		DGK (2002)	
	(1999)	(2001)	1999	2001	1982	2003	1999	2001	1982	2003
Belgium	23.5	17.2	22.4	22.4	31.0	22.0	34.5	34.5	39.0	29.0
Denmark	22.8	19.8	21.9	21.6	n.a.	n.a.	28.8	27.3	n.a.	n.a.
Germany	37.0	23.8	31.0	26.1	47.0	30.0	39.1	34.9	56.0	35.0
Finland	18.1	18.6	19.9	21.3	43.0	20.0	25.5	26.6	53.0	25.0
France	40.7	36.8	33.2	31.8	26.0	22.0	37.5	34.7	41.0	29.0
Greece	13.7	4.9	18.2	16.9	33.0	13.0	29.6	28.0	39.0	26.0
Great Brit.	22.3	23.4	24.7	24.8	0.0	20.0	28.2	28.3	36.0	26.0
Ireland	22.3	10.6	11.7	11.7	0.0	10.0	10.5	10.5	6.0	11.0
Italy	17.7	11.5	-4.1	-15.9	18.0	20.0	29.8	27.6	30.0	31.0
Luxembourg	23.5	17.1	20.7	20.7	n.a.	n.a.	32.2	32.2	n.a.	n.a.
Netherlands	23.2	19.9	22.6	22.7	35.0	24.0	31.0	31.0	43.0	30.0
Austria	27.0	20.4	20.9	12.6	25.0	17.0	29.8	27.9	50.0	27.0
Portugal	22.5	16.6	22.5	21.0	48.0	19.0	32.6	30.7	52.0	27.0
Sweden	17.2	15.5	14.3	14.3	43.0	16.0	22.9	22.9	54.0	23.0
Spain	32.8	16.6	22.8	22.8	23.0	21.0	31.0	31.0	29.0	29.0
<i>Average</i>	<i>24.3</i>	<i>18.2</i>	<i>20.2</i>	<i>18.3</i>	<i>28.6</i>	<i>19.5</i>	<i>29.5</i>	<i>28.5</i>	<i>40.6</i>	<i>24.8</i>

Sources: Baker&McKenzie (BM; 1998 and 2001); European Commission (EC; 2001); Devereux/Griffith/Klemm (DGK; 2002); own calculations.

Several recent studies show that effective average tax rates (EATR) as well as effective marginal tax rates (EMTR) have declined over time in most of the old EU member countries,

⁷ See e.g. Jacobs/Spengel (2001) for the model firm approach and European Commission (2001) for the methodology to calculate effective average and marginal tax rates.

although cross-country differences are still remarkable (see table 3). According to the calculations done by Devereux/Griffith/Klemm (2002) for 13 EU countries, EATR and EMTR fell in almost all countries between 1982 and 2003. The same trend – albeit for a much shorter time period – is identified by Baker&McKenzie (1999 and 2001), comparing the EU-15 countries' EMTR in 1998 and 2001, and by the European Commission (2001) for member countries' EMTR and EATR for 1999 and 2001.

Jacobs et al. (2003) determine EATR for the ten accession countries for 2003 (see table 4).

Table 4: EATR for EU accession countries in 2003 in %

Country	EATR without tax incentives	EATR with tax incentives
Cyprus	16.74	15.13
Czech Republic	31.86	21.11
Estonia	24.57	13.62
Hungary	24.85	22.70
Latvia	23.36	15.35
Lithuania	15.36	9.57
Malta	34.65	25.36
Poland	29.84	29.08
Slovak Republic	27.39	17.24
Slovenia	33.42	31.63
<i>Average</i>	<i>26.2</i>	<i>20.1</i>

Source: Jacobs et al. (2003).

Most interestingly, the EATR obtained are (as an average across all countries included) only slightly lower than those calculated by the European Commission (2001) and by Devereux/Griffith/Klemm (2002) for the old member states. The average EATR for all EU-15

countries is 28.5% in 2001 according to European Commission (2001) and 24.8% for 13 EU countries in 2003⁸ according to Devereux/Griffith/Klemm (2002): Compared to an average EATR of 26.2% in 2003 according to Jacobs et al. (2003) for the accession countries.

Only if special tax incentives (e.g. offered in special economic zones or exclusively to foreign investors) are taken into account, the EATR as an average across the accession countries is considerably lower (20.1%) than in the established EU countries.⁹

Forward-looking EMTR and EATR, however, cannot give any direct information on the development of the total corporate tax burden carried by the enterprise sector: Due to legal or illegal tax avoidance, discretionary administrative practices or the restrictive assumptions which underly forward-looking tax burden measures, actual tax payments can deviate considerably (Gorter/de Mooij 2001). Moreover, microeconomic effective tax rates on model investment projects or model firms are no adequate proxy for the total tax burden falling on the enterprise sector and thus for the quantitative importance of corporate taxes as a revenue source of public budgets.

Backward-looking measures are based on actual tax payments by firms. Microeconomic backward-looking measures relate firm tax payments to some measure of firm profit for a sample of firms to calculate effective average tax rates. Based on these microeconomic effective average tax rates conclusions on the actual tax burden borne by the whole enterprise sector in a given country can be drawn. Macroeconomic backward-looking tax burden indicators use data on total corporate tax payments and total corporate profits from national accounts.¹⁰

⁸ The calculations were updated using the methodology applied in Devereux/Griffith/Klemm (2002); see www.ifs.org.

⁹ These tax incentives have to be eliminated in the medium run according to the European Code of Conduct on Business Taxation as they are considered as unfair; this may trigger further cuts in regular corporate tax rates.

¹⁰ Also the tax ratios presented above are actually macroeconomic backward-looking measures.

Nicodème (2001) determines microeconomic effective average tax rates (ETR) for a sample of corporations for 11 EU countries¹¹ in the period from 1990 to 1999, where the average effective tax rate is defined as the ratio of tax paid on gross operating surplus (from individual financial statements). Whereas the average statutory tax rate for the countries included declines continuously, the ETR averaged across countries falls until 1993 and displays an upward trend from 1994 on. This trend holds for all countries regarded, if country-specific average ETR from 1990 to 1994 are compared with those from 1995 to 1999.

Gorter/de Mooij (2001), also using individual financial statements¹² and calculating average ETR for 14 EU-countries as the ratio of tax payments on pre-tax profits, derive more mixed results for the same period. In most countries average ETR 1990 to 1994 and 1995 to 1999 are quite stable. Few countries show a marked rise, others a considerable decrease of ETR.

These microeconomic effective tax rates are, however, of limited use for assessing the development of the total tax burden falling on an economy's enterprise sector. Apart from the problem of choosing the tax base to which tax payments should be related (i.e. whether gross operating profits or pre-tax profits are the adequate indicator for "true" firm profits), the results also depend on the sample of firms included and can vary significantly with firm size, branches, and the taxes included.

As more useful in this respect appear macroeconomic tax burden indicators as they include tax payments and profits of the whole enterprise sector of an economy. The OECD (2001) calculates – based on the methodology proposed by Mendoza/Razin/Sadka (1994) – so-called implicit corporate tax rates for ten EU-countries for the period from 1965 to 1996: Direct taxes and property taxes paid by corporations are related to the gross operating surplus of

¹¹ Nicodème uses data from the BACH-Database.

¹² These data are taken from the Worldscope Database.

corporations from national accounts. In most countries large fluctuations of implicit corporate tax rates can be observed in the 1980s and 1990s, and no overall development trend can be detected. Again, also these results are of limited use: The taxes included do not only comprise corporate taxes but also all other taxes paid by corporations, therefore implicit corporate tax rates are no accurate measure for the long term development of corporate taxes.

Thus it can be concluded that based on microeconomic effective tax rates as well as on macroeconomic implicit corporate tax rates, no conclusive answer can be given to the question whether public budgets in the old EU member states rely less on corporate taxes in the long run. For the new member countries, no research on backward looking effective tax rates has been done yet.

Despite of their shortcomings, corporate tax ratios seem to be the most meaningful measure among the corporate tax burden measures considered in this section. They are pointing at relatively stable corporate tax revenues for old and at decreasing corporate tax revenues in the new member states. This provides some justification for the recently expressed fears that the accession countries are eroding their corporate taxes by engaging in tax rate competition. It should also be noted, however, that possible budgetary restrictions resulting from decreasing corporate tax revenues should differ across countries: Their share in total taxes varies widely, ranging from only 3% in 2002 in Latvia and Lithuania to 20.6% in 2001 for the Czech Republic.

2.2 Structures of tax systems

At least until the end of the 1990s tax ratios as well as expenditure ratios tended to increase in the long run in the EU-15 countries (Joumard 2001; European Commission 2004), a development which contradicts the prediction of a negative influence of international tax

competition on government revenues made by several authors in the 1990s.¹³ Another possible implication of the basic tax competition model, however, is that instead of depressing overall tax revenues, tax competition for mobile capital could lead to changes in the composition of the overall tax burden.

Also this expectation cannot be confirmed on the basis of the available data. From the tax ratios presented above it cannot be concluded that corporate tax rates have been losing in importance within public revenues. The European Commission (2003) calculates implicit tax ratios on capital, consumption and labor and finds that between 1995 and 2001 the implicit tax ratio on labor and consumption, but also on capital on average slightly increased in the EU-15. Thus there is no clear evidence for a shift of the tax burden from mobile to immobile tax bases within the EU. Unfortunately no data are available for the accession countries.

3. Public investment and public debt

As another implication of the basic tax competition model is that international corporate tax competition causes the level of public services to fall, we first take a look at the long-term development of public investment ratios (public investment as a percentage of GDP) in the EU-15 and the accession countries, using public investment as a proxy for public services (see table 5). Public investment indeed declined in the EU-15 in the long run. The yearly average investment ratio in the EU-15 was 3.2% between 1971 and 1990. It went down to a yearly average of 2.7% from 1991 to 1995 and to 2.3% from 1996 to 2000. However, a slight increase to 2.5% is expected in 2005. Across member states, developments and levels of the public investment ratio vary. It must also be taken into account that since the beginning of the

¹³ See the literature cited in Genschel (2001).

1990s a number of EU-states have been outsourcing public enterprises which explains a part of the decrease in investment ratios.

Table 5: Public investment, as a percentage of GDP, EU-25, 1971 to 2005

Country	71-90	91-95	96-00	1999	2000	2001	2002	2003 ¹⁾	2004 ¹⁾	2005 ¹⁾
Belgium	3.6	1.5	1.7	1.8	1.8	1.6	1.6	1.6	1.6	1.7
Denmark	3.0	1.8	1.8	1.7	1.7	1.9	1.8	1.6	1.7	1.7
Germany	3.1	2.6	1.9	1.9	1.8	1.7	1.6	1.5	1.4	1.3
Finland	3.8	3.1	2.9	2.8	2.6	2.8	2.9	3.0	2.8	2.7
France	3.4	3.3	3.1	3.0	3.2	3.1	3.0	3.2	3.2	3.6
Greece	2.8	3.2	3.5	3.5	4.1	4.0	3.8	4.2	4.2	4.2
Great Britain	3.0	1.9	1.2	1.1	1.1	1.2	1.3	1.5	1.8	2.0
Ireland	3.9	2.2	2.9	3.2	3.7	4.5	4.3	3.9	3.9	3.9
Italy	3.2	2.7	2.3	2.4	2.4	2.5	1.9	2.6	2.5	2.8
Luxembourg	n.a.	4.7	4.4	4.4	3.8	4.2	4.8	4.9	4.8	4.8
Netherlands	2.9	2.2	3.0	3.0	3.1	3.2	3.3	3.5	3.4	3.3
Austria	4.3	3.2	2.0	1.7	1.5	1.2	1.3	1.2	1.2	1.1
Portugal	3.1	3.6	4.1	4.1	3.8	4.0	3.4	3.9	3.1	3.7
Sweden	3.9	2.5	3.2	3.2	2.9	3.1	3.3	3.1	3.0	2.9
Spain	2.9	4.1	3.2	3.4	3.1	3.3	3.4	3.5	3.5	3.6
EU-15	3.2	2.7	2.3	2.3	2.3	2.3	2.2	2.4	2.4	2.5
Estonia	n.a.	n.a.	4.6	4.5	3.8	4.1	4.9	4.7	4.5	4.3
Latvia	n.a.	2.4	2.5	3.3	3.0	2.8	3.3	2.4	2.3	2.2
Lithuania	n.a.	n.a.	2.5	2.6	2.4	2.2	2.9	2.9	3.2	3.2
Malta	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	5.1	5.1	4.9
Poland	n.a.	3.2	3.7	3.5	3.5	3.5	3.5	3.5	3.5	3.7
Slowak Rep.	n.a.	n.a.	3.8	2.9	2.8	3.1	3.3	3.0	2.7	2.5
Slowenia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3.0	3.1	3.1
Czech Republic	n.a.	n.a.	4.6	4.1	2.8	3.4	4.4	4.4	4.4	4.4
Hungary	n.a.	n.a.	n.a.	n.a.	n.a.	3.8	4.9	3.2	4.5	4.6
Cyprus	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0	0.0
AC-10	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3.1	3.1	3.1

¹⁾ Estimations.

Source: European Commission (2004).

The scarce data available for the accession countries show a declining trend of the public investment ratios for the majority of these countries. Theoretical and empirical work points at

a positive role of infrastructure investment for economic growth (e.g. Aschauer 1989; Gramlich 1994; Easterly/Rebelo 1995). Thus falling public investment ratios in the accession countries which still have considerable deficits in public infrastructure (e.g. PriceWaterhouseCoopers 2002) may hamper the catch-up process.

Even stable or increasing investment ratios, however, do not necessarily imply that international tax competition has not influenced public budgets: Corporate tax losses could have also been compensated by debt-financing of public services, which would be reflected by public deficits (net lending as a percentage of GDP) and gross debt (as a percentage of GDP).

Tables 6 and 7 show that across the EU-15, public deficits as well as gross debt as a percentage of GDP fell markedly in the 1990s. After 2000 the consolidation of public budgets has come to a halt in most old member states. However, a more convincing explanation for the ending (or at least the interruption) of the European “success story” of budget consolidation than international corporate tax competition seems to be the weak economic growth in the past three years.

Table 6: Net Lending or Net Borrowing, General Government, as a percentage of GDP, EU-25, 1970 to 2005

Country	70-90	91-95	96-00	1999	2000	2001	2002	2003 ¹⁾	2004 ¹⁾	2005 ¹⁾
Belgium	-6.8	-5.9	-1.3	-0.4	0.2	0.5	0.1	0.2	-0.5	-0.7
Denmark	-0.5	-2.4	1.3	3.3	2.6	3.1	1.7	1.5	1.1	1.5
Germany	-1.9	-3.1	-1.7	-1.5	1.3	-2.8	-3.5	-3.9	-3.6	-2.8
Finland	3.9	-5.0	1.3	2.2	7.1	5.2	4.3	2.3	2.0	2.1
France	-1.2	-4.5	-2.6	-1.8	-1.4	-1.5	-3.2	-4.1	-3.7	-3.6
Greece	-5.7	-11.5	-3.5	-1.8	-2.0	-1.4	-1.4	-3.0	-3.2	-2.8
Great Britain	-2.2	-5.7	-0.3	1.1	3.9	0.7	-1.6	-3.2	-2.8	-2.6
Ireland	-7.7	-2.1	2.0	2.4	4.4	1.1	-0.2	0.2	-0.8	-1.0
Italy	-9.1	-9.1	-3.1	-1.7	-0.6	-2.6	-2.3	-2.4	-3.2	-4.0
Luxembourg	n.a.	1.7	3.7	3.7	6.3	6.3	2.7	-0.1	-2.0	-2.3
Netherlands	-3.2	-3.5	-0.2	0.7	2.2	0.0	-1.9	-3.2	-3.5	-3.3
Austria	-1.8	-3.8	-2.4	-2.3	-1.5	0.2	-0.2	-1.1	-1.1	-1.9
Portugal	-4.6	-5.2	-3.4	-2.8	-2.8	-4.4	-2.7	-2.8	-3.4	-3.8
Sweden	0.6	-7.3	1.1	2.5	5.1	2.8	0.0	0.7	0.2	0.7
Spain	-2.4	-5.6	-2.6	-1.2	-0.9	-0.4	0.0	0.3	0.4	0.6
EU-15	-2.9	-5.1	-1.6	-0.7	1.0	-1.0	-2.0	-2.6	-2.6	-2.4
Estonia	n.a.	n.a.	-1.0	-2.8	-0.3	0.3	1.8	2.6	0.7	0.0
Latvia	n.a.	0.9	-1.5	-5.3	-2.7	-1.6	-2.7	-1.8	-2.2	-2.0
Lithuania	n.a.	n.a.	-3.2	-5.7	-2.6	-2.1	-1.4	-1.7	-2.8	-2.6
Malta	n.a.	n.a.	n.a.	n.a.	-6.5	-6.4	-5.7	-9.7	-5.9	-4.5
Poland	n.a.	-3.3	-2.2	-1.9	-1.8	-3.5	-3.6	-4.1	-6.0	-4.5
Slowak Rep.	n.a.	n.a.	-7.4	-7.1	-12.3	-6.0	-5.7	-3.6	-4.1	-3.9
Slowenia	n.a.	n.a.	n.a.	n.a.	-3.0	-2.7	-1.9	-1.8	-1.7	-1.8
Czech Republic	n.a.	n.a.	-3.4	-3.7	-4.5	-6.4	-6.4	-12.9	-5.9	-5.1
Hungary	n.a.	n.a.	n.a.	n.a.	-3.0	-4.4	-9.3	-5.9	-4.9	-4.3
Cyprus	n.a.	n.a.	n.a.	n.a.	-2.4	-2.4	-4.6	-6.3	-4.6	-4.1
AC-10	n.a.	n.a.	n.a.	n.a.	-3.2	-4.1	-4.9	-5.7	-5.0	-4.2

¹⁾ Estimations.

Source: European Commission (2004).

In the accession countries public deficits and gross debt will increase on average between 2000 and 2003 (in most countries for which data are available also in comparison to the preceding years). A reduction of net lending is expected for 2004 and 2005 whereas gross debt will continue to grow. This may be taken as evidence that tax losses due to corporate tax

cuts were compensated by increasing public debt. It should be noted, however, that gross debt for the average of the accession countries is about 20 percentage points below the average of the EU-15.

Table 7: Gross Debt, General Government, as a percentage of GDP, EU-25, 1990 to 2005

Country	1990	1999	2000	2001	2002	2003¹⁾	2004¹⁾	2005¹⁾
Belgium	129.2	114.8	109.1	108.1	105.8	100.5	97.4	94.3
Denmark	57.8	53.0	50.1	47.8	47.2	45.0	42.3	40.0
Germany	42.3	61.2	60.2	59.4	60.8	64.2	65.6	66.1
Finland	14.2	47.0	44.6	43.9	42.6	45.3	44.5	44.3
France	35.1	58.5	57.2	56.8	58.6	63.0	64.6	65.6
Greece	79.6	105.2	106.2	106.9	104.7	103.0	102.8	101.7
Great Britain	34.0	45.0	42.1	38.9	38.5	39.9	40.1	40.6
Ireland	94.2	48.6	38.4	36.1	32.3	32.0	32.4	32.6
Italy	97.2	115.5	111.2	110.6	108.0	106.2	106.0	106.0
Luxembourg	5.4	6.0	5.5	5.5	5.7	4.9	4.5	3.8
Netherlands	76.9	63.1	55.9	52.9	52.6	54.8	56.3	58.6
Austria	57.2	67.5	67.0	67.1	66.6	65.0	65.5	65.3
Portugal	58.3	54.3	53.3	55.6	58.1	59.4	60.7	62.0
Sweden	42.0	62.8	52.8	54.4	52.6	51.9	51.8	50.5
Spain	43.6	63.1	61.2	57.5	54.6	50.8	48.0	45.1
<i>EU-15</i>	<i>53.7</i>	<i>67.8</i>	<i>64.0</i>	<i>63.2</i>	<i>62.5</i>	<i>64.0</i>	<i>64.2</i>	<i>64.2</i>
Estonia	n.a.	6.5	5.0	4.7	5.7	5.8	5.4	5.3
Latvia	n.a.	13.7	13.9	16.2	15.5	15.6	16.0	16.1
Lithuania	n.a.	23.4	24.3	23.4	22.8	21.9	22.8	23.2
Malta	n.a.	60.8	57.1	61.8	61.7	72.0	73.9	75.9
Poland	n.a.	40.3	36.6	36.7	41.2	45.4	49.1	50.3
Slowak Rep.	n.a.	43.8	49.9	48.7	43.3	42.8	45.1	46.1
Slowenia	n.a.	25.1	26.7	26.9	27.8	27.1	28.3	28.2
Czech Republic	n.a.	14.3	18.2	25.2	28.9	37.6	40.6	42.4
Hungary	n.a.	61.2	55.4	53.5	57.1	59.0	58.7	58.0
Cyprus	n.a.	62.0	61.7	64.4	67.1	72.2	74.6	76.9
<i>AC-10</i>	<i>n.a.</i>	<i>38.1</i>	<i>36.4</i>	<i>38.5</i>	<i>39.4</i>	<i>42.2</i>	<i>44.4</i>	<i>45.2</i>

¹⁾ Estimations.

Source: European Commission (2004).

4. International corporate tax competition between heterogeneous (clubs of) countries

The preceding section shows that international corporate tax competition within the old EU seems to have had no clear-cut results with respect to the quantitative importance of corporate tax revenues up to now. Whereas forward-looking measures of the effective corporate tax burden tend to decrease in the EU-15, microeconomic and macroeconomic backward-looking corporate tax burden measures do not show an unambiguous declining trend. Based on these measures the hypothesis of a race to the bottom within corporate taxation cannot be confirmed. Also the data on the structures of tax system do not yield conclusive evidence for a shift of the tax burden from mobile to immobile tax bases.

Public investment (as a proxy for public services provided by the government) declined somewhat in the second half of the 1990s compared to the first half of this decade for the EU-15 altogether, although developments in individual member countries vary. It is however expected to pick up again or at least to remain stable between 2000 and 2005 in the EU-15 altogether and in most individual member countries. The worsening of the budget position that can be observed in the majority of member states since 2000 – after a decade of remarkable consolidation success – is attributable to weak economic growth mainly rather than to international corporate tax competition.

Looking at the new member countries, the picture is somewhat different. The few available empirical results indicate that the corporate tax burden in the accession countries is already relatively low and may decline in the future. Given the on average high levels of budget deficits which call for future efforts to consolidate public budgets, this may imply that the accession countries's specific spending needs (above all in the field of public investment, where a tendency of cut-backs is already observable) cannot be sufficiently met in the future.

This section focuses on several questions. First, can corporate tax rate differentials be an effective means for the accession countries to attract foreign (direct) investment and thus to support the catch-up process towards the established EU member countries? Second, can the existing tax rate differentials between old and new member countries be sustained, or will corporate tax competition lead to the convergence of corporate tax rates between the two country clubs? The third question which is interrelated with the second one is whether countries can maintain a level of corporate income taxation which allows them to provide a desired level of public services. As in the basic tax competition model, no consideration is given to possible effects of international fiscal competition on the composition of public expenditures in this paper¹⁴; although this question is worthwhile to be investigated further with respect to the enlargement of the EU.

Based on the basic tax competition model as outlined in section 1 of this paper the second and third question would have to be answered in the negative, and as a consequence also the first question: Corporate taxes would disappear in the long run or at least converge downwards, leaving no room for individual EU member states to uphold above-average corporate tax rates. Therefore, as the European Growth and Stability Pact imposes considerable restrictions concerning the option to finance public services through debt, member countries would be forced to cut expenditures for public services. Moreover, within this theoretical framework the downward pressure on tax rates and levels of public services increases with the number of competing jurisdictions (Hoyt 1991): Consequently the EU eastern enlargement which increases the number of competing jurisdictions considerably would accelerate the race to the bottom of corporate tax rates predicted by the basic tax competition model.

¹⁴ Interesting theoretical work in this field was done by Keen/Marchand (1997) or Matsumoto (2000). Given the current discussion on “productive” versus “unproductive” public expenditures in the context of the achievement of “sound public finances” in the EU, the relation between international fiscal competition and the composition of public expenditures certainly merits further consideration.

This model rests on rather strong assumptions, however (see section 1). For the case of the enlarged EU, particularly three extensions of the basic tax competition model are relevant which take into account that several assumptions underlying the basic tax competition model do not hold in this specific case and which change its predictions with respect to the the working of corporate tax competition itself and its effects on the levels of corporate taxation and public services provided:¹⁵ (1) jurisdictions of different size; (2) the existence of agglomeration economies; and (3) imperfectly mobile capital. The following considerations draw mainly on the paper by Zodrow (2003), who, however, does not apply the implications of the extensions of the basic tax competition model to the enlarged EU.

4.1 Size differentials between countries

The basic tax competition model assumes a large number of jurisdictions which are identical in size. The reality in the enlarged EU, however, is characterized by a twofold asymmetry concerning the competing jurisdictions' size: First, and most obvious, individual member states' sizes differ largely with respect to GDP and population. Several new member states (the Baltic States as well as Malta and Cyprus) are particularly small and increase country size differentials in the EU considerably. Second, the club of old member states and the club of new member states can be conceived as a large jurisdiction competing against a small one via corporate taxes, as the EU-15's total population and even more its overall GDP exceed those of the accession countries considerably.

In contrast to large countries, small countries cannot influence the international after-tax rate of return to capital through their corporate taxes but have to take it as fixed. This in turn

¹⁵ See Zodrow (2001 and 2003) for the extensions of the basic tax competition model and their implications considered in this section and for a number of additional extensions which will not be regarded in this paper.

implies a higher elasticity of the tax base in small countries as a tax-induced reduction of the national after-tax rate must be compensated by an increase of the before-tax rate, brought about by capital outflows (Krogstrup 2002). Therefore possible outflows of capital as a reaction to corporate taxation are a larger concern for small than for large countries (Bucovetsky 1991; Wilson 1991). Consequently small countries choose lower corporate tax rates compared to large countries. All other things equal, this would also imply lower levels of public services in small countries.

In turn this also means that due the higher tax base elasticity small countries are facing tax rate reductions cause a larger inflow of capital. From this perspective undercutting the large countries' corporate tax rate can be an effective instrument to support the catch-up process by increasing the inflow of FDI. Furthermore, due to their smallness tax rate reductions effected by these countries will have relatively little effect on the large countries. Therefore the probability that the large countries cut their corporate tax rates as a reaction to the small countries' tax rate reductions is low; tax rate differentials thus will be sustainable.

These theoretical results may explain why statutory corporate tax rates in the large EU-15 states and - with some exceptions – also effective corporate tax rates tend to be larger or at least not smaller than the average rate, while a number of small countries are below average, an observation that can be made also in the majority of the small accession countries. Interesting in this respect is recent empirical work done by Grubert (2001) who studies the development of effective tax rates on US FDI for 60 countries between 1984 and 1992 and finds that effective tax rates in small, open, and poor countries declined to a larger extent compared to developed countries. Also Slemrod (2004) finds a positive correlation between tax ratios (corporate tax revenues as a percentage of GDP) and country size.

The different overall size of the two country clubs forming the enlarged EU – the old member states and the new member states – may be one factor to prevent the complete elimination of the existing tax rate differential: Which simultaneously could result in lower levels of public services and/or higher public debt in the club of new member countries.

However with regard to the two clubs (old and new member states) these conclusions apply only to a certain degree, as the size differential between old and new member countries certainly is not sufficiently large to correspond to the standard theoretical distinction of small and large countries. Within the two country clubs size differentials are of greater relevance. This implies that existing corporate tax rate differentials across new member countries will probably be even more stable than the tax rate differential between the group of the old and the group of the new member countries. Second, the small accession countries will have greater chances to attract foreign capital by tax rate reductions than the larger ones.

4.2 Agglomeration economies

In the last few years several papers have analyzed tax competition from a different theoretical perspective which builds on the framework of the new economic geography.¹⁶ Incorporating trade costs in a model of international tax competition between countries of different size for foreign direct investment (FDI) which capture agglomeration effects, Haufler/Wooton (1999) show that although the large country sets a higher tax rate, it wins the competition for FDI as there is an incentive for firms to choose the larger market as location.

Baldwin/Krugman (2004) set out to explore the persistence of international corporate tax rate differentials in the European Union. In their model, the competing jurisdictions differ with respect to the degree of industrialization: Simply put, there is a core country or a core group

¹⁶ See Krogstrup (2002) for a review of papers arguing from a new economic geography perspective.

of countries where agglomeration economies exist, and a peripheral country or a peripheral group of countries with no (or lower) agglomeration rents. Agglomeration rents enable the core (within certain limits) to raise higher corporate taxes than the periphery without risking to drive capital abroad, as capital becomes a quasi-fixed factor. Borck/Pflueger (2004) show that this result does not only hold for the extreme case in which industry completely concentrates in the core, but also for partial agglomeration.

Applied to the enlarged EU where the old member countries can be viewed as the core and the new member countries as the periphery, this implies the sustainability of a certain tax rate differential as long as the peripheral accession countries have not caught up to the established member states, i.e. cannot offer agglomeration rents of the same size to investors. Furthermore agglomeration effects decrease the effectiveness of international corporate tax competition as they restrict the cross-border mobility of capital.

4.3 Imperfectly mobile capital

International corporate tax competition can only take place if there are no political and technical restrictions for cross-border movements of corporate capital and if investment is sensitive to corporate taxes, i.e. if cross-country tax rate differentials induce capital movements (Krogstrup 2004). The first condition is fulfilled in the enlarged EU where free movement of capital is given. There is also empirical evidence for a certain sensitivity of FDI towards international tax differentials, although the results for the magnitude of the correlation between tax rate differentials and FDI obtained in empirical studies lie within a broad range.¹⁷

¹⁷ For recent empirical results see e.g. Hines (1999), de Mooij/Ederveen (2003), Gorter/Parikh (2003), and Mutti/Grubert (2004).

Despite the absence of technical and political barriers for international capital mobility, it can be assumed that the mobility of FDI between old and new member countries in effect is limited. One explanatory factor can be the agglomeration forces already mentioned. Location-specific rents, particularly rents created by public inputs provided for firms (e.g. Haufler 1998), are another factor which allow the taxation of mobile investment and the sustainability of international corporate tax rate differentials and in turn limit the options of countries with no or lower location-specific rents to attract FDI by lowering corporate tax rates.

Given the prevailing deficits in public infrastructure in the accession countries, location-specific rents based on public services should be higher in the old member countries, allowing for higher corporate tax rates compared to the new member states. From this perspective, the lower corporate tax rates offered by the accession countries can be viewed rather as a “tax rebate” compensating for lower levels of public services and lower levels of location-specific rents, respectively, than as an effective measure for attracting additional capital.

At the same time a strategy of undercutting the old EU countries’ corporate tax rates cannot be expected to be successful because location-specific rents prevailing in the old member countries reduce the sensitivity of FDI towards tax rate differentials. If the accession countries nevertheless lower their corporate tax rates further, they may be forced to cut public expenditures which prevents them from the creation of own location-specific rents or entails the reduction of already existing ones. A slowdown of the catch-up process could be the result.

To sum up, it is probable that the existing tax rate differentials between old and new member countries will prevail also in the future. Whether further tax rate reductions by the new member states can be an effective means to attract additional foreign capital is questionable, taking into account agglomeration forces and location-specific rents working in favor of the

old member states. However, these general results have to be differentiated: For small accession countries there is some scope to successfully engage in corporate tax competition.

5. Proposed reforms of the taxation of corporate income in the EU

The political debate whether – and if so, how – corporate taxes should be harmonized in the EU has been going on for several decades. Initially, the debate had concentrated on the potential need to harmonize regular company taxation schemes under the condition of increasingly integrating capital markets within the EU. Repeatedly the European Commission launched harmonization initiatives which were supported by scientific expertises departing from the assumption that liberalized and open capital markets trigger unbridled tax competition with potentially harmful economic effects (Patterson 2001): The "Neumark-Report" (1962), the "Tempel-Report" (1970), and the report presented by the "Ruding Committee" in 1992 (Ruding Committee 1992). In 1975 the European Commission put forward a proposal for a directive on the harmonization of corporate tax systems which aimed at the introduction of partial imputation systems and corporate income tax rates between 45 and 55%, but was drawn back in 1990. The latest suggestion concerning the harmonization of company systems was presented in 1992 by the Ruding Committee. It proposed a minimum statutory tax rate between 30 and 40% as well as the harmonization of the tax base.

However, no consensus on the necessity, the extent and the mode of harmonization of national corporate tax systems could be reached among member states. During the 1990s there were hardly any discussions on a comprehensive harmonization of European corporate tax systems, and the focus of the debate gradually shifted away from a comprehensive harmonization approach. Meanwhile, "unfair" tax competition via preferential tax regimes (i.e. tax privileges which are exclusively granted to foreign investors and which often do not

require real economic activities) has emerged as one of the primary concerns of the European Commission (European Commission 1997 and 2001a). The second objective of the European Commission's latest harmonization efforts is to remove tax obstacles to cross-border activities of multinational companies to realize full and unhindered capital mobility.

In its report of 2001 (European Commission 2001b), the European Commission lists four harmonization concepts, two compulsory and two optional ones. Only one of these concepts – the European Corporate Income Tax (EUCIT) – includes a common tax base as well as a single EU-wide tax rate. The other three concepts – the "Compulsory Harmonized Tax Base", optional "Home State Taxation" (HST) and optional "Common Consolidated Base Taxation" (CCBT) – aim exclusively at the harmonization of the tax base. The theoretical and political discussion following the European Commission's report mainly concentrated on the two optional harmonization concepts (which go under the headline "Optional European Consolidated Company Tax"), because compulsory harmonization concepts – especially if they involve a harmonized corporate tax rate – do not seem to have a realistic chance of implementation due to political resistance by the majority of member states. Since the publication of the European Commission's report most progress has been achieved concerning the HST project: The European Commission plans to present some form of recommendation on the introduction of a pilot scheme by the end of 2004. As after the release of the report the European Commission also explicitly stressed that the right to set statutory corporate tax rates should be completely left to the member states themselves, the introduction of a common corporate income tax rate almost completely vanished from the political agenda in the past few years.

Most recently, however, the accession of the new EU member countries inspired demands for the introduction of a minimum corporate tax rate by several old member states (most

prominently France and Germany) who fear that the on average low tax rates offered by the new member states will put their own corporate tax rates under pressure.

This section provides a short discussion of the harmonization proposals suggested by the European Commission in 2001 as well as the revitalized proposal to harmonize statutory tax rates, taking into account the implications of the extensions of the basic tax competition model in the context of the enlarged EU derived in the preceding section.

5.1 A harmonized corporate tax rate

The central conclusion from the modifications of the basic tax competition model considered above is that it is neither necessary nor advisable to introduce a harmonized corporate tax rate in the EU-25.

From the perspective of the old member countries their altogether larger size as well as agglomeration economies and other location-specific rents (particularly a higher level of public services provided by governments) allow it to maintain higher corporate tax levels in comparison to the accession countries. Based on the arguments considered above, fears concerning an increased downward pressure on old member countries' corporate taxes triggered by the lower tax rates offered by the new member countries do not appear to be substantiated. Moreover, a harmonized corporate tax rate would probably have to be set somewhat between the average tax rate of the old and that of the new member countries, therefore forcing a number of established member countries to lower their corporate tax rate: Thus they may end up with insufficiently low levels of public services (Zodrow 2003). Alternatively they may be forced to increase public debt or to increase the tax burden on immobile factors.

For many new member countries a harmonized tax rate would mean that they have to raise their corporate tax rates. This would preclude the option to compensate for existing disadvantages with respect to many other locational factors by offering tax rebates to foreign investors (Wilson/Wildasin 2004). Therefore the accession countries should be allowed to set their corporate tax rates at lower levels.

A harmonization of the corporate tax rate which is not accompanied by a harmonized tax base will have further undesirable economic effects. On the one hand such a harmonization design would provide incentives for the old member states to broaden the corporate tax base to recover tax losses suffered by lowering the corporate tax rate to the harmonized level. The accession countries on the other hand could be induced to change their rules to determine the tax base into the opposite direction, by offering more generous rules. Thus the EU-25 would end up with an increased diversification of tax codes, adding to the already existing intransparencies and complexities and causing additional compliance and enforcement costs.

5.2 Optional corporate tax base harmonization: European Consolidated Company Tax

Under the HST system, multinational companies could optionally calculate the tax base for all their EU operations according to the tax code of the member states where their headquarters are located (the home state). Under the CCBT system, common rules for a consolidated tax base would be established which would be adopted by all member states and which could be optionally applied by multinational enterprises to determine their taxable profits.¹⁸ In both systems the total taxable profit would be allocated to the jurisdictions in which operations are located according to a formula (which could include property, wages, turnover, and the value

¹⁸ For a more detailed exposition of the two concepts see e.g. Lannoo/Levin (2002).

added in the jurisdictions involved).¹⁹ The apportioned profits would then be taxed at the national corporate tax rate.

A number of economists welcome the efforts made by the European Commission to arrive at a harmonized corporate tax base in the EU, because tax base harmonization reduces intransparencies and thus compliance costs. Their case is certainly strengthened by the EU enlargement as now multinationals operating in the EU have to deal with ten more corporate tax systems. Moreover the harmonization of the tax base would make the determination of the effective corporate tax burden significantly easier. It is obvious, however, that by making the systems optional the overall complexity and intransparency of corporate taxation in the EU is increased rather than decreased because the 25 different corporate tax systems would continue to exist besides HST or CCBT.

The suggested formula apportionment of profits to the member states involved in the operations of multinationals gains in appeal with the enlargement, particularly if the diversity of statutory tax rates is maintained. Tax rate differentials provide an incentive to shift taxable incomes (through the use of transfer pricing or thin capitalization) from high-tax to low-tax countries (Devereux/Griffith/Klemm 2002). In the case of the EU-25 this would hurt the EU-15 countries with their on average have high corporate tax rates and high levels of public services if profit shifting forces them to decrease the tax rate differentials and therefore also public spending. At the same time formula apportionment is an adequate way to realize the pay-as-you-use-principle: Taxable profits are allocated to the jurisdictions where they are earned by multinationals using public services, which would benefit both old and new member states.

¹⁹ Weiner (2002) gives a detailed explanation of formula apportionment. For a critical discussion of formula apportionment see Hellerstein/McLure (2004) and the literature cited herein.

6. Some tentative conclusions

Given the existing economic divergencies between old and new member countries, the existing corporate tax rate differentials can be expected to prevail for some more time. The established EU countries will be able to maintain their on average comparatively high corporate tax rates even after the accession of ten countries offering on average considerably lower corporate tax rates. This is good news for the EU-15 countries, as it implies that the current levels of corporate taxation and public services are not put under increased pressure by the new member states. It is bad news for the acceding countries which may not be able to satisfy their spending needs through increasing the tax burden on enterprises. This stresses the necessity of subsidies for the accession countries to compensate for possible negative effects of too low corporate tax rates on public spending (Wildasin 1989). Moreover, the considerations presented in this paper support the current harmonization strategy followed by the European Commission, aiming at the harmonization of corporate tax bases (although, not of corporate tax rates).

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