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Alfred Boss\*

## Tax Competition and Tax Revenues

*It is often feared that tax competition might lead to a “race to the bottom” and that the consequence of a reduction in tax rates on capital income would be shrinking capital income tax revenues and difficulties for national governments to perform their usual tasks. The following paper analyses what happened to tax revenues in a number of OECD countries. It turns out that taxes on capital income contribute to the financing of public expenditure to a more or less unchanged extent; nor are there significant changes in the level and structure of total tax revenues.*

In view of the increased mobility of capital it is often argued that capital income tax rates tend to be reduced to zero by national governments acting independently of one another. Due to a “race to the bottom” taxes on capital income might no longer contribute sufficiently to the financing of public expenditure and it might become difficult or even impossible for governments to perform their usual tasks. An undersupply of public goods and/or an erosion of the welfare state are feared to be the outcome of tax competition. At the very least, the tax burden might be shifted away from highly mobile capital towards immobile factors such as labour; this would raise labour costs and impede the reduction of unemployment especially in Western Europe. The harmonisation of tax rates is thought to be the remedy.

In the following it will be investigated whether tax competition has led to a reduction in corporate income tax rates in the EU and in certain other countries, whether it has reduced the level of income tax revenues and whether it has affected the structure of income tax revenues. The analysis is based mainly on OECD data.

### Corporate Income Tax Rates and Revenues

Reductions in corporate income tax rates in the EU and in many other countries have been taking place for more than 20 years and the process has gained momentum recently. In 2005, the maximum tax rate in the EU is about 35 per cent, while it was much higher in the second half of the 1990s (cf. Table 1).

In order to investigate whether tax competition affected governments' ability to finance the production

or provision of public goods and/or to pursue redistribution policies, it is sufficient to look at the development of corporate income tax revenues in relation to GDP. The development of these tax revenues was very different from the development of the corporate tax rates. Taxes on corporate income in relation to GDP increased in a majority of countries and in the EU as a whole up to 2000 (cf. Table 2). Only recently has the ratio declined marginally on average. Apparently the tax bases have been broadened significantly. This has happened through the abolishing of tax expenditures, the reduction of generous depreciation allowances etc. The policy is generally described as “tax-cut-cum-base-broadening”.<sup>1</sup> With respect to taxes on corporate income it is hard to see anything resembling a “race to the bottom”.

However, it is argued that the figures on tax revenues in single countries possibly conceal what is going on with respect to tax competition. The figures on the tax ratios might be distorted because of an increased share of corporate profits in nominal GDP (i.e. a change in income distribution in favour of capital income, especially corporate profits). Cyclical influences could be one reason for such distortions; changes in the structure of firms with respect to their legal status could be another. In addition, transfer price-setting by multinationals (in such a way that taxable profits increase in low tax countries) may have prevented a decline in the ratio of corporate income tax revenues

<sup>1</sup> Cf. Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung: Erfolge im Ausland – Herausforderung im Inland, Jahresgutachten 2004/05, Wiesbaden 2004, text number 770. If tax competition had been the driving force behind the development, it would have proved to be a blessing. Lower tax rates and a broader tax base are advantageous because the welfare cost of taxation is smaller under such circumstances.

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## CORPORATE INCOME TAX

**Table 1**  
**Corporate Income Tax Rates for Retained Earnings in Selected Countries**  
(per cent)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Belgium	40.17	40.17	40.17	40.17	40.17	40.17	40.17	34	34	34
Germany <sup>a</sup>	48.38	48.38	47.47	42.20	42.20	26.38	26.38	27.96	26.38	26.38
Denmark	34	34	34	32	32	30	30	30	30	28
Spain	35	35	35	35	35	35	35	35	35	35
France	36.66	36.66	36.66	36.66	37.77	36.43	35.4	35.4	35.4	35
Greece	35	35	35	35	35	35	35	35	35	32
Italy	53.2	53.2	41.25	41.25	37 <sup>b</sup>	36 <sup>b</sup>	36 <sup>b</sup>	34 <sup>b</sup>	33 <sup>b</sup>	33 <sup>b</sup>
Ireland	38	36	32	28	24	20	16	12.5	12.5	12.5
Luxembourg	34.32	33.28	31.2	31.2	31.2	31.2	30.4	30.4	30.4	30.4
Netherlands	35	35	35	35	35	35	34.5	34.5	34.5	31.5
Portugal <sup>c</sup>	36	36	34	34	32	32	30	30	25	25
United Kingdom	33	31	31	30	30	30	30	30	30	30
Austria	34	34	34	34	34	34	34	34	34	25
Sweden	28	28	28	28	28	28	28	28	28	28
Finland	28	28	28	28	29	29	29	29	29	26
Norway	28	28	28	28	28	28	28	28	28	28
Japan	43.98	43.98	43.98	35.19	35.19	35.19	35.19	35.19	30	30
USA <sup>d</sup>	40.8	40.8	40.8	40.8	40.8	40.8	39.9	39.9	39.9	39.9

<sup>a</sup> Including solidarity surcharge; excluding the "Gewerbesteuer", a specific tax on profits (and parts of the interest paid by firms).

<sup>b</sup> Without local tax on the value added.

<sup>c</sup> Without local surcharge.

<sup>d</sup> New York.

Sources: Bundesministerium der Finanzen: Informationsdienst zur Finanzpolitik des Auslands, Bonn, various issues; Bundesministerium der Finanzen: Die wichtigsten Steuern im internationalen Vergleich, Berlin 2002; Bundesministerium der Finanzen: Die wichtigsten Steuern im internationalen Vergleich, Berlin 2004; DATEV: Tabellen und Informationen für den steuerlichen Berater, Nuremberg, various issues.

to GDP in low tax countries — a decline that would otherwise have resulted from tax rate cuts.

In order to investigate whether the degree of capacity utilisation influences the ratio of taxes on corporate income to GDP, the situation for each country has to be analysed separately. The reason is that the level of the tax ratio varies significantly between countries because of the different structures of the firms with respect to their legal status or because of the different structures of the systems for taxing capital income.

For the period 1990–2003 the output gap did not influence the corporate income tax ratio in most of the countries. For Germany, the ratio was 1.8 per cent in 2000 and 1.3 per cent in 2003 (cf. Table 2) while the output gap was 1.6 and –2.2 per cent respectively (cf. Table 3). In France, the corporate income tax ratio hardly changed in relation to changes in the output gap. In Italy, too, the tax ratio did not respond to the business cycle. The situation is more or less the same in other countries (Figure 1).

In general, the ratio of the corporate income tax revenues to nominal GDP does not depend on the output gap, which might reflect cyclical factors leading to a change in the share of profits in GDP. The tax ratios are virtually unaffected by the degree of capacity utilisation.

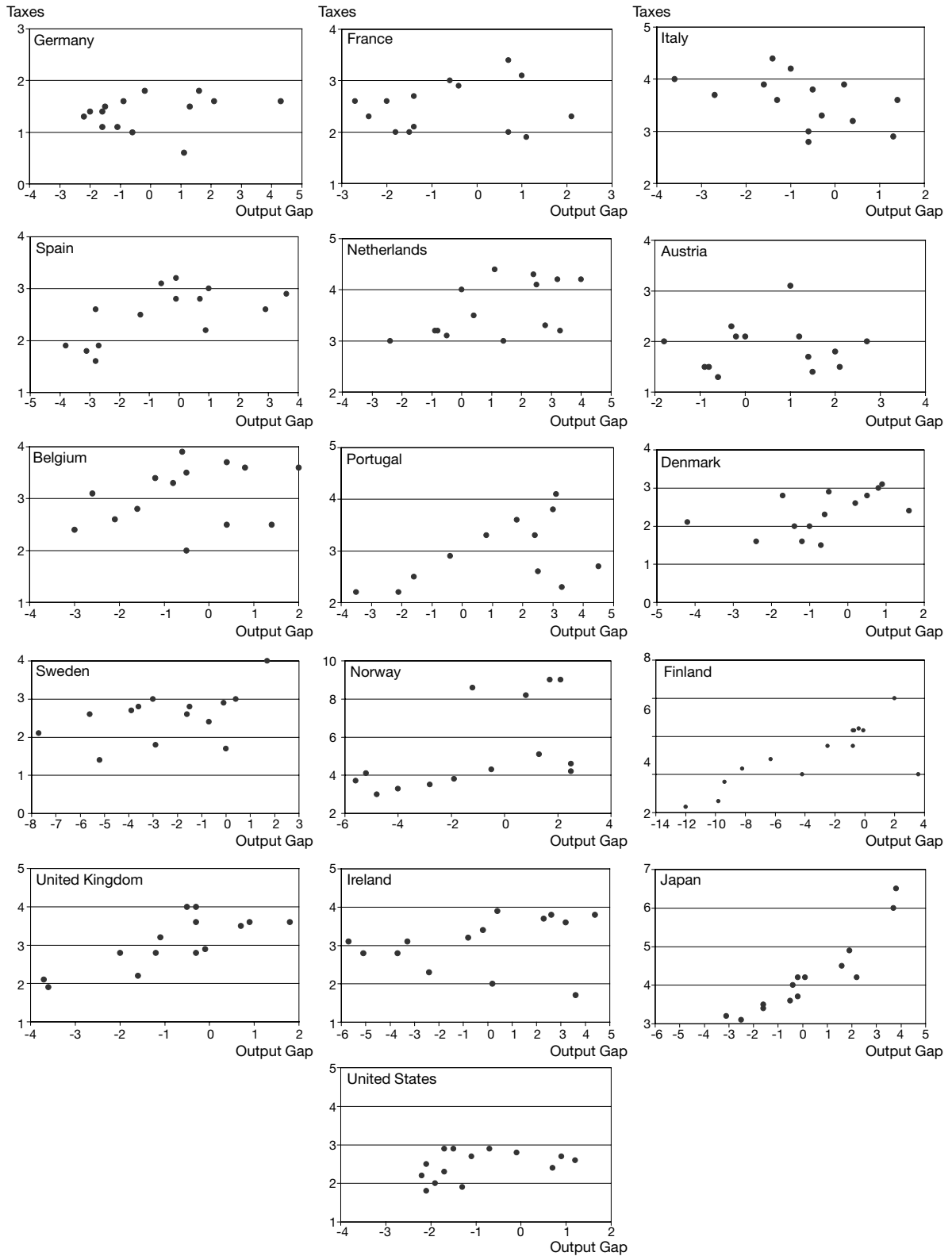
**Table 2**  
**Taxes on Corporate Income in Relation to GDP in Selected Countries**  
(per cent)

	1980	1990	1995	2000	2001	2002	2003
Austria	1.4	1.4	1.5	2.0	3.1	2.3	2.0
Belgium	2.2	2.4	2.8	3.6	3.6	3.5	3.4
Czech Republic	.	.	4.9	3.8	4.4	4.6	4.8
Denmark	1.4	1.5	2.0	2.4	3.1	2.9	2.8
Finland	1.2	2.0	2.3	6.0	4.3	4.3	3.5
France	2.1	2.3	2.1	3.1	3.4	2.9	2.6
Germany	2.0	1.7	1.1	1.8	0.6	1.0	1.3
Greece	0.9	1.6	2.0	4.6	3.8	3.8	.
Hungary	.	.	1.9	2.2	2.4	2.4	.
Ireland	1.4	1.7	2.8	3.8	3.6	3.7	3.9
Italy	2.4	3.9	3.6	2.9	3.6	3.2	2.8
Luxembourg	6.6	6.5	7.5	7.2	7.5	8.6	7.9
Netherlands	2.9	3.2	3.1	4.2	4.1	3.5	3.0
Poland	.	.	2.8	2.5	1.9	2.0	.
Portugal	.	2.3	2.5	4.1	3.6	.	.
Slovak Republic	.	.	.	2.8	2.2	2.7	.
Spain	1.2	2.9	1.8	3.0	2.8	3.2	3.1
Sweden	1.2	1.7	2.8	4.0	2.9	2.4	2.0
United Kingdom	2.9	3.6	2.8	3.6	3.5	2.9	2.8
EU 15	2.1	2.6	2.7	3.8	3.6	3.4	.
EU 19	2.1	2.6	2.7	3.8	3.6	3.4	.
Japan	5.5	6.5	4.2	3.6	3.5	3.1	.
United States	2.8	2.4	2.9	2.6	1.9	1.8	2.0

Sources: OECD: Revenue Statistics 1965–2003, Paris 2004, p. 73; OECD: Revenue Statistics, <http://titania.sourceoecd.org>, accessed July 18, 2005; own calculations.

CORPORATE INCOME TAX

**Figure 1**  
**Taxes on Corporate Income (per cent of GDP) and Output Gap (per cent), 1990–2003**



Sources: OECD: Revenue Statistics 1965–2003, Paris 2004; OECD: Economic Outlook 76 database, Paris 2005; OECD: Revenue Statistics, <http://titania.sourceoecd.org>, accessed July 18, 2005.

## CORPORATE INCOME TAX

**Table 3**  
**Output Gap in Selected Countries**  
(per cent)

	1990	1995	2000	2001	2002	2003
Austria	1.5	-0.8	2.7	1.0	-0.3	-1.8
Belgium	1.4	-1.6	2.0	0.8	-0.5	-1.2
Denmark	-0.8	-1.1	1.4	1.0	0.0	-1.5
Finland	3.4	-8.5	1.7	-0.3	-0.8	-1.1
France	2.1	-1.4	1.2	0.9	-0.2	-1.7
Germany	4.3	-1.1	1.6	1.1	-0.6	-2.2
Greece	0.1	-3.5	0.1	0.7	0.8	1.1
Ireland	3.6	-3.7	4.4	3.2	2.3	0.4
Italy	0.2	-1.3	1.3	1.4	0.4	-0.6
Luxembourg	.	.	.	.	.	.
Netherlands	2.7	-0.2	4.2	2.7	0.4	-2.5
Portugal	3.3	-1.6	3.0	1.5	-0.7	-3.7
Spain	3.3	-3.2	1.0	0.8	0.0	-0.5
Sweden	-0.2	-3.4	2.2	0.3	-0.3	-1.1
United Kingdom	1.8	-1.2	0.9	0.7	-0.1	-0.3
Euro area	2.7	-1.5	1.7	1.2	-0.1	-1.5
Japan	4.1	-0.3	-1.0	-2.3	-4.1	-3.3
United States	0.5	-1.7	1.1	-1.3	-2.1	-1.9

Source: OECD: Economic Outlook 76 database, Paris 2005.

tion measured by the output gap calculated according to the OECD procedure.

In principle, the figures on the tax ratios can be influenced by changes in the structure of firms with respect to their legal status. Such an effect might be significant in Germany. Here, corporations became much more important in the course of the 1990s and thereafter. This should have led to a rise in the tax ratio. However, there is a tendency for taxes on corporate income to decline somewhat relative to GDP, which might be interpreted as an erosion of tax revenues as a result of tax competition.

However, the figures for 2001 and 2002 are low due to the reform of corporate income tax in 2001. This reform included huge tax rebates for firms distributing profits which had been retained and accumulated under the old system of taxing corporations; there were significant negative effects on revenues in 2001 and 2002. The ratio of corporate income tax revenues to GDP rose in 2003; according to our own calculations it continued to rise in 2004.

Transfer price-setting by multinationals (in such a way that taxable profits increase in low tax countries and decline in other countries) can prevent a decline in the ratio of taxes on corporate income to GDP in low tax countries — a decline that would otherwise have resulted from tax rate cuts. If “profit shifting” — defined in this way — takes place, the ratio for high tax

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**Table 4**  
**Taxes on Personal Income in Relation to GDP in Selected Countries**  
(per cent)

	1980	1990	1995	2000	2001	2002
Austria	9.2	8.5	8.7	9.7	10.3	10.0
Belgium	15.4	13.8	14.6	14.3	14.7	14.7
Czech Republic	.	.	5.1	5.0	4.9	5.0
Denmark	22.9	24.8	26.7	26.1	26.4	26.0
Finland	13.0	15.4	14.3	14.7	14.5	14.3
France	4.7	4.6	5.0	8.1	7.9	7.6
Germany	11.1	9.8	10.5	9.6	10.0	9.0
Greece	3.6	4.1	3.9	5.6	5.1	5.0
Hungary	.	.	6.8	7.2	7.6	7.8
Ireland	10.0	10.7	10.1	9.6	8.9	7.4
Italy	7.0	10.2	10.7	10.8	11.0	10.9
Luxembourg	11.0	9.6	9.2	7.4	7.2	6.8
Netherlands	11.4	10.6	7.9	6.2	6.5	7.2
Poland	.	.	8.5	7.5	7.5	7.5
Portugal	.	4.6	5.9	6.0	6.0	.
Slovak Republic	.	.	.	3.4	3.4	3.4
Spain	4.7	7.2	7.7	6.6	6.9	6.9
Sweden	19.4	20.5	16.2	17.6	16.5	15.3
United Kingdom	10.3	10.7	10.0	11.0	11.2	10.6
EU 15	11.0	11.0	10.8	10.9	10.9	10.8
EU 19	11.0	11.0	10.1	9.8	9.8	9.7
Japan	6.2	8.1	6.0	5.6	5.5	4.7
United States	10.3	10.1	10.0	12.5	12.3	10.0

Source: OECD: Revenue Statistics 1965–2003, Paris 2004, p. 72.

rate countries decreases whereas the ratio for low tax rate countries rises; the overall ratio for regions, e.g. for the EU, goes down.

The hypothesis that profits are shifted is not easily testable. Support from tax accountants is needed in view of the complexity of taxation in a worldwide environment. Without such support only the overall effect on high and low tax rate countries is examined here. It turns out that there is hardly any evidence of profit-shifting within the EU. The overall ratio for the EU declined only marginally after 2000. In addition, the firms’ abilities to use transfer price setting as a tax optimisation measure should not be overestimated.

According to the figures for the period ending in 2003, it can be concluded that governments’ ability to finance expenditures was not eroded by the large cuts in corporate income tax rates in the EU or in other selected countries. The broadening of the tax bases compensated the effects of tax rate cuts, at least until the beginning of the 21<sup>st</sup> century.

It is argued that tax competition leads to a shift from corporate income taxes to personal income taxes.

## CORPORATE INCOME TAX

**Table 5**  
**Social Security Contributions in Relation to GDP in Selected Countries**  
(per cent)

	1980	1990	1995	2000	2001	2002	2003
Austria	12.3	13.3	15.1	14.8	14.8	14.7	14.6
Belgium	12.3	14.3	14.7	14.1	14.4	14.7	14.5
Czech Republic	.	.	16.5	17.2	16.9	17.4	17.3
Denmark	0.8	1.4	1.5	2.3	2.2	1.7	1.7
Finland	8.4	11.4	14.2	12.1	12.4	12.2	12.0
France	17.4	18.9	18.6	16.2	16.2	16.3	16.7
Germany	12.9	13.4	14.9	14.8	14.6	14.5	14.7
Greece	7.9	8.9	10.5	11.8	11.7	11.8	.
Hungary	.	.	15.1	11.4	11.6	11.6	.
Ireland	4.5	5.0	4.7	4.3	4.3	4.3	4.5
Italy	11.6	12.8	13.0	12.4	12.3	12.5	12.9
Luxembourg	11.7	11.0	11.2	9.9	10.9	11.2	11.5
Netherlands	16.6	16.0	17.6	16.0	14.4	13.9	14.1
Poland	.	.	11.3	9.5	9.6	9.5	.
Portugal	7.1	7.9	10.1	10.9	11.0	9.2	.
Slovak Republic	.	.	.	14.0	14.1	14.3	.
Spain	11.2	11.8	11.9	12.3	12.5	12.6	12.6
Sweden	13.6	14.5	13.4	14.8	15.3	15.1	14.7
United Kingdom	5.9	6.2	6.2	6.3	6.3	6.1	6.4
EU 15	10.3	11.1	11.8	11.5	11.6	11.4	.
EU 19	10.3	11.1	12.2	11.8	11.9	11.8	.
Japan	7.4	8.7	10.1	9.9	10.3	9.9	.
United States	5.8	6.9	6.9	6.9	7.0	6.9	6.8

Source: OECD: Revenue Statistics 1965–2003, Paris 2004, pp. 74, 98.

**Table 6**  
**Total Tax Revenues in Relation to GDP**  
(per cent)

	1980	1990	1995	2000	2001	2002
Austria	39.8	40.4	41.6	43.4	45.2	44.0
Belgium	42.4	43.2	44.8	45.7	45.9	46.4
Czech Republic	.	.	39.8	39.0	38.5	39.3
Denmark	43.9	47.1	49.4	49.6	49.9	48.9
Finland	36.2	44.3	46.0	48.0	46.0	45.9
France	40.6	43.0	43.9	45.2	44.9	44.0
Germany	37.5	35.7	38.2	37.8	36.8	36.0
Greece	24.2	29.3	32.4	38.2	36.6	35.9
Hungary	.	.	42.4	39.0	39.0	38.3
Ireland	31.4	33.5	32.8	32.2	30.1	28.4
Italy	30.4	38.9	41.2	43.2	43.0	42.6
Luxembourg	40.8	40.8	42.3	40.2	40.7	41.8
Netherlands	43.6	42.9	41.9	41.2	39.8	39.2
Poland	.	.	37.0	32.5	31.9	32.6
Portugal	24.1	29.2	33.6	36.4	35.6	33.9
Slovak Republic	.	.	.	34.0	31.6	33.1
Spain	23.1	33.2	32.8	35.2	35.0	35.6
Sweden	47.3	53.2	48.5	53.8	51.9	50.2
United Kingdom	35.2	36.5	35.0	37.4	37.2	35.8
EU 15	36.0	39.4	40.3	41.8	41.2	40.6
EU 19	36.0	39.4	40.2	40.6	40.0	39.6
Japan	25.3	30.2	27.8	27.1	27.4	25.8
United States	26.4	27.3	27.9	29.9	28.9	26.4

Source: OECD: Revenue Statistics 1965–2003, Paris 2004, pp. 67–68.

However, there is no evidence of such a shift. The personal income tax component of income taxes did not move very much in individual countries or in the EU as a whole in recent decades (cf. Table 4).

In addition, the ratio of social security contributions to GDP has not moved in a clear direction since 1990 (cf. Table 5). The fear that the tax burden has shifted towards labour as an immobile factor of production does not seem to be justified.<sup>2</sup>

### Total Tax Revenues

The overall tax ratio (total tax revenues in relation to GDP) increased in the EU until 2000 (cf. Table 6). It declined somewhat in 2001 and 2002.<sup>3</sup> However, it cannot be concluded that there is a significant down-

ward movement of the level of taxation in the EU or in specific EU countries. It is the EU for which tax harmonisation is strongly recommended by many observers. If a downward movement had really set in, it would not be at all clear that it had to do with tax competition.

Corporate income tax rates declined in many countries in recent years. However, it seems justified to argue that taxes on corporate income contribute to the financing of public expenditures to a more or less unchanged extent. There is no “race to the bottom”. In addition, there are no other significant changes in the structure of income tax revenues.<sup>4</sup> Measures to reduce tax competition cannot be justified by the observation that there is an erosion in tax revenues in the EU.<sup>5</sup>

<sup>2</sup> An increase in the ratio would have been harmful to the attempts to reduce unemployment in the EU by lowering labour costs. However, if it had been the case, the correct response of economic policy to a rise in the rate of social security contributions would not have been to impede tax competition but to reform the social security system.

<sup>3</sup> Data for 2003 and 2004 are not yet available.

<sup>4</sup> The data presented reflect not only the effects of tax competition. There are other influences, too. Demographic factors or labour market development might be important, for example.

<sup>5</sup> For a discussion of the advantages of tax competition cf. A. Boss, K.-J. Gern, C.-P. Meier and J. Scheide: Mehr Wachstum in Europa durch eine Koordination der Wirtschaftspolitik?, Kieler Studie No. 330, Berlin 2004, Springer; and A. Boss: Do We Need Tax Harmonization in the EU?, Kiel Working Papers No. 916, Kiel 1999, Institute for World Economics.