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Margit Schratzenstaller*

Effective Company Taxation in Poland – Some Methodological Considerations and Empirical Results

The tax burden imposed on enterprises is frequently asserted to be an important determinant of a country's prospects in the global competition for market shares and foreign investment. The best way to measure effective company tax rates is controversial, however. The following paper examines the situation in Poland using various indicators and compares it to that in the EU-15.

In the wake of the accession of eight central and eastern European countries (CEECs) to the European Union in May 2004, their overall competitiveness compared to the "old" member countries of the EU-15 is one of the central policy issues and challenges associated with the eastern enlargement. An assertion frequently made by economists, politicians and supranational organisations is that the tax burden imposed on enterprises is an important determinant of a country's prospects in the global competition for market shares and foreign investment. Indeed, recent empirical studies indicate a certain negative correlation between company tax rates and foreign direct investment (FDI).¹

Recent years witnessed a veritable boost in the theoretical and empirical literature on methods to determine the effective company tax burden. Based on the most important tax burden indicators developed in the literature, this article focuses on trends in the effective taxation of company profits in Poland since the beginning of its transition to a market economy and attempts a comparison to the EU-15 countries. Poland is chosen from the group of former socialist countries because it was the first country in transition (besides Hungary) to start reforming its company tax system. Moreover, tax reforms on the whole made noticeable progress

in Poland during the 1990s: Poland's tax system is often rated as one of the best-designed and best-performing to be found in the transition country group.² Besides, Poland is the largest country within the group of the CEE accession countries.

After outlining the most important features of and developments within the Polish enterprise tax system, the paper reviews the most common indicators and measures for the effective tax burden on company profits suggested in the literature. This survey serves two purposes. First, it seeks to elucidate the explanatory power, but also the methodological deficits, of the individual indicators, giving special consideration to the specific situation of a transition country. Second, the development of effective company taxation in Poland and in the EU-15 is analysed and compared on the basis of selected indicators.

Two questions are the main focus of the paper. The first aim – inspired by the aforementioned "competitiveness debate" – is to determine the effective tax burden of enterprises in Poland and thus to determine the country's competitive position relative to the old EU member states. The search for appropriate company tax burden measures is also of relevance with regard to the empirical analysis of the relationship between effective company tax rates

* Austrian Institute of Economic Research, Vienna, Austria. The author is indebted to Frank Amayew and Beata Guziejewska for their support in gathering essential information for this paper, to the German Academic Exchange Service for funding part of the research, and to Christoph Sauer, Alf Vanags and the participants at the Euro Faculty Conference "Tax Policy in EU Candidate Countries" in Riga (September 2003) for useful comments.

¹ R. A. de Mooij, S. Ederveen: Taxation and foreign direct investment: A synthesis of empirical research, in: International Tax and Public Finance, Vol. 10, No. 6, 2003, pp. 673-693.

² P. Lenain, L. Bartoszuk: The Polish tax reform, OECD Economics Department Working Paper, No. 234, Paris 2000.

(and international tax rate differentials) and FDI: it is heavily disputed in the literature which indicator for the effective tax rate should be used in empirical investigations of this question. Closely intertwined with the issue of competitiveness is a second question, namely whether the ongoing international competition in the realm of company taxation, which can be observed within the EU-15, is also encroaching upon the “new” member countries, and if so, whether it is leading to a long-term erosion of company tax revenues (“race to the bottom”). This question is treated for the old EU member countries as well as for the transition country Poland.

The Polish Company Tax System in the 1990s

Poland belongs to the group of those transition countries that pursued a “big bang” approach to tax reform rather than an evolutionary strategy.³ The year 1989 marks the starting-point of Poland’s transition from a communist, centrally planned, economy towards a market one. The existing tax systems in the “old” EU formed the example for the fundamental reforms of the Polish tax system which, most interestingly, were initiated six months prior to the breakdown of the communist system. The reform in 1989 included the introduction of a uniform enterprise profit tax with a rate of 40%, straight-line depreciation, and no loss carry-forward. The new company tax was similar to, but not identical with a corporate income tax (CIT) and replaced the former “enterprise tax” of 65%.⁴

Under the system of central planning, the Polish enterprise sector basically consisted of two types of enterprise: state-owned firms that were taxed under the enterprise tax, and a small private enterprise sector (i.e. non-socialised business) that was subject to a special income tax. The latter amounted to a maximum rate of 75% to create negative incentives for private entrepreneurial activities.⁵ As in all centrally planned economies, in Poland enterprise taxes (profit taxes, but also turnover and payroll taxes, which were considered enterprise taxes in

socialist economies) accounted for the lion’s share of the state’s revenues.⁶

Today the Polish enterprise tax system comprises a corporate income tax (CIT) introduced in 1992 as a substitute for the uniform enterprise profit tax of 1989 and covering all legal entities (corporations), and a progressive personal income tax (PIT) which was also adopted in 1992 and is levied on personal business income, i.e. on profits earned by all types of non-incorporated firms, the number of which far exceeds that of incorporated firms.⁷ Also various special provisions for small and medium enterprises (SMEs) were adopted over time. In 1994, the option for flat-rate taxation based on revenues and lump sum taxes for very small enterprises were introduced. Since 2003, SMEs can also make use of tax deferrals. As of 2004, personal business income can be taxed at a flat PIT rate (equal to the CIT rate).

Table 1 provides an overview of the most important reforms in the Polish company tax systems since 1989, concentrating on CIT and PIT rates, tax-related investment incentives, and special tax provisions for SMEs. Although of course not comprehensive,⁸ this overview shows that the development of enterprise taxation in Poland since the start of the transformation process is characterised by considerable dynamics. Thus the Polish case is a typical example of the stop-and-go tax policies that can be found in most transition countries and which, because they render the tax environment for investors uncertain and unstable, create significant obstacles to long-term planning and investment, particularly for foreign investors.⁹

The Polish CIT rate was lowered step by step from 40% in 1992 to 19% in 2004. The top PIT rate amounted to 40% at its introduction in 1992 and has remained at this level since 1998, after reaching a peak of 45% between 1994 and 1996. The ongoing reductions of the CIT rate have increasingly widened the gap between marginal CIT and PIT rates: the difference between the CIT and the top PIT rate reached 21 percentage points in 2004.

³ J. Martinez-Vazquez, R. M. McNab: The tax reform experiment in transitional countries, in: *National Tax Journal*, Vol. 53, No. 2, 2000, pp. 273-298.

⁴ R. Holzmann: Tax reform in countries in transition: Central policy issues, in: P. Pestieau (ed.): *Public finance in a world of transition*, No. 47, 1992, pp. 233-255.

⁵ M. Dabrowski, M. Tomczynka: Tax reforms in transition countries – a mixed record and complex future agenda, Center for Social and Economic Research Studies and Analysis Working Paper, No. 231, Warsaw 2001.

⁶ European Bank for Reconstruction and Development: *Transition report*, London 1994.

⁷ M. Grabowski, S. Smith: The taxation of entrepreneurial income in a transition economy, in: D. M. G. Newbery (ed.): *Tax and benefit reform in central and eastern Europe*, London 1995, Centre for Economic Policy Research, pp. 95-114.

⁸ During the 1990s, there were over 40 reforms of Polish CIT; OECD: *OECD Economic Surveys: Poland 1999-2000*, Paris 2000, OECD.

⁹ D. Holland, J. Owens: Taxation and foreign direct investment: The experience of the economies in transition, in: M. Blejer, T. Ter-Minassian (eds.): *Fiscal policy and economic reform*, New York 1997, Routledge, pp. 246-290; K. Edmiston et al.: Tax structure and FDI: The deterrent effects of complexity and uncertainty, in: *Fiscal Studies*, Vol. 24, No. 3, 2003, pp. 341-359.

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Table 1
Reforms within the Polish Enterprise Tax System 1989 to 2004

Year	Statutory CIT rate (in %)	Tax-related investment incentives	Additional tax-related investment incentives for foreign investors	Statutory PIT base rate (in %)	Statutory PIT top rate (in %)	Special tax regime for SMEs
1989	40	Introduction of investment allowances for environmental protection, food-processing industry, technology R&D, service sector	Introduction of tax holidays	-	-	
1990	40	Decrease of some investment allowances		-	-	
1991	40	Elimination of some investment allowances	Introduction of tax credits for investment in underdeveloped regions or export ratios > 20%	-	-	
1992	40	Introduction of reduced CIT rates for firms operating in depressed areas		20	40	
1994	40	Re-introduction of capital investment allowances (higher for export-oriented firms)	Limitation of tax holidays	21	45	Introduction of flat-rate taxation, based on revenues, and lump sum taxes ¹
1995	40	Introduction of tax holidays in special economic zones		21	45	
1997	38			20	44	
1998	36			19	40	
1999	34	Introduction of additional investment allowances for technologically important machinery		19	40	
2000	30	Elimination of some investment allowances, also in special economic zones		19	40	
2001	28			19	40	
2003	27			19	40	Introduction of tax deferrals ¹
2004	19			19	40	Option for flat rate of 19% for personal business income ²

¹ Within PIT. ² If this option is chosen, no tax allowances are granted.

Source: Own compilation.

Right at the beginning of the transformation process generous, non-discretionary tax-related investment incentives were introduced, for foreign as well as for all investors. Until 1993/1994 investment incentives within the company tax system were eliminated or at least restricted.¹⁰ A few years after introducing the modern CIT in 1992, however, Poland – in fierce competition particularly with the Czech Republic and Hungary for foreign direct investment (FDI) – (re-)introduced extensive tax exemptions,¹¹ particularly for foreign investors, which more often than not lacked transparency.¹² From 1995 on, special economic zones were established, typically in economically backward regions, where numerous tax exemptions are granted. Before the Tax Reform 2000 there were about 40 investment

allowances and 63 depreciation schedules.¹³ Since the end of the 1990s, tax-related investment incentives have been gradually reduced somewhat (for example no more new tax holidays are granted in special economic zones), to adapt Polish tax law to EU law. However, there are still 14 Special Economic Zones and several tax incentives for foreign investors. In addition, in 2002 the Act on Financial Support for Investment, targeted at foreign investors, was adopted to make up for the gradual roll-back of tax privileges required by the EU as a prerequisite to joining the EU.

With regard to the integration of the CIT and the PIT, Poland applies a shareholder relief system: double taxation of distributed profits is reduced by subjecting dividends to a final withholding tax (in lieu of regular income taxation) which was fixed at 20% initially and lowered to 15% in 2001.

The Tax Burden of Enterprises

Two approaches to comparing tax burdens for enterprises across countries have evolved in the literature (cf. Figure 1): the calculation of fictitious measures, which estimate the tax burden based on

¹⁰ B. Heimann: Tax incentives for foreign direct investment in the tax systems of Poland, the Netherlands, Belgium and France, *Berichte aus dem Volkswirtschaftlichen Colloquium der Universität Bremen*, No. 74, Bremen 2001.

¹¹ J. Martinez-Vazquez, R. M. McNab, op. cit.

¹² M. Sedmihradsky, S. Klazar: Tax competition for FDI in central European countries, CESifo Working Paper, No. 647(1), Munich 2002.

¹³ P. Lenain, L. Bartoszuk, op. cit.

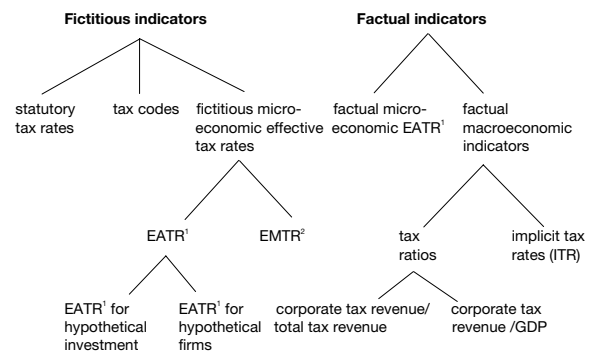
tax codes and tax rates, and the determination of factual tax rates using statistical data on tax payments. This section of the paper reviews the most important company tax burden indicators and compares some recent empirical results derived for the EU-15 and Poland.

Fictitious (or hypothetical) tax burden comparisons estimate the tax burden indirectly by analysing the legal framework, i.e. on the basis of existing enterprise tax laws. The majority of tax burden comparisons conducted in the recent literature are based on fictitious indicators. Three approaches can be distinguished: the comparison of statutory tax rates, the comparison of national tax codes, and the calculation of fictitious microeconomic effective tax rates for hypothetical enterprises or hypothetical investment projects. Fictitious indicators are forward-looking: they try to estimate the future tax burden firms must expect given the existing company tax laws.

Statutory tax rates are the simplest fictitious tax burden indicator. To find evidence for the “race to the bottom” hypothesis or the hypothesis of a downward convergence of tax rates due to the increasing pressure induced by international tax competition, several indicators can be examined (cf. Table 2). The EU-15 average CIT rate went down from 37.7% to 29.4% (minus 8.3 percentage points) from 1990 to 2004. The median lies slightly above the mean value; i.e. in the majority of countries the CIT rate is above average. The standard deviation – as a measure for dispersion which should decrease if a convergence of tax rates really took place – dropped from 5.5 percentage points in 1990 to 4.7 in 1995, but jumped to 5.4 percentage points in 2004. This finding must be interpreted cautiously, however, as this considerable increase is mainly a result of recent tax cuts in Germany and Ireland whose CIT rates undercut the EU-15 average markedly.

A similar trend downwards – although on a higher absolute level and less pronounced – can be observed for top PIT rates which decreased from a mean value of 54.8% (1990) to 48% (2004) (minus 6.8 percentage points). The standard deviation decreased markedly between 1995 and 2004. Altogether, the downward dynamics of top PIT rates are less marked in the EU-15 than that of CIT rates, which may be explained by a positive tax discrimination towards corporations which are more mobile internationally. Moreover, the Nordic countries have introduced dual income tax systems which subject

Figure 1
Indicators for the Effective Enterprise Tax Burden



¹ Effective average tax rate. ² Effective marginal tax rate.

Source: M. Schratzenstaller: Zur Ermittlung der faktischen effektiven Unternehmenssteuerlast, in: M. Schratzenstaller, A. Truger (eds.): Perspektiven der Unternehmensbesteuerung, Marburg 2004, pp. 43-75.

business income to a lower (and flat) tax rate, thus easing the pressure on top PIT rates.

The Polish CIT rate was also lowered notably in the time-period considered, from 40% to 19% (minus 21 percentage points), and is now well below the EU-15 average and median CIT rate. The 2004 top PIT rate equals that of 1992; it is considerably lower than the EU-15 mean and median top PIT rate.

Due to its simplicity this “naive” indicator is still very popular not only in theoretical contributions, but also in the public political debate on the tax burden imposed on firms. Furthermore, its use is justified by the signalling function of statutory tax rates because they offer a first orientation for companies investing abroad that are not familiar with the mostly complicated and complex foreign tax codes. Finally, differences in statutory tax rates induce profit shifting activities (transfer pricing, thin capitalisation) by multinational enterprises; therefore company tax rates are regarded as an important instrument in international competition for taxable profits.

Concerning the two leading questions motivating this article, the comparison of statutory tax rates leads to the following preliminary conclusions. First, Poland’s competitive position relative to the old EU member states is favourable, with CIT and top PIT rates well below the EU average. Second, dwindling company tax rates (with the exception of the Polish top PIT rate) underscore the plausibility of the hypothesis of vanishing enterprise taxes.

However, serious objections against primarily or exclusively relying on statutory tax rates as indicators for the enterprise tax burden can be put forward. Firms' tax liabilities are determined by two variables: the statutory tax rate and taxable income. The rules for determining the latter still differ considerably internationally (with regard to tax exemptions and reductions, valuation and depreciation rules etc.) even if, as some authors have recently argued, tax codes are gradually converging across countries so that statutory tax rates are gaining in importance.¹⁴ Thus, differing statutory tax rates need not produce differing effective tax burdens, and identical tax rates do not necessarily result in identical effective taxation.

Another factor must be taken into account in this respect, at least in those cases in which a corporation's shareholder(s) act as entrepreneur(s): the effective tax burden of corporate profits is also influenced by the integration of corporate tax and the income tax on distributed dividends, which still differs significantly within the EU-15.¹⁵ The majority of EU member states has some sort of provisions to alleviate the double taxation of distributed dividends with CIT at the corporation level and PIT at the shareholder level (shareholder relief system); only a few countries do not relieve double taxation at all (pure classical systems) or fully avoid double taxation (integrated systems).¹⁶ The effective tax burden on distributed profits depends on the interaction of CIT and PIT; all other things being equal, classical and shareholder relief systems generate a higher effective tax rate than a fully integrated one.

Finally, a number of countries levy further profit taxes, mostly at the local level, in addition to PIT and CIT. Examples are the German trade tax (levied on profits) and the Austrian communal tax (payroll tax). Also surcharges on the central level can be found in several countries, like the "solidarity surcharge" in Germany or the "crisis surcharge" in Belgium. Poland, on the other hand, does not levy any local business taxes or additional surcharges.¹⁷ The negligence of these additional (local) enterprise taxes in tax burden comparisons leads to the underes-

timation of the effective tax burden for the countries concerned and distorts international comparisons.

A closer look at national tax codes which define taxable income may be a useful complement to the comparison of tax rates. However, the limit of this approach is that a detailed analysis of international differences, which alone can confer useful information on the effective tax burden, would be too complex, considering the multitude and variety of tax code rules. This problem is aggravated if a longitudinal study is attempted, i.e. the reconstruction of the changes in tax codes over time to find empirical evidence for the hypothesis of a race to the bottom within company taxation. Moreover, such a qualitative analysis cannot supply any information on the quantitative effects of specific tax provisions on the effective tax burden.

The general trend in most of the EU-15 member countries during the 1980s and particularly in the 1990s can be characterised as "tax-cuts-cum-base-broadening":¹⁸ i.e. a reduction in statutory tax rates (partly) compensated by extending the tax base. The Polish tax code is more generous than that of most of the remaining CEE accession countries, but less so compared to most EU-15 member states, which partly offsets the higher statutory tax rates.

Due to the aforementioned problems, however, comparing tax codes is of little practical use for tax burden comparisons and for answering the questions addressed in this paper. Moreover, compilations of basic tax code provisions generally do not include exemptions in the form of tax holidays and special tax regimes for SMEs. This deficit is of increasingly minor importance for tax burden comparisons within the EU-15 countries as the EU initiative to eliminate special privileges for foreign investors ("harmful tax competition"¹⁹) is making progress. In Poland, however, tax exemptions for both domestic and foreign investors are still generous enough, despite recent restrictions of tax-related investment incentives and the simplification of certain tax code provisions. The effective tax burden in Poland, therefore, is overestimated if only general tax code provisions are taken into account.

Methods to compute fictitious microeconomic effective tax rates for hypothetical investment projects

¹⁴ K. Lannoo, M. Levin: An EU company without an EU tax?, CEPS Research Report, Brussels 2002.

¹⁵ M. Schratzenstaller: Towards dual income taxes – A country-comparative perspective, in: CESifo DICE Report, Vol. 2, No. 3, 2004, pp. 23-30.

¹⁶ For an overview see O. H. Jacobs et al.: Company taxation in the new EU member states, 2nd edition, Frankfurt am Main/Mannheim 2004.

¹⁷ O. H. Jacobs et al., op. cit.

¹⁸ M. P. Devereux et al.: Corporate income tax reforms and international tax competition, in: Economic Policy, No. 35, 2002, pp. 451-495.

¹⁹ European Commission: A package to tackle harmful tax competition in the European Union, COM(97)564 final, Brussels 1997.

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Table 2
Statutory Corporate Tax Rates and Top Personal Income Tax Rates 1990 to 2004
in the EU-15 and in Poland
(in %)

Country	Corporate income tax rate ¹				Personal income tax rate			
	1990	1995	2004	1990-2004 ²	1990	1995	2004	1990-2004 ²
<i>Poland</i>	40	40	19	-21	40 ³	45	40	0 ⁴
Austria	30	34	34	+4	50	50	50	0
Belgium	41	39	34	-7	58.3	60.6	54	-4.3
Denmark	40	34	30	-10	68.3	65	59	-9.3
Finland	33	25	29	-4	56	n.a.	52.2	-3.8
France	37	33	33.3	-3.7	56.8	56.8	56.1	-0.7
Germany	50 ⁵	45 ⁵	25	-25	53	57	47.5	-5.5
Greece	46	40	35	-11	50	45	40	-10
Ireland	43	40	12.5	-27	53	48	42	-11
Italy	36	36	33	-3	58.1	51	46.2	-11.9
Luxembourg	34	33	22.9	-11.1	56	n.a.	39	-17
Netherlands	35	35	34.5	-0.5	60	60	52	-8
Portugal	40.2	36	25	-15,2	40	40	40	0
Spain	35	35	35	0	56	56	45	-11
Sweden	30	28	28	-2	66	56	56.5	-9.5
United Kingdom	35	33	30	-5	40	40	40	0
<i>EU average</i>	37.7	35.1	29.4	-8.3	54.8	52.7	48	-6.8
<i>EU median</i>	36	35	30	-6	56	56	47.5	-8.5
<i>EU standard deviation</i>	5.5	4.7	5.9	+0.4	7.6	7.5	6.6	-1

¹ Excluding surcharges and local business taxes. ² Change in percentage points. ³ 1992. ⁴ 1992-2002. ⁵ For retained profits.

Source: National tax codes; own calculations.

or hypothetical model firms were developed in the last 20 years as an attempt to quantify the influence of statutory tax rates and tax code provisions on the effective tax burden. From a microeconomic perspective, effective marginal tax rates (EMTR) for hypothetical investment projects and effective average tax rates (EATR) for hypothetical investment projects or firms can be determined. Numerous studies published in the last decade are based on this approach, as is the 2001 company tax study commissioned by the European Commission.²⁰ Hypothetical effective tax rates aim at estimating the effective future tax burden on the basis of the existing legal framework, and are therefore ex-ante indicators. The methodology used for determining EMTR was primarily inspired by the framework devised by King/Fullerton²¹ which was developed further by Devereux/Griffith.²² EMTR reflect the effective tax burden of a hypothetical marginal invest-

ment project, i.e. an investment project yielding a pre-tax return that equals its present value to zero. EMTR help to evaluate the effects of tax reforms, i.e. changes of the statutory tax rate as well as modifications of the rules for the calculation of the tax base, on the cost of capital and thus on the volume of investment.

EATR for hypothetical investment projects are indicators for the attractiveness of locations; their level influences firms' location decisions.²³ Hypothetical EATR are calculated for infra-marginal investment, i.e. for new investment projects yielding economic rents and therefore pre-tax profits that generate a positive present value.²⁴

The procedure for determining the overall fictitious effective tax rate for a given country starts with the computation of effective tax rates for investment in different assets (intangibles, industrial buildings, machinery, financial assets and inventories) in dif-

²⁰ European Commission: Towards an internal market without tax obstacles, COM(2001)582 final, Brussels 2001.

²¹ M. A. King, D. Fullerton: The taxation of income from capital, Chicago 1984, University of Chicago Press.

²² M. P. Devereux, R. Griffith: The taxation of discrete investment choices, London 1999, The Institute of Fiscal Studies.

²³ M. P. Devereux, R. Griffith: Taxes and the location of production: Evidence from a panel of US multinationals, in: Journal of Public Economics, Vol. 68, No. 3, 1998, pp. 335-367.

²⁴ For the methodology see e.g. European Commission: Towards an internal market ..., op. cit.

ferent branches and financed from different sources (new equity, debt, retained earnings). To obtain the overall effective tax rate for a given country, averages are calculated using weights for the branches in which investment is undertaken as well as for the sources of finance and the assets in which firms invest. Depending on whether they account for the shareholder's personal income taxes on distributed dividends and/or for the location of the investment (domestic or outbound), different specific effective tax rates can be computed.

Table 3 contains the results of the three latest studies for EATR in the old EU member countries. The European Commission's study derives a mean EATR of 28.5% for the EU-15 in 2001; for 2003, Devereux et al. obtain an average EATR of 24.8%, Heinemann/Overesch of 28.5%. EATR declined considerably in almost all EU-15 countries since the beginning of the 1980s; indicating a certain erosion of corporate taxation. According to two recent studies by Jacobs et al.²⁵ Poland's EATR went down from 24.7% in 2003 to 18% in 2004, suggesting favourable investment conditions compared to the old member states and the reduction of the effective tax burden.

Restrictive Assumptions

The methodology applied to determine effective tax rates rests on numerous restrictive assumptions.²⁶ An identical pre-tax return of the hypothetical investment project must be assumed for all countries included, as well as uniform weights for assets, financing possibilities and industry structure, to make sure that cross-country differences in effective tax rates are merely the result of diverging tax systems. These assumptions, which are aimed at a standardisation of investment projects, are problematical enough for the group of EU-15 countries, in which industry structure, the combination of assets and financial sources differ. However, the differences between transition economies and the old EU member states are even larger. It is

²⁵ O. H. Jacobs et al.: Company taxation in the new EU member states, Frankfurt am Main/Mannheim 2003; O. H. Jacobs et al. 2004, op. cit. The methodology and the assumptions used in these studies are identical to those in: F. Heinemann, M. Overesch: Effektive Steuerbelastung von Unternehmen in Europa, ftp.zew.de/zew-docs/div/Effektive_Steuerbelastung_Europa.pfd, 2005; thus these EATR are (other than those obtained by the European Commission and by Devereux et al.) directly comparable with those of the old EU member states.

²⁶ S. Giannini, C. Maggioni: The effective tax rates in the EU commission study on corporate taxation: Methodological aspects, main results and policy implications, CESifo Working Paper, No. 666(1), Munich 2002; OECD: Tax and the economy: A comparative assessment of OECD countries, Paris 2001, OECD.

Table 3
EATR for EU-15 Countries
(in %)

Country	EC		EATR		HO
	1999	2001	1982	2003	
Austria	29.8	27.9	50.0	27.0	31.4
Belgium	34.5	34.5	39.0	29.0	29.7
Denmark	28.8	27.3	n.a.	n.a.	27.0
Germany	39.1	34.9	56.0	35.0	36.1
Finland	25.5	26.6	53.0	25.0	27.3
France	37.5	34.7	41.0	29.0	33.1
Greece	29.6	28.0	39.0	26.0	n.a.
Ireland	10.5	10.5	6.0	11.0	14.4
Italy	29.8	27.6	30.0	31.0	32.8
Luxembourg	32.2	32.2	n.a.	n.a.	26.7
Netherlands	31.0	31.0	43.0	30.0	31.2
Portugal	32.6	30.7	52.0	27.0	n.a.
Spain	31.0	31.0	29.0	29.0	n.a.
Sweden	22.9	22.9	54.0	23.0	23.4
United Kingdom	28.2	28.3	36.0	26.0	28.9
<i>Average</i>	<i>29.5</i>	<i>28.5</i>	<i>40.6</i>	<i>24.8</i>	<i>28.5</i>

Sources: European Commission: Towards an internal market without tax obstacles, COM(2001)582 final, Brussels 2001 (EC); M. P. Devereux et al.: Corporate income tax reforms and international tax competition, in: Economic Policy, No. 35, 2002, pp. 451-495 (DGK); F. Heinemann, M. Overesch: Effektive Steuerbelastung von Unternehmen in Europa, ftp.zew.de/zew-docs/div/Effektive_Steuerbelastung_Europa.pfd, 2005 (HO); own calculations.

plausible to assume that pre-tax returns are higher in a transition country in which capital is relatively scarce. Moreover, the CEECs' industry structure, the assets in which firms invest and the sources of finance most likely deviate disproportionately from the uniform weights assumed compared to the EU-15 states. Finally, effective tax rates also depend on inflation rates, which went down to low levels within the EU-15 group during the 1990s, but are higher in comparison in the CEEC. Thus, the calculation and the comparison of EATR for a group of heterogeneous countries seem of only limited usefulness.

A central problem of all fictitious measures is that they are hypothetical by definition; actual tax payments can deviate markedly due to conscious or unconscious tax avoidance/evasion. In this respect, also tax arrears, i.e. tax liabilities not paid by enterprises but known to the tax authorities still play an (albeit decreasing) role in Poland (for details see below). Furthermore, even the most elaborated fictitious methods cannot account for all existing rules for the calculation of taxable income, so that the actual tax burden will regularly deviate from the fictitious one. Again, this problem is particularly relevant for Poland because of the still generous and

manifold tax exemptions which are impossible to integrate adequately into calculations of fictitious effective tax rates. In this context it is important to point out that EATR by definition do not account for the tax treatment of losses (carry-forward or carry-back), as they are calculated for profitable hypothetical investment projects. These loss carry-back/carry-forward provisions, however, are generally more generous in the EU-15 countries than in Poland.

Factual Tax Burden Comparisons

Inspired by the criticism to which fictitious tax burden comparisons are exposed, the past 15 years have also witnessed a flourishing literature on the elaboration of methods to conduct factual comparisons of effective national tax burdens. In contrast to hypothetical tax rates, measures for the factual effective tax burden mirror the actual tax burden a group of tax subjects or a certain tax base carries by relying on data on actual tax payments. Hence, these backward-looking indicators are no good proxy for the future tax burden by nature as they cannot take account of future changes in tax codes or tax rates.²⁷ They can, however, help to assess the distribution of the tax burden and the tax provisions and regimes applied in the past. Moreover, they integrate all tax code provisions.

This section provides a comprehensive overview of the most important methods and approaches for deriving factual indicators for the tax burden of enterprises. In principle, two different types of measures for the effective tax burden can be distinguished: microeconomic factual effective tax rates and macroeconomic ones.

Microeconomic factual effective average tax rates ($EATR_{fact}$) capture the tax burden on total investment at a certain location and therefore impact, as ex post tax rates, on the locational choice of enterprises. Actual calculations of $EATR_{fact}$ use data on actual firm profits and tax payments, either from individual financial statements or consolidated returns, and relate tax payments to pre-tax profits. Very promising are two recent studies conducted by Nicodème²⁸

²⁷ D. Carey, H. Tchilinguirian: Average effective tax rates on capital, labour and consumption, OECD Economics Department Working Paper, No. 258, Paris 2000.

²⁸ G. Nicodème: Computing effective corporate tax rates: Comparisons and results, Directorate-General for Economic and Financial Affairs Economic Paper, No. 153, Brussels 2001; G. Nicodème: Sector and size effects on effective corporate taxation, Directorate-General for Economic and Financial Affairs Economic Paper, No. 175, Brussels 2002.

using data from the Bank for the Accounts of Companies Harmonised (BACH), a database established by the European Commission providing data on individual financial statements from corporations in eleven EU-15 member countries that can be broken down by sectors and company size. With regard to the issues treated in this paper this approach has one drawback, however: the database does not include Poland, so that microeconomic factual $EATR_{fact}$ cannot be computed.

Macroeconomic measures of the tax burden relate total tax payments connected with a macroeconomic variable (labour, capital, final consumption, use of energy) to the corresponding or to other macroeconomic variables. This section briefly reviews two approaches to calculating macroeconomic measures of the effective tax burden: measures relating taxes paid by corporations to total tax revenues or to GDP (tax ratios), and measures relating tax payments to the macroeconomic tax base with which they are connected (implicit tax rates). Macroeconomic measures are – like ex post $EATR_{fact}$ – backward-looking, i.e. measure the actual tax burden incurred in the past.

The shares of taxes paid by corporations in GDP and in overall tax revenues are simple and therefore often-used indicators for the long-term development of the taxation of corporate income. These indicators are preferred to statutory tax rates by a number of authors who argue that they reflect more adequately the effective tax burden borne by corporations. Table 4 shows that the shares of taxes paid by corporations in GDP and in overall tax revenues on average have been increasing within the EU-15 since 1990 – a result which is in contrast to steadily declining statutory tax rates. This seeming contradiction is usually explained by the aforementioned tax-cuts-cum-base-broadening strategy characterising most EU-15 countries' tax reforms during the 1990s.²⁹

This argument is partly justified, but in fact too myopic. Corporate tax payments are the result of statutory tax rates and tax bases. The tax base for CIT is determined by the tax code on the one hand and by the size of corporate profits on the other hand. Increasing tax bases (and thus tax ratios) therefore may result from the abandonment of tax privileges but also from increases in gross profits.

²⁹ S. R. Bond, L. Chennels: Corporate income tax and investment: A comparative study, Final Report, London 2000, The Institute of Fiscal Studies.

COMPANY TAXATION

Table 4
Taxes Paid by Corporations in the EU-15 and in Poland
as a Percentage of GDP and of Total Tax Revenues

Country	Tax ratios ¹	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003
Poland	GDP	6.9 ²	2.8	2.7	2.8	2.7	2.5	2.5	1.9	2.0	n.a.
	TT	19.7 ²	7.7	7.4	7.7	7.5	7.4	7.6	5.8	6.3	n.a.
Austria	GDP	1.4	1.5	2.1	2.1	2.1	1.8	2.0	3.1	2.3	2.0
	TT	3.6	3.7	4.7	4.7	4.8	4.1	4.7	6.9	5.1	n.a.
Belgium	GDP	2.4	2.8	3.1	3.3	3.9	3.7	3.6	3.6	3.5	3.4
	TT	5.5	6.7	6.8	7.3	8.4	7.9	8.0	7.9	7.7	n.a.
Denmark	GDP	1.5	2.0	2.3	2.6	2.8	3.0	2.4	3.1	2.9	2.8
	TT	3.2	4.0	4.6	5.2	5.7	5.9	4.9	6.3	5.8	n.a.
Finland	GDP	2.0	2.3	2.8	3.5	4.3	4.4	6.0	4.3	4.3	3.5
	TT	4.7	4.1	5.8	8.3	9.3	9.3	11.8	10.6	9.0	n.a.
France	GDP	2.3	2.1	2.3	2.6	2.7	3.0	3.1	3.4	2.9	2.6
	TT	5.3	4.8	5.2	5.8	6.0	6.6	6.9	7.7	6.6	n.a.
Germany	GDP	1.7	1.1	1.4	1.5	1.6	1.8	1.8	0.6	1.0	1.3
	TT	4.8	2.8	3.8	4.1	4.4	4.8	4.8	1.7	2.0	n.a.
Greece	GDP	1.6	2.0	2.0	2.1	3.1	3.5	4.6	3.8	3.8	n.a.
	TT	5.5	6.3	5.0	6.2	8.4	8.6	11.6	9.2	8.8	n.a.
Ireland	GDP	1.7	2.8	3.1	3.2	3.4	3.8	3.8	3.6	3.7	3.9
	TT	5.0	8.5	9.5	10.0	10.7	12.4	12.1	12.1	13.5	n.a.
Italy	GDP	3.9	3.6	3.9	4.2	3.0	3.3	2.9	3.6	3.2	2.8
	TT	10.0	8.7	9.2	9.5	7.0	7.7	7.5	8.6	7.3	n.a.
Luxembourg	GDP	6.5	7.5	7.7	7.9	7.8	7.1	7.2	7.5	8.6	8.0
	TT	15.8	17.7	18.2	19.1	19.5	17.6	17.8	18.4	20.3	n.a.
Netherlands	GDP	3.2	3.1	4.0	4.4	4.3	4.2	4.2	4.1	3.5	3.0
	TT	7.5	7.5	9.6	10.5	10.8	10.2	10.1	10.4	8.8	n.a.
Portugal	GDP	2.3	2.5	2.9	3.3	3.3	3.8	4.1	3.6	n.a.	n.a.
	TT	8.0	8.0	9.5	10.9	11.6	11.7	12.2	10.8	n.a.	n.a.
Spain	GDP	2.9	1.8	1.9	2.6	2.5	2.8	3.0	2.8	3.2	3.1
	TT	8.8	5.4	5.8	7.8	7.3	8.0	8.6	8.1	9.1	n.a.
Sweden	GDP	1.7	2.8	2.7	3.0	2.8	3.0	4.0	2.9	2.4	2.6
	TT	3.1	5.8	5.3	5.8	5.4	5.8	7.2	5.7	5.5	n.a.
United Kingdom	GDP	3.6	2.8	3.2	4.0	4.0	3.6	3.6	3.5	2.9	2.8
	TT	11.2	9.4	10.7	12.2	11.0	10.3	9.8	9.5	8.0	n.a.
EU-15 average	GDP	2.6	2.7	3.0	3.4	3.4	3.5	3.8	3.5	3.4 ³	3.2 ⁴
	TT	6.8	6.9	7.6	8.5	8.7	8.7	9.2	8.9	8.4 ³	n.a.

¹ Taxes paid by corporations/GDP and taxes paid by corporations/total taxes. ² 1991. ³ Excluding Portugal. ⁴ Excluding Greece and Portugal.

Sources: OECD database (Revenue Statistics); own calculations.

Thus these two indicators are only of limited use for the evaluation of the long-term development of the national enterprise tax burden. Their stability cannot be interpreted as counter-evidence for the race-to-the-bottom hypothesis. With regard to international tax burden comparisons, tax ratios are practically useless because their levels depend on the rate of incorporation of national enterprise sectors.³⁰

Polish tax ratios went down markedly between 1991 and 1995, remained rather stable in the follow-

ing years, and have been moving downwards again since the end of the 1990s. The decline of tax ratios particularly in the immediate aftermath of the start of the transition process dates back to the decline in output and the marked fall in profits³¹ as well as the collapse of (incorporated) state-owned enterprises. Also the transformation of state-owned enterprises to private, profit-oriented companies plays a role as it has increased the incentive to hide profits from tax collection authorities to minimise taxes payable. The fall of tax ratios that can be observed in the last few

³⁰ M. Hallerberg, S. Basinger: Internationalization and changes in tax policy in OECD countries: The importance of veto players, in: Comparative Political Studies, Vol. 31, No. 3, 1998, pp. 321-352.

³¹ D. M. G. Newbery: Tax and benefit reform in central and eastern Europe, in: D. M. G. Newbery (ed.): Tax and benefit reform in central and eastern Europe, London 1995, Centre for Economic Policy Research, pp. 1-18.

years, however, is due to the continuous reduction of the CIT rate which was not fully compensated by measures to broaden the tax base.

Macroeconomic effective average tax rates are derived by relating the total tax payments connected with a macroeconomic variable to this macroeconomic variable. As they capture all elements of a certain tax (i.e. tax provisions as well as tax rates) they are also called implicit tax rates (ITR). This approach dates back to the work of Mendoza et al.³² who set out to calculate ITR for labour, capital and consumption as basic economic categories. ITR deliver information about the distribution of the total tax burden to macroeconomic tax bases and about average aggregate tax wedges. For ITR on capital, all taxes on profits and capital incomes paid by the enterprise and the household sector are related to a measure of potentially taxable capital and business income.³³ Recently the European Commission has attempted to refine the Mendoza et al. approach, i.e. to calculate a separate ITR on corporate income. Unfortunately, these calculations up to now include the old EU member states only.³⁴

Economies in Transition

After having discussed various indicators and their explanatory power regarding the effective enterprise tax burden, this final section touches on some specific problems connected with tax burden comparisons involving transition countries. Attempts to capture the effective tax burden firms are facing in transition economies are complicated by some specific problems which are less relevant (albeit not entirely negligible) for mature market economies.

First of all, in many transition countries the relationship between the state and firms is still more "politicised" and often relatively close as a legacy of several decades of the socialisation of the bigger part of the enterprise sector. This politicisation has positive as well as negative implications regarding firms' effective tax burden, which distort tax burden comparisons between transition economies and mature market economies. On the one hand, the historically close relation between tax collection au-

thorities and the company sector, at least concerning (formerly) state-owned firms, may bring along advantages for firms as it leaves considerable room for individual negotiations and mutually agreed manipulations of the tax base,³⁵ which does not exist in the established market economies. On the other hand, companies operating in transition countries are disproportionately burdened with so-called "time taxes" and "bribe taxes" as a result of these special state-firm relationships,³⁶ which distorts tax burden comparisons between transition economies and mature market economies. The time tax refers to the percentage of senior management time consumed by dealing with public officials, and the bribe tax covers firms' payments to public officials to receive some kind of public support additionally to the standard public inputs provided for firms (i.e. public contracts). Unfortunately corresponding and comparable data are not available for industrial countries so that these additional "taxes" cannot be incorporated adequately into international tax burden comparisons. Whereas the bribe tax is below average in Poland compared to the other CEE and CIS countries, albeit increasing (on average 0.7% of annual firm revenues in 1999, 1.2% in 2002), the time tax (on average almost 10% in 1999, more than 9% in 2002) is comparatively high in Poland.³⁷

Second, tax arrears still play a certain role in transition economies, in particular for state-owned firms. The effective enterprise tax burden is overrated on the basis of factual tax burden measures if actual tax payments are not adjusted accordingly. If tax arrears are finally collected at some point in time, the interest gains firms realise due to the tax deferral additionally distort international tax burden comparisons. Distortions also result if tax arrears are finally forgiven. For Poland tax arrears seem to be of minor and decreasing importance. They mainly cover social security contributions; tax arrears within CIT and PIT account for only a small fraction of overall tax arrears.³⁸

A third specialty of transition economies' tax systems also cannot be captured adequately in international tax burden comparisons, namely the fact

³² E. G. Mendoza et al.: Effective tax rates in macroeconomics. Cross-country estimates of tax rates on factor incomes and consumption, in: *Journal of Monetary Economics*, Vol. 34, 1994, pp. 297-323.

³³ European Commission: *Structure of tax systems in the European Union: 1995-2001*, Brussels.

³⁴ European Commission: *Structures of the taxation systems in the European Union 1995-2002*, Luxembourg 2004, Office for Official Publications of the European Communities.

³⁵ M. E. Schaffer, G. Turley: *Effective versus statutory taxation: Measuring effective tax administration in transition economies*, EBRD Working Paper, No. 62.

³⁶ European Bank for Reconstruction and Development: *Transition report*, London 1999.

³⁷ European Bank for Reconstruction and Development, 2002, op. cit.

³⁸ P. Lenain, P. Bartoszek, op. cit.

that due to their many exceptions those tax systems are rather intransparent and complex. Therefore considerable compliance costs may accrue to firms which add to the effective enterprise tax burden.

Fourth, weaknesses in tax administration (for instance resulting from insufficient training and technical equipment) and the lack of adequate control and sanction mechanisms lead to an insufficient enforcement of existing tax systems and thus also lower the effective tax burden in transition countries. A recent empirical study conducted by Turley/Schaffer³⁹ shows that tax effectiveness within CIT is somewhat below the EU-15 average in Poland. However, hidden and therefore untaxed firm activity is of less importance in Poland than in other transition countries.⁴⁰ Based on comparisons of staff-related measures, Poland dedicates slightly more resources to tax administration bodies than the EU-15 on average (cf. Table 5). However, assuming that staff may still be insufficiently trained and that there are still deficits in technical equipment, these resources may not suffice to guarantee an enforcement of company taxation which is as effective as in the old EU member countries.

Conclusions

The review undertaken in this article above all shows that there is not the one and only correct method of determining the effective company tax burden. The selection of the appropriate tax burden indicator depends on the aim pursued, i.e. whether the tax burden is to be identified from an individual investor's perspective or rather from a macroeconomic one. To obtain a meaningful and coherent picture of the enterprise tax burden for a given country it seems useful to consult several methods and indicators. Furthermore, it must be taken into account that the tax burden is not the only and – as empirical studies could show repeatedly – not even the most important determinant of investment decisions. This seems to hold particularly for investment in transition countries: several recent empirical studies show that the influence of transition countries' corporate taxation on foreign investment is small.⁴¹

It must also be noted that the limitation of the analysis of governmental influence on firms' locational or investment decisions to the taxation of

³⁹ M. E. Schaffer, G. Turley, op. cit.

⁴⁰ S. Johnson et al.: Why do firms hide? Bribes and unofficial activity after communism, in: *Journal of Public Economics*, Vol. 76, 2000, pp. 495-520.

Table 5
Comparison of Staff-related Measures

	Citizens/one full-time staff	Labour force/one full-time staff
Poland	751	339
Austria	929	450
Belgium	476	207
Denmark	651	348
Finland	820	415
France	788	358
Germany	665	324
Greece	752	311
Ireland	625	282
Italy	1202	510
Luxembourg	706	450
Netherlands	629	320
Portugal	778	402
Spain	1680	745
Sweden	985	494
United Kingdom	730	360
EU-15 average	827	398

Sources: J. Owens: Fundamental tax reform: The experience of OECD countries, Tax Foundation Background Paper, No. 47, Washington 2005; own calculations.

profits implies that governmental activities on the expenditure side of the public budget are neglected, particularly the provision of public infrastructure for the enterprise sector and the payment of subsidies which can offset tax payments – and which play a non-negligible role particularly in Poland.

Even one and a half decades after the beginning of the transition process in the CEEC it can be questioned whether the orientation towards “western” tax systems – and therefore the comparison with those tax systems based also on tax burden measures – is really a useful approach to the design of CEEC tax systems. These countries still face different economic challenges and have to solve different economic problems from those of the “old” and established market economies. Therefore tax systems also have to be tailored according to the specific problems with which transition economies have to cope – for instance the scarcity of capital or the erosion of the revenues these countries are experiencing.

⁴¹ B. Smarcynska Javorcik: The composition of foreign direct investment and protection of intellectual property rights: Evidence from transition economies, in: *European Economic Review*, Vol. 48, No. 1, 2004, pp. 39-62; K. Carstensen, F. Toubal: Foreign direct investment in central and eastern European countries: A dynamic panel analysis, in: *Journal of Comparative Economics*, Vol. 32, No. 1, 2004, pp. 3-22.