

Elschner, Christina; Overesch, Michael

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Trends of corporate tax levels in Europe

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Corporate Taxes in the European Union

The enlargement of the European Union in 2004 and 2007 by a number of countries with comparatively low corporate tax rates – seen by some as representing an unfair competitive advantage – has refuelled the debate on corporate taxation in Europe. The present Forum highlights a number of pertinent issues and discusses the challenges implied for European corporate tax policy.

Margit Schratzenstaller*

Company Tax Coordination in the EU – Status Quo and Perspectives

Within the 2004 and 2007 rounds of eastern enlargement 12 new member countries with generally rather attractive company tax rates joined the European Union. Accordingly, one issue which Germany, as one of the European “high-tax countries”, is trying to push during its EU presidency in the first half of 2007 is the coordination of company taxation in the European Union: an issue which has been on the European Commission’s agenda for several decades now. The more progress concerning work on the concrete design of a coordinated European company tax regime becomes visible, however, the more explicit and even fierce the opposition voiced by those countries that fear for their fiscal autonomy should any binding coordination measure in the field of taxation be introduced.

This short paper reviews the most important recent trends in company taxation in European member states and the challenges they imply for European company tax policy. Against this background, the status quo and perspectives of company tax coordination in Europe are discussed.

Long-term Developments in European Company Taxation

There are rather clear indications that European company tax systems are gradually aligning.¹ The most obvious convergence indicators are tax rates; but other important company tax system elements are also converging across member countries.

Table 1 shows the decreasing trend of two selected tax burden indicators, nominal and effective average

company tax rates, which can be observed in practically all EU member states. Several dispersion measures (standard deviation, variation coefficient, spread between highest and lowest tax rate) point towards a downward convergence within both old and new member states.

At first sight counter-intuitive is the finding that falling tax rates have not yet led to a reduction in company tax revenues in most member states:² in general, company tax revenues in relation to overall tax revenues or to GDP have remained stable or even increased. This seeming contradiction may be explained by the growing weight of corporations, the increase of the profit share that can be observed in many member states, and/or the combination of tax rate reductions with measures to broaden the tax base (tax-cuts-cum-base-broadening).

Table 1 also illustrates the persisting tax rate differentials between old and new member states: nominal as well as effective average tax rates are considerably higher in the EU15 countries.

Differences can also be found with regard to other characteristics of European company tax systems. Although in most old member states company tax reforms enacted in the last 25 years followed the already mentioned principle of tax-cuts-cum-base-broadening, their tax bases are in general still narrower compared to the new EU states. The rules for the de-

¹ For details cf. Margit Schratzenstaller: Unternehmensbesteuerung in der Europäischen Union – Aktuelle Entwicklungen und Implikationen für die deutsche Steuerpolitik, in: Vierteljahrshefte zur Wirtschaftsforschung, Vol. 76, No. 2, 2007, forthcoming.

² OECD: Revenue Statistics, Paris 2006; Eurostat: Structures of the Taxation Systems in the EU, Luxembourg 2006.

* Austrian Institute of Economic Research, Vienna, Austria.

Table 1
Company Tax Rates in the European Union
 (incl. Surcharges and Local Business Taxes)

	Nominal tax rates		Effective Average Tax Rates	
	2007	Change 1995-2007 ¹	2005	Change ^{1, 2}
Belgium	34	-6.2	26	-9
Denmark	22	-12	n.a.	n.a.
Finland	26	1	21	-24
Germany	38.6	-18.2	32	-16
Greece	25	-15	21	-15
Spain	32.5	-2.5	26	0
France	34.4	-2.3	25	-8
Ireland	12.5	-27.5	11	6
Italy	37.3	-14.9	26	0
Luxembourg	29.6	-11.3	n.a.	n.a.
Netherlands	25.5	-9.5	25	-13
Austria	25	-9	22	-15
Portugal	27.5	-12.1	20	-28
Sweden	28	0	21	-24
United Kingdom	30	-3	24	-2
Average EU old	28.5	-9.5	23	-11
Standard deviation	6.3	-1.5	5	-7
Variation coefficient	0.2	0	0.2	-0.1
Spread	26.1	-5.7	21	-23
Czech Republic	24	-17	22.9	-1.3
Estonia	22	-4	21.8	-0.7
Latvia	15	-10	14.4	-3.4
Lithuania	18	-11	12.8	-0.3
Hungary	20	0.4	17.9	-1.5
Slovenia	25	0	21.6	0
Slovak Republic	19	-21	16.7	-5.4
Poland	19	-21	17	-7.7
Malta	35	0	32.8	0
Cyprus	10	-15	9.7	-4.8
Bulgaria	10	-30	n.a.	n.a.
Romania	16	-22	n.a.	n.a.
Average EU new	19.4	-11.3	18.8	-2.5
Standard deviation	3.1	-4.8	-	-
Variation coefficient	0.2	-0.1	-	-
Spread	10	-11.4	-	-

¹ In percentage points.

² EU old: 1982-2005; EU new: 2003-2005.

Source: Margit Schratzenstaller: Unternehmensbesteuerung in der Europäischen Union – Aktuelle Entwicklungen und Implikationen für die deutsche Steuerpolitik, in: Vierteljahrshefte zur Wirtschaftsforschung, Vol. 76, No. 2, 2007, forthcoming.

termination of taxable profits still differ widely within and across the two country groups: concerning depreciation schemes, the valuation of inventories, the valuation and amortisation of intangibles, reserves for bad debts and contingent liabilities, carry-over of losses and the taxation of capital gains. Also, whereas there is a general trend towards the “dualisation” of profit and income taxation by lowering the tax burden on investment and capital income, and classical systems with shareholder relief have become the

dominant method of alleviating the double taxation of distributed dividends in both country groups, the total tax burden on dividends (company taxes and personal income taxes) is remarkably lower on average in the new member states: due to lower company tax rates, but also because several countries completely exempt distributed dividends from personal income taxes at the shareholder level. Finally, other (local) business taxes in addition to corporate taxes are of even less importance in the new member countries compared to the old ones.

Challenges for European Company Tax Policy

The assessment in the theoretical and policy-oriented literature of the developments within European company tax systems outlined above is not unambiguous.³

Tax policy is an important location factor in international competition for firm headquarters and investment. The entrance of a large group of on average low-tax countries into the EU is expected to increase the downward pressure on company tax rates. Moreover, the need to abolish preferential tax regimes in the new member states in the medium term as well as current European Court of Justice (ECJ) judicature aiming at abolishing tax barriers to capital mobility in the internal market may well intensify competition via regular company tax rates.

Particularly, the possible effects of company tax competition in Europe – the existence of which is now generally acknowledged – are disputed. The proponents of a fair, i.e. non-discriminatory and transparent, tax competition based on general tax rates and tax bases point out its efficiency-enhancing potential: via increased pressure on governments and public administrations to provide public services efficiently (in terms of structure and level as well as cost efficiency of public service provision) or via giving incentives for innovations in tax systems.

Sceptics, on the other hand, are concerned about the possible negative effects resulting from the growing pressure on company tax rates. They point out the various potentially harmful effects of tax competition and tax (rate) differentials across member countries. First of all, there is the fear that tax competition and tax rate differentials may distort capital allocation across EU member states – an expectation which is corroborated by current empirical literature showing

³ For an overview cf. Margit Schratzenstaller: Company Tax Competition and Co-ordination in an Enlarged European Union, in: John McCombie, Carlos Rodriguez Gonzalez (eds.): The European Union: Current Problems and Prospects, New York 2007, Palgrave, pp. 77-97.

that FDI does react to tax rate differentials,⁴ especially within the two country groups.

Moreover, should tax competition eventually erode company tax revenues, it might lead to a (further) shift of the tax burden away from mobile tax bases to immobile ones (small and medium-sized firms, immobile labour, consumption), thus negatively impacting on employment and the distribution of income and wealth. Alternatively, the increasing pressure on corporate taxation might endanger the financing of public services and public inputs for firms in general and thus retard the catching-up process in the new member states in particular. The latter were able to attract foreign capital by offering low company tax rates in the past, thus compensating for deficits in other locational factors in the short run. However, if the catching-up process is to be sustainable in the long run it will have to build upon the increase of productive public expenditures, such as investment in education and high quality public infrastructure.⁵

Closely connected is the problem of profit shifting, which is a particular concern for the European Commission: the transfer of profits within multinational enterprises (MNEs) from high-tax to low-tax locations by manipulating transfer prices or by shifting mobile intra-firm services (holding services, cross-border financing, royalty management, leasing, insurance etc.) to controlled foreign corporations. The minimisation of an MNE's total tax liabilities effected by such transactions implies the reduction and redistribution of EU-wide total company tax revenues and undermines benefit taxation, as MNEs escape making an adequate financial contribution to the public infrastructure they use. Empirical results for Europe are still sparse, but the few existing empirical studies underline the assumption that profit shifting is not a negligible phenomenon.⁶

Finally, the existence of 27 separate company tax systems causes high compliance and administration costs for firms and tax authorities: another aspect

which the European Commission considers problematical.

It is against the backdrop of these arguments that the European Commission has launched several initiatives to coordinate or harmonise company taxation in the last four decades.

EU Company Tax Coordination – Status Quo and Perspectives

The scope, extent and speed of coordination/harmonisation have differed markedly between direct and indirect taxes in the EU. Based on Articles 90 and 93 of the EU Treaty, a far-reaching harmonisation of indirect taxes (general consumption taxes as well as specific ones) has now been achieved, which is a basic pre-condition for the realisation of an internal market with free movement of goods and services without tax-induced distortions. In contrast, the EU does not have an explicit mandate to coordinate or harmonise direct taxes. According to Article 94 such measures can be justified only indirectly if the functioning of the common market is otherwise hampered. This – in combination with the unanimity principle in decisions concerning tax matters – has prevented the introduction of coordination or harmonisation measures with a broader scope in the realm of company taxation in the past. During recent decades the member states have agreed only on a few directives targeted at very specific problems (mostly connected with cross-border company relations), for instance the merger directive, the interest and royalty directive, or the parent-subsidiary directive. All of the more comprehensive initiatives proposed by the European Commission since the sixties aiming at the general coordination of tax rates and the tax base have failed, however.

Member countries' reluctance to renounce national tax sovereignty, and the European Commission's general conviction that "fair" tax competition would bring overall beneficial effects, made the Commission change its coordination strategy at the beginning of the nineties: following the failure of its last comprehensive harmonisation proposal, which was based on the Ruding report and suggested minimum company tax rates combined with a uniform tax base. Since then, the Commission's priorities are the elimination of unfair tax competition via discriminatory tax provisions and the harmonisation of the company tax base.

To prevent profit shifting and for the sake of the greater transparency and simplification of European company taxation, the European Commission put for-

⁴ For a brief overview of recent empirical work cf. Wolfgang Eggert, Andreas Haufler: Company-Tax Coordination cum Tax-Rate Competition in the European Union, in: *FinanzArchiv*, Vol. 62, No. 4, pp. 579-601.

⁵ Christian Bellak, Markus Leibrecht, Aleksandra Riedl: Labour Costs and FDI Flows into Central and Eastern European Countries: A Survey of the Literature and Empirical Evidence, in: *Structural Change and Economic Dynamics*, 2007, forthcoming.

⁶ Cf. Harry Huizinga, Luc Laeven: International Profit Shifting within European Multinationals: A Multi-Country Perspective, Paper prepared for the General Directorate Economic and Financial Affairs Workshop on Corporate Tax Competition and Coordination in Europe, 25 September 2006, Brussels.

ward *inter alia*⁷ the proposal to introduce a common consolidated corporate tax base (CCCTB) plus formula apportionment in 2001. Consolidated profits would be allocated according to an apportionment formula still to be defined, which could include turnover, the wage bill and/or fixed assets, to those countries in which MNEs are active.⁸ Setting tax rates should, however, remain the prerogative of the member states: the European Commission has no intention of harmonising company tax rates.

During the last few months, the European Commission has come forward with a series of initiatives aimed at promoting compliance of national company tax systems with Community legislation and more coherent treatment of taxpayers subject to more than one tax system;⁹ with Tax Commissioner Laszlo Kovacs at the same time explicitly stating that only the adoption of the CCCTB would enable a fully satisfactory solution to the problems of cross-border loss relief in Europe.

As already mentioned, however, the European Commission's efforts to intensify and accelerate work on the CCCTB are meeting with increasing resistance or at least fundamental scepticism.¹⁰ The European Commission's objective is the preparation of a formal proposal in the first half of next year. In case of a veto by the sceptical member states, the Commission plans to refile the proposal under the "enhanced cooperation" provision of the Treaty allowing a minimum of eight countries supportive of the concept¹¹ to press ahead regardless and to put a CCCTB in place by 2010.

It is quite obvious that any solution involving a small group of member countries only is suboptimal. The same holds for solutions which would not be mandatory but in which member states and/or firms could

participate on a voluntary basis, as the European Commission also envisages in its most recent proposal. Not only would such half-hearted reforms add to the already existing complexity and intransparency of European company taxation: they would also be unable to tackle the profit shifting issue.

The following deliberations focus, however, on a more fundamental evaluation of the European Commission's plan to replace national rules to determine the company tax base by a CCCTB against the EU's economic and legal framework.

It seems beyond doubt that a coordinated solution at the EU level is indispensable to protect national tax revenues against erosion through the profit shifting strategies applied by MNEs. Currently, most member states try to counter-act such tax-minimising strategies via unilateral measures, many of which are against Community law however, and are therefore increasingly endangered by ECJ judicature.¹²

The alignment of the tax base is a first important step towards a coordinated solution within the EU, as it would enhance the transparency and simplicity of European company taxation and thus reduce compliance and administration costs. As Jacobs et al.¹³ show, however, a common tax base based, for instance, on International Accounting Standards / International Financial Reporting Standards (IAS/IFRS) will not reduce the existing differences in effective company tax rates. This implies increasing pressure on nominal tax rates as the only tax competition parameters to remain after harmonising the tax base. Moreover, with persisting nominal tax rate differentials, the incentives for cross-border profit shifting would be upheld.

The move from separate accounting to the determination of a consolidated tax base based on uniform rules plus formula apportionment appears to be a more effective approach to the prevention of profit shifting. The implications of this coordination option for EU-wide company tax revenues and their distribution across member countries are the focus of several recent empirical studies. That these studies do not yield clear-cut results is due to methodological difficulties and differences, but it also underlines the crucial importance of the design of the apportionment formula and the set of rules to determine the tax base. De-

⁷ Cf. Margit Schratzenstaller: Company Tax Competition ... , op. cit., for a detailed discussion of the four alternative blueprints to coordinate/harmonise company taxation in Europe put forward by the European Commission in 2001.

⁸ European Commission: Towards an Internal Market without Tax Obstacles. A Strategy for Providing Companies with a Consolidated Corporate Tax Base for their EU-wide Activities, COM(2001) 582, Brussels 2001.

⁹ European Commission: Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee. Implementing the Community Programme for Improved Growth and Employment and the Enhanced Competitiveness of EU Business: Further Progress During 2006 and Next Steps Towards a Proposal on the Common Consolidated Corporate Tax Base (CCCTB), COM(2007) 223 final, Brussels 2007.

¹⁰ According to press reports, explicit opponents are the United Kingdom and Ireland, but also several new member states such as Latvia, Lithuania, the Slovak Republic and Malta; the group of sceptics consists, *inter alia*, of Belgium, Cyprus, the Czech Republic, Denmark, Finland, Greece, Poland, Portugal, Slovenia and Sweden.

¹¹ Explicitly supportive besides Germany are Austria, France, and Italy.

¹² Wissenschaftlicher Beirat beim Bundesministerium der Finanzen: Einheitliche Bemessungsgrundlage der Körperschaftsteuer in der Europäischen Union, Berlin 2007.

¹³ Otto H. Jacobs, Christoph Spengel, Thorsten Stetter, Carsten Wendt: EU Company Taxation in Case of a Common Tax Base, ZEW Discussion Paper, No. 05-37, Mannheim 2007.

vereux/Loretz¹⁴ show that almost all individual member states would realise higher company tax revenues and that EU-wide company tax revenues would increase considerably (by more than 8%) if all companies were forced to participate in a consolidation and apportionment procedure. These results are in stark contrast to the analysis conducted by Fuest et al.,¹⁵ according to which a common EU tax base with formula apportionment would significantly reduce the overall tax base. Moreover, smaller countries would lose more tax base than larger ones.

As this reform option means taxing company profits according to the source principle, however, cross-country tax rate differentials may distort location or other firm decisions, depending on the composition of the apportionment formula. A CCCTB plus formula apportionment may also provide incentives for member states to decrease their nominal tax rates to attract those economic activities or tax bases included in the apportionment formula. Therefore the introduction of a CCCTB plus formula apportionment without the alignment of tax rates might increase current economic distortions instead of reducing them.

The current debate among member states on the future of European company taxation leaves little doubt that unanimous political support for coordinated or harmonised company tax rates is highly unlikely. From

an economic point of view, however, a harmonisation of European company taxation which goes beyond the adoption of common rules to determine the tax base cannot be recommended without aligning company tax rates.¹⁶ However, also based on economic considerations, the introduction of a uniform minimum corporate tax rate in the enlarged EU cannot be considered a reasonable harmonisation measure.¹⁷ If the minimum corporate tax rate were fixed at a relatively low level it would not represent an effective downward barrier for the old member states with their on average relatively high nominal tax rates. A relatively high minimum tax rate, on the other hand, would harm the new member countries in face of the prevailing economic divergences in the enlarged EU: most new members would be forced to increase their corporate tax rates, which would deprive them of the option of offering a tax rebate that compensates for other locational disadvantages, thus possibly hampering the catching-up process by deterring foreign and domestic investment.

It may be useful, therefore, to consider a coordination option that involves a CCCTB plus formula apportionment combined with the introduction of a two-tier minimum corporate tax rate: a higher one for the old member states and a lower one for the new ones; at least until the existing economic divergences between old and new member countries have been levelled out considerably.

¹⁴ Michael P. Devereux, Simon Loretz: The Effects of EU Formula Apportionment on Corporate Tax Revenues, Oxford University Centre for Business Taxation Working Paper, No. 07/06, Oxford 2006.

¹⁵ Clemens Fuest, Thomas Hemmelgarn, Fred Ramb: How Would Formula Apportionment in the EU Affect the Distribution and the Size of the Corporate Tax Base? An Analysis Based on German Multinationals, Deutsche Bundesbank Discussion Paper, Series 1: Economic Studies, No. 20/2006, Frankfurt am Main 2006.

¹⁶ Wissenschaftlicher Beirat beim Bundesministerium der Finanzen, op. cit.

¹⁷ Margit Schratzenstaller: Company Tax Competition ... , op. cit.

Johannes Becker and Clemens Fuest*

Tax Competition and Firm Mobility: An Assessment of Empirical Findings

There seems to be a general consensus both in the political arena and among scholars that the corporate tax system has a substantial impact on a company's choice of location and investments. Since many countries consider inbound investment by foreign in-

vestors as supporting growth and employment, it is not surprising that, in the last decades, many countries have lowered the effective burden on corporations.

Surprisingly, at first glance, both relationships – between corporate taxation and investment and corporate taxation and a company's choice of location – are hard to identify with the aid of aggregate investment

* Cologne Centre for Public Economics, University of Cologne, Germany.

Table 1
Foreign Direct Investment Stocks and Effective Average Tax Burden

	1990	1994	1998	2002	Δ 1990-2002
Effective average tax rates					
Germany	0.50	0.46	0.48	0.34	-32%
France	0.30	0.27	0.35	0.29	-3%
United Kingdom	0.29	0.28	0.27	0.26	-12%
USA	0.32	0.33	0.33	0.33	3%
OECD	-	-	-	-	-
Outbound FDI stocks (US\$ million)					
Germany	130 760.3	194 523.4	365 195.7	586 095.8	348%
France	110 120.6	182 331.8	288 035.9	654 927.6	495%
United Kingdom	229 306.7	276 743.8	488 372.0	921 445.1	302%
USA	616 655.0	786 565.0	1 196 021.0	1 751 852.0	184%
OECD	1 710 130.1	2 365 822.7	3 766 649.3	6 126 041.2	258%
Inbound FDI stocks (US\$ million)					
Germany	74 066.8	85 904.8	250 319.9	510 208.7	589%
France	84 930.9	163 451.4	246 215.9	386 524.7	355%
United Kingdom	203 905.3	189 587.5	337 386.1	568 259.4	179%
USA	505 346.0	617 982.0	920 044.0	1 504 428.0	198%
OECD	1 290 137.5	1 728 308.1	2 915 712.9	5 179 517.3	301%

Source: OECD; Michael P. Devereux, Rachel Griffith, Alexander Klemm: Corporate Income Tax Reforms and International Tax Competition, Economic Policy, No. 35, 2002, pp. 449-488.

data. Table 1 shows the flow of foreign direct investments in specific countries over a certain period of time. In all of the four countries considered here both the inbound and the outbound stock of FDI experienced enormous growth rates. This can be seen as a general trend towards an integrated world economy. However, there is at least one surprising aspect. Throughout the whole period from 1990 until 2002, despite Germany's being the country with the highest effective average tax rate, it also had the highest growth rate in inbound FDI. Stocks in Germany have practically sextupled and that even before 2001 when taxes were drastically lowered.

The question is how the results shown in Table 1 are compatible with the general understanding that the high German taxes deter investment by internationally mobile investors. There are three possible answers to this question. Firstly, the alleged relationship between corporate taxation and firm relocation could be the result of political propaganda by certain political lobbies, i.e. the stories of factories shutting down and moving out because of high tax burdens could be widely exaggerated. It is possible that these factories would have shut down anyway and that it had nothing to do with too high taxation.

Secondly, an alternative, equally viable answer could be that a high tax burden does not necessarily affect all types of investment to the same extent but, in fact, only exacerbates certain types of investments. As

a matter of fact, Table 1 does not differentiate between investment types like foreign investments in green-field projects or foreign investment through mergers and acquisitions. No-one rejoiced when Vodafone acquired the German Mannesmann but nevertheless this investment also falls under the category of foreign direct investment in Table 1. If this answer were true, the precise analysis would imply that high taxes deter "good" investment projects and attract "bad" ones.

Thirdly, another possible explanation for the results in Table 1 is that high FDI is due to special conditions in Germany like, for example, branch-specific subsidies in East Germany. In this case, the effective tax indicators would not correctly reflect the tax burden of German firms because the subsidies are not taken into account. In other words, given the subsidy structure, foreign investment would have been even higher if Germany had lower tax rates.

There is a large and still rapidly growing body of literature which sets out to show which of the three different arguments outlined above is supported by the empirically observable reality. In this paper, we review and assess some of these studies with special emphasis on the connection between taxation and the relocation of firms and capital investment. We discuss hypotheses, review the data and the applied econometric methods and give an overview of the empirical results before discussing some tax policy implications.

Hypotheses, Data and Methods

The basis of every economic analysis is the concept of rational choice. Individuals facing two different alternatives choose the alternative that maximises their expected utility. In our case, an investor would have a choice between a real capital investment project and banking the same amount of money.¹ A rationally acting investor chooses the scenario with the higher after-tax yield. Consequently, an entrepreneur will always opt for the investment in capital until the after-tax yield of the last investment undertaken is the same as the after-tax yield of not investing and consigning the same amount of money to a bank. This means that the difference between taxation of the last marginal unit of capital, also known as its effective marginal tax rate (EMTR), and taxation of cash balance interests is crucial for investment. An investment distortion between financial assets and real capital would only occur if their tax rates differed. This can be summarised as

Hypothesis 1: The level of the domestic capital stock depends on the difference between the effective marginal tax rate (EMTR) for real capital and the taxation of financial assets.

If the investor has decided on whether or not an investment project is to be realised, the question arises *where* the investment should take place. Again, following the rational pattern, the investor would decide in favour of the location (here: country) with the higher expected after-tax yield. This may imply, though, that large tax differentials make the company choose a low tax location although the before-tax yield is lower.

In contrast to the former case when the optimal size of the real capital stock was determined, the relevant indicator for choice of location is *not* the effective marginal tax rate but the effective average tax rate (EATR) in both locations.² Whereas the EMTR measures the tax burden on the last capital unit invested, the EATR

captures the tax burden on the company (or project) as a whole. We summarise this as

Hypothesis 2: An entrepreneur's choice of location for production depends on the effective average tax rate (EATR) in the specific locations which are considered as potential production sites.

The first two hypotheses establish a connection between taxation and a company's decision to relocate its production and its decision to invest in capital or financial assets which means choices concerning the allocation of real capital. In recent years the debate, however, has shifted to encompass a multinational company's ability to manipulate the location of its profits. In the presence of profit shifting, multinational companies no longer need to change their real economic decisions (location and investment level) to profit from tax rate differentials but can simply shift their profits by using accounting techniques, financial policies and internal pricing.

In general, profit shifting can be achieved through two different methods. Firstly, internal input factor prices are manipulated to attain a certain cost level at the input production site. Secondly, intra-company loans are granted to manipulate the tax base and consequently avoid high tax burdens. This is possible because loans are tax deductible.

Through the use of both instruments a reduction of the tax base at one location automatically leads to an increase of the same amount at the other location. Therefore the relevant indicator for the scope and the direction of profit shifting is the difference between the statutory tax rates of the countries under consideration. This is summarised as

Hypothesis 3: The distribution of accounting profit depends on the difference between the statutory tax rates at the locations considered.

The level of capital investment, the choice of location and profit shifting are not the only company decisions in which taxes may play a distorting role. Naturally, there are other factors at play and more company decisions get affected by different standard tax rates. Nevertheless, the aforementioned factors have been the centre of attention in the literature and will be in the focus of this paper as well.

As far as the three hypotheses go, a general theoretical consensus has been established. This consensus, however, does not encompass the empirical analysis. As a matter of fact, even the seemingly easy question of how to quantify the tax indicators like the EMTR and the EATR is still not free of dissent. It is unclear wheth-

¹ If the investor chose the latter, this amount of money would be made available to other investors through the bank. This means that the level of domestic investment does not depend on the level of savings of domestic households but on the after-tax yield of an investment.

² The literature on the multinational's choice of location differentiates between two kinds of motivation for production relocation and outsourcing: a cost oriented relocation of production, where production is restructured to minimise costs, and a market-entry oriented relocation of production, where production is moved nearer to the consumer and, consequently, to lower transportation costs. In the literature it is assumed that cost oriented relocation decisions are more sensitive to tax changes than a market-oriented relocation of production. See James R. Markusen: Trade versus Investment Liberalization, NBER Working Papers, No. 6231, 1997; James R. Markusen: Multinational Firms and the Theory of International Trade, Cambridge and London 2002, MIT Press. For a more current study of Germany see Claudia M. Buch, Jorn Kleinert, Alexander Lippner, Farid Toubia: Determinants and Effects of Foreign Direct Investment: Evidence From German Firm-Level Data, in: Economic Policy, No. 41, 2005, pp. 53-110.

er a forward-looking indicator³ which bases its calculations on actual legal and administrative regulations, or a rather backward-looking tax indicator⁴ which is calculated using actual tax yield, is more adequate.⁵ This problem is amplified by the fact that the chosen indicators do not achieve the same results and consequently lead to different forecasts and policy recommendations.⁶

Apart from the methodological debate on the adequate tax indicators, data availability and the valid interpretation of available data appear to be of crucial importance. There is a general consensus that the optimal data for our purposes is micro-level data that can capture company-specific characteristics. One problem with micro-level data is the fact that they are hard to obtain. In addition to that, there are often doubts regarding the data's representativeness and reliability. These difficulties have led many economists to use aggregate country- and sector-specific data to test the aforementioned hypotheses. In these cases, the resulting identification problems are then weighed against the better availability and valid interpretation of the data.

The next step after collecting the needed data is to determine how changes in capital stock, choice of location and accounting profits can be made visible. This step is not as easy as it seems because not every change in the data of these determinants is the result of a deliberate choice made by a company. Changes in capital stock could also be the result of capital depreciation, profits can also increase due to an increase

in prices and not because of strategic company decisions, and so on.

Moreover, the successful identification of all changes in capital stock, choice of location and profit shifting is not enough. It is still necessary to develop a method that enables us to isolate decisions made by a company that were triggered, among other things, by a change in taxation. The econometric literature has developed a range of reliable instruments that help identify and isolate the targeted determinants. There are two different approaches to determining the effects of the factors chosen on changes in the given data: cross-sectional treatment and time series analysis. Economists mostly use a combination of these two dimensions, called *panel data*, which consists of data from many countries (or other jurisdictional levels) covering a certain number of periods. With the aid of panel data methods tax reforms can be treated as quasi-experiments which highlight the behaviour of companies in reaction to a change in the tax incentive scheme.

Seen from a general perspective and taking into account all the potential flaws and obstacles discussed above, one may be tempted to understand the media's and public's pessimistic stance toward scientific empirical research. In its defence it has to be said that partly flawed or imprecise results are still more precise and more objective than personal opinions and impressions. Additionally, scientific research does not stand still after one data collection, analysis and interpretation. The studies are replicated and repeated using different data and different methods. This process, accompanied and controlled by peers and the academic community, ensures that the results are valid and reliable. They are the best available and clearly outperform anecdotal evidence and common sense.

Empirical Evidence

In the following, we shall give a general overview of, and discuss, several contributions that study the effects of corporate taxation on investment, choice of location and profit shifting. There are two characteristic features of the literature which are worth mentioning in advance. Firstly, the bulk of studies is based on US data whereas studies covering Europe are more or less rare. Secondly, it seems that the bottleneck of economic research in this area is the availability of data. The most extensive and the qualitatively best data are collected in the USA, which partly explains the American bias in empirical research. Therefore, and because we cannot give a complete review of the

³ See Mervyn A. King, Don Fullerton: *The Taxation of Income From Capital*, Chicago and London 1984, University of Chicago Press.

⁴ See Enrique G. Mendoza, Assaf Razin, Linda L. Tesar: *Effective Tax Rates in Macroeconomics: Cross-Country Estimates of Tax Rates on Factor Incomes and Consumption*, in: *Journal of Monetary Economics*, Vol. 34, No. 3, 1994, pp. 297-323.

⁵ For an excellent introduction and an overview over this debate see Peter Birch Sørensen: *Measuring Taxes on Capital and Labor: An Overview of Methods and Issues*, in: P. B. Sørensen (ed.): *Measuring the tax burden on capital and labor*, CESifo Seminar Series, Cambridge and London 2004, MIT Press, pp. 1-33; Michael P. Devereux: *Measuring Taxes on Income from Capital in: P. B. Sørensen (ed.): Measuring the tax burden on capital and labor*, op. cit., pp. 35-71.

⁶ In an international comparison of tax indicators Germany has been placed in midfield by a backward-looking calculation (David Carey, Josette Rabesona: *Tax Ratios on Labor and Capital Income and on Consumption*, in: Peter Birch Sørensen (ed.): *Measuring the Tax Burden on Capital and Labor*, op. cit.), whereas a forward-looking calculation of all three tax indicators shows Germany as having the highest tax burden (Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung: *Für Stetigkeit – gegen Aktionismus*, Jahresgutachten 2001/2002, Stuttgart 2001, Metzler-Poeschel). See also Johannes Becker, Clemens Fuest: *Observable Depreciation Deductions and the Effective Marginal Tax Burden on Investment*, in: *Jahrbücher für Nationalökonomie und Statistik*, Vol. 226, No. 4, 2006, pp. 346-360.

literature, we shall pay special attention to articles that are more relevant to Europe.

The level of investment: The effect of corporate taxation on investment (hypothesis 1), especially investment in the USA, has been well documented in the literature. There is a relative consensus on the existence of a negative effect of corporate taxation on investment but not on its size. Chirinko et al.⁷ measure a negative elasticity of investment with respect to capital costs of -0.25. In contrast, Hasset and Hubbard⁸ calculated an investment elasticity of -0.5 to -1. This means that an increase of capital cost by 1% leads to a reduction of investment by 0.5 to 1%.

For the purpose of illustration, consider the following example. In 2001, corporate taxes in Germany were substantially lowered. The German Council of Economic Advisors⁹ reports that the tax reform reduced the capital costs of self-financing from 10.4% to 8.4%, which corresponds to a 20% reduction. Assuming an elasticity of -1.0 investments must consequently increase by 20%. Now, consider a "typical" German company which on average invests 7% of its capital stock in new assets. Leaving all other factors unchanged, this company would then invest 8.4% of its capital stock after the reform.

Of course, one may ask whether the results of US-based data are applicable in Germany or the European region. To date, research based on a set of European countries has been restricted to aggregate data, which has proven to be less robust. One reason for this is the fact that micro-level data for the region is very hard to obtain.¹⁰

Recently, a large German database became accessible: the MiDi-database of the Deutsche Bundes-

bank. Becker, Fuest and Hemmelgarn¹¹ have analysed the effect of the 2001 tax reform on the distribution of investment in German subsidiaries of foreign companies. By concentrating on firm-specific variations concerning effective tax indicators an elasticity of -1.3 for investment with respect to the effective marginal tax rate was estimated. Unfortunately, and not unlike other empirical estimations,¹² the results are not robust enough to withstand changes in the quantitative dimension of the data. Moreover, the estimated reaction only arises when the sum of real and financial asset investment is used. Estimating reactions for each type of capital separately shows that investment in fixed assets has surprisingly not reacted, or reacted in the wrong direction, to changes in major tax indicators. This confirms some of the reservations that were expressed by economists before passing the 2001 tax reform. Indeed, a broadening of the tax base to compensate for the reduction of tax rates (from 52.4% to 39.4%) was achieved by reducing depreciation rates for capital. This is especially disadvantageous for firms with a large share of fixed assets with high depreciation rates. These companies are evidently the losers of the reform.¹³ As a matter of fact, it has been shown that companies with large shares of financial assets have profited from the reforms by expanding their capital stock. We assume, however, that an encouragement of investment in financial assets was not regarded as the prime objective of the tax reform.

Choice of location: Now, consider the empirical connection between corporate taxation and a company's choice of location. Here, we report two studies that attempt to shed some light on the distorting effect of European taxation systems on a company's decision regarding its choice of location.

Devereux and Griffith¹⁴ evaluate the data of approximately 600 American firms that have chosen production sites in Europe. Their analysis focuses on companies deciding among Germany, the United Kingdom and France as production locations. With the aid of the observed distribution of American firms in Europe, Devereux and Griffith estimate the probability that an American firm would decide to locate its pro-

⁷ Robert S. Chirinko, Steven M. Fazzari, Andrew P. Meyer: How Responsive Is Business Capital Formation to Its User Cost? An Exploration with Micro Data, in: Journal of Public Economics, Vol. 74, No. 1, 1999, pp. 53-80.

⁸ Kevin A. Hassett, R. Glenn Hubbard: Tax Policy and Business Investment, in: Alan J. Auerbach, Martin Feldstein: Handbook of Public Economics, Vol. 3, pp. 1293-1343, Amsterdam, London and New York 2002, Elsevier Science, North-Holland.

⁹ Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, op. cit., p. 300.

¹⁰ Bénassy-Quéré et al. (Agnes Bénassy-Quéré, Lionel Fontagné, Amina Lahrière-Révil: How Does FDI React to Corporate Taxation?, in: International Tax and Public Finance, Vol. 12, No. 5, 2005, pp. 583-603) measure a significant negative effect of high corporate taxes on investment using a panel of OECD countries. They estimate semi-elasticities of between -3 and -9. It proved impossible, however, to replicate the results. Cf. Johannes Becker, Clemens Fuest, Thomas Hemmelgarn: How Does FDI React to Corporate Taxation? A Comment, University of Cologne Working Paper, 2006).

¹¹ Johannes Becker, Clemens Fuest, Thomas Hemmelgarn, op. cit.

¹² See also Thiess Büttner, Martin Ruf: Tax Incentives and the Location of FDI: Evidence From a Panel of German Multinationals, in: International Tax and Public Finance, Vol. 14, No. 2, 2006, pp. 151-64.

¹³ This is especially true when equilibrium effects are considered, i.e. wage and capital cost adjustments.

¹⁴ Michael P. Devereux, Rachel 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.

duction in Germany. Do taxes influence the company's decision? Devereux and Griffith's results imply that an increase in the effective average tax rate by 10 percentage points would reduce a company's likelihood to invest in Germany by 10 percentage points. A company's likelihood to invest in the UK or France would be reduced by 13 and 5 percentage points respectively.

Again, consider an illustrating example. Under the assumption that the elasticity was measured correctly and is stable over time, one could suppose that Germany's tax reforms in 2001, which lowered the effective average tax rates by 8 percentage points (from 48% to 40%), would have led to an increase in the probability of the company's investing in Germany by 8%. A further planned decrease in the course of the 2008 tax reforms would then have a similar effect.¹⁵

At this point, it is important to clarify one important aspect. All the estimations made here are based on the assumption that all other relevant factors have remained unchanged, which means that an increase in a company's likelihood to invest in Germany due to the tax reform of 2001 does not necessarily mean that an increase will actually be measured. As in 2001, a decrease in demand could also result in a reduction of investment in Germany and in effect counterbalance the decrease in effective average tax rates.

In a more recent study by Büttner and Ruf¹⁶ an approximate sample of 4800 companies and 18 different locations based on the German Bundesbank MiDi-Database have been used for the estimations. The results of these estimations show that an increase in the effective average tax rate by 10 percentage points should, *ceteris paribus*, lead to a lower probability of foreign direct investment in the given location by 3%.

But the empirical analysis also shows that the more sophisticated the estimation technique gets, the less important is the estimated impact of the EATR. In the final estimation only the statutory tax rates exert a robust and significant impact on the company's choice of location, which clearly stands in opposition to the hypothesised relation between the EATR and the investment decision. How is this possible? A possible explanation could be that companies do not consider the same factors as stated in hypothesis 1 for their investment decision. It is possible that they only consider the statutory tax rates. This explanation, however, is fairly improbable, because it can turn out to be ex-

tremely costly when investment decisions take place without tax base considerations. Büttner and Ruf identify possible accounting profits through profit shifting as a major reason for investment in countries with low tax rates. With access to such locations, profits made in high tax countries could easily be shifted to a low tax country.

Profit shifting: Profit shifting enables the company to react to taxation without any drastic investment decision. In this case, a company would not decide on the optimal form of investment or on the optimal location of its production site, but would decide on shifting its profits from a high tax country to a low tax country and profiting from tax rate differences. As Slemrod¹⁷ notes, profit shifting is a special form of tax avoidance that is not necessarily linked to real economic behaviour. From an empirical point of view, those types of behaviour are much more responsive to taxation than real economic decisions (investment or location choice).

As mentioned above, there are two instruments that can be used by any given company with production sites in different locations. The first method is to grant loans internally to the location with low tax rates. This is advantageous because interest payments are regularly deductible from the tax base. A study by Ramb and Weichenrieder¹⁸ shows that the size and the direction of loans which are granted between foreign parent companies and domestic subsidiaries react significantly to changes in taxation.

A second method of profit shifting is manipulating the prices of input factors that are produced internally. The manipulation of prices is only possible because the factor produced is not subjected to equilibrium market prices. In this case, transfer prices are either lowered or increased in order to shift profits successfully from one location to another.

Weichenrieder¹⁹ analyses the reaction of profit distribution with regard to differences in corporate taxation using the MiDi-Database of the German Bundesbank. The results of his regression analysis are the following: an increase in taxes in the location of the mother company by 10 percentage points is followed by an increase in the profitability of investments in subsidiaries in Germany by 0.5 percentage points. Unfortunately,

¹⁵ Such estimates are not directly applicable. Econometric methods can only demonstrate marginal effects, which mean reactions to minimal changes in the tax rate. For these reasons such results can only be treated as approximations to the actual possible reaction.

¹⁶ Thiess Büttner, Martin Ruf, op. cit.

¹⁷ Joel Slemrod: A General Model of the Behavioral Response to Taxation, in: International Tax and Public Finance, Vol. 8, No. 2, 2001, pp. 119-28.

¹⁸ Fred Ramb, Alfons J. Weichenrieder: Taxes and the Financial Structure of German Inward FDI, in: Review of World Economics/Weltwirtschaftliches Archiv, Vol. 141, No. 4, 2005, pp. 670-92.

¹⁹ Alfons J. Weichenrieder: Profit Shifting in the EU: Evidence from Germany, Working Paper, 2006.

in this case, the results were not robust to changes in specification, and a replication of the same regression analysis for German subsidiaries abroad was not successful.

Huizinga and Laeven²⁰ analyse the effects of taxation on profit shifting. They base their estimation on data from the Amadeus database, which includes data on European multinational companies. The authors estimate a semi-elasticity of declared profits with regard to tax rate differences in different locations of -1.4. This means that a company with production sites in Germany and Ireland and an "actual" profit of 15% of the capital stock would then increase its declared profits in Germany by 2.1% if corporate taxation in Germany decreased by 10 percentage points. Huizinga and Laeven's estimation clearly shows that especially in high-tax countries like Germany the distribution of the profits of multinational firms is strongly affected by profit shifting activities.

Applying these results to the planned tax reforms in Germany, a planned reduction of tax rates for company profits by 8 percentage points would lead to an increase of declared profits in Germany by approximately €13 billion.²¹ The German Finance Ministry has estimated the effect to encompass an increase in declared profits of €3.5 billion which corresponds to Huizinga and Laeven's estimations. Nevertheless, a possible flaw in this estimation is the fact that not all companies have extensive profit shifting opportunities. Taking this into account, the German Finance Ministry's estimation is to be considered rather optimistic.

Policy Implications and Conclusion

What can be learned from the empirical studies described above? And what policy conclusions should be drawn from this? First of all, we can state: Taxes do matter!²² There is strong evidence that taxes play a significant role in company decisions. Nevertheless, in the course of this text, some reservations have become evident.

Firstly, the results of the aforementioned empirical examples have made clear that the quality of the data used must be regarded with some reservation. In most cases, the quantitative dimension of the estimated results is highly uncertain. A good policy recommendation, however, should be based on quantitative analysis in order to decide if the events following a tax reform are the effects targeted and aimed at.

A second problem is that most tax policy recommendations are not revenue-neutral, which implies that other factors are affected even though they were not in the scope of the reform. A possible example is a decrease in corporate tax rates that is immediately followed by an increase in value added tax. Taking this into consideration, a reasonable tax reform recommendation should measure all the effects in the corporate sector, but also should not neglect negative effects in related sectors, something that was not done in all the papers mentioned above.

The third aspect that should be considered with caution is the question whether foreign direct investment is desirable from a general point of view. This reservation focuses on the quality of investment also described as the *composition effect*.²³ To understand this effect, one should think of an investor who acquires a company in Germany, transfers patents and technology to another country and substantially reduces the number of employees. This kind of investment is hardly desirable from the national perspective. In contrast, consider the same scenario for an investor who buys a German production site which is then modernised with the aid of superior technology and know-how. In this case, jobs at the production site that might have been at risk are now more secure due to the foreign investment.

As indicated above, the FDI data contains green-field investment projects where the investor starts the production site from scratch as well as mergers and acquisitions.²⁴ The latter type of investment may have undesirable effects on the level of competition. Again, it might be of crucial importance *which* projects are attracted by certain tax policy measures rather than *how many*.

As a last application of the quality versus quantity argument it is worth taking a closer look at recent corporate tax reforms. Many of them consisted of lowering

²⁰ Harry Huizinga, Luc Laeven: International Profit Shifting within European Multinationals, Working Paper 2005.

²¹ Here, we have assumed that the taxable profits of German multinational corporations in 2008 are €116 billion (as the Federal Ministry of Finance has estimated). It follows that an 8 percentage point reduction in the German tax rate increases the tax base by $116 \cdot 8 \cdot 0.014 = €12.992$ billion. Assuming a statutory tax rate of 30%, tax revenues would increase by €3.8976 billion.

²² In the aftermath of the tax reform act of 1986, a research programme was started under the title "Do Taxes Matter?". See e.g. Joel Slemrod (ed.): Do Taxes Matter? The Impact of the Tax Reform Act of 1986, 2nd edition, Cambridge 1992, MIT Press.

²³ See Johannes Becker, Clemens Fuest: Quality versus Quantity – The Composition Effect of Corporate Taxation on Foreign Direct Investment, University of Cologne Working Paper, 2007.

²⁴ See also Johannes Becker, Clemens Fuest: Tax Competition and International Mergers and Acquisitions, University of Cologne Working Paper, 2007.

the tax base and abolishing certain types of deductibility, e.g. for asset depreciation. Scholars speak of the tax-rate-cut-cum-base-broadening-type. Empirical studies that dealt with the last tax reform have shown that the planned decrease in tax rates that were accompanied by a broadening of the tax base, through lower depreciation rates, have been disadvantageous to firms with a large share of fixed assets. Holdings and other firms with a large share of financial assets have been the winners of this reform. From the perspective of the governments, which often argued that corporate tax reform helps increase employment, this effect may not seem very desirable. Even if these reforms have increased investment in the countries under con-

sideration, they may have triggered the “wrong” type of investment project while deterring those which are accompanied by job growth.

We may thus conclude that a full understanding of tax effects on company decisions still needs considerable research. The quality and quantity of the data must improve to achieve more reliable estimations regarding company decisions and tax reforms. Furthermore, data concerning old tax reforms should be stored and systematically analysed. Finally, there are some general theoretical questions concerning the welfare effects of international capital flows and firm migration (what we call the qualitative dimension of FDI) that still remain unanswered.

Christina Elschner and Michael Overesch*

Trends of Corporate Tax Levels in Europe

Corporate taxation in Europe is still far from harmonisation. Tax regulation differs significantly, not only with respect to the statutory tax rates but also with respect to the determination of tax bases. Since the decision-making process of firms seems to be affected by taxation, governments might, to a certain extent, compete in terms of low tax burdens for companies in order to attract investment and profits. We aim to provide some insight into the developments of effective corporate tax levels in Europe over the last 25 years. The focus of our analysis is a comparison of the effective tax levels, which are relevant for business decisions, at different locations and over time. The remainder is structured as follows. We first introduce different indicators measuring corporate tax levels. We then examine the development of corporate tax levels in Europe from 1982 to 2006. This is followed by a presentation of empirical evidence on the impact of countries' tax policy in Europe on firm's decisions and some conclusions.

Indicators of the Effective Tax Burden

Meaningful indicators are needed in order to compare tax levels at different locations. In general, the literature distinguishes between backward- and forward-looking tax indicators.

Backward-looking measures are based on macroeconomic tax revenues¹ or firm-level tax payments,² i.e. on tax results of past decisions. Besides several problems arising from calculations, e.g. discriminating between the tax revenue from corporations and from personal capital income, backward-looking measures cannot clearly indicate the impact of taxation on future business decisions.³ These indicators are nevertheless helpful in analysing the distribution effects of taxation. In the case of an analysis of tax effects on business decisions however, forward-looking approaches are more appropriate as they indicate the tax burden as a share of an investor's financial target, e.g. the project's net present value. Therefore, the use of this latter class of indicators seems more suitable when discussing tax policy and its effects on business decisions over time.

The simplest forward-looking indicator is the statutory corporate income tax rate (CITR). However, a comparison based only on CITRs neglects any differ-

* Centre for European Economic Research (ZEW), Mannheim, Germany.

¹ See European Communities: Structures of the Taxation Systems in the European Union – Data 1995-2003, Luxembourg 2005.

² See e.g. M. Desai, F. Foley, J. R. Hines: Repatriation Taxes and Dividend Distortions, in: National Tax Journal, Vol. 54, 2001, pp. 829-851.

³ Cf. P. B. Sørensen: Measuring Taxes on Capital and Labor: An Overview of Methods and Issues, in: P. B. Sørensen (ed.): Measuring the Tax Burden on Capital and Labor, Cambridge 2004, pp. 17-19.

Table 1
Assumptions of the Investment Model

Assumption on ...	Value
Legal Form	Corporation
Industry	Manufacturing sector
Assets (weight)	Industrial buildings, intangibles, machinery, financial assets, inventories (at equal weights)
Sources of finance (weight)	Retained earnings (1/3), new equity (1/3), debt (1/3)
True economic depreciation	Declining balance method
	Industrial buildings 3.1%
	Intangibles 15.35%
	Machinery 17.5%
Real interest rate	5%
Pre-tax real rate of return (for calculation of EATR)	20%
Inflation rate	2%

ences in the determination of tax bases and the existence of non-income taxes. Therefore, the CITR is only applicable if differences in the determination of the tax base are not relevant, e.g. in case of pure profit-shifting by means of finance or transfer-pricing. The CITR may have an impact on business decisions as an easily available heuristic indicator, since determinants in decision-making can be very complex in practice. Nevertheless, a more appropriate indicator should reflect all relevant income and non-income taxes imposed on corporate investments, as well as all the rules determining the tax bases, such as depreciation rules.

For this reason, we calculate *effective* tax rates using an approach introduced by Devereux and Griffith.⁴ The underlying idea is to determine the effective tax burden of a hypothetical, standardised investment project whilst taking into account the tax legislation, which is in force at the respective location and year. In order to isolate the tax effects, we posit that the economic assumptions about the investment project such as asset mix and sources of finance are equal for each calculation. Table 1 contains a description of the detailed specifications of the investment model. The model covers the most relevant tax provisions of the tax systems. With respect to corporate taxation, it considers headline CITRs as well as surcharges and – where applicable – special rates for particular types of income and expenditures. It also takes into account the most important features of non-income taxes ex-

cept net wealth taxes on immobile property. With regard to the definition of tax bases, the investment model considers the relevant rules concerning, for example, capital allowances, valuation of inventories and interest deductibility in the case of debt financing.

The calculated effective tax rate reflects a reduction caused by taxation in the return on the standardised investment project in per cent.⁵ Depending on the level of the expected return on investment, different measures can be determined: the effective marginal tax rate (EMTR) measures the effective tax burden attributable to marginal investments, whereas the effective average tax rate (EATR) shows the effective tax burden on a profitable investment project.

The choice of a tax indicator for decisions about mobile investment depends on the expected rate of return on the project. The difference between both indicators stems from the different relevance of the statutory tax rate on the one hand and the determination of the tax base as well as non-income taxes on the other hand. While the EATR equals the EMTR if a project's rate of return equals its cost of capital, the EATR converges against the statutory tax rate with an increasing profitability of an investment project. If investments display the same initial costs but different levels of return, capital allowances shield a lower proportion of the generated cash-flow with increasing profitability. Thus, the tax base and non-income taxes become less relevant the higher the expected rate of return of a project. For calculating the EATR we assume a rate of return of about 20 per cent. Although expected profitability may differ and is unobservable in practice, empirical analyses indicate that an EATR is a suitable indicator for the tax impact on location decisions of multinationals.⁶ The EMTR constitutes a suitable indicator for the impact of taxation on the investment level at an existing affiliate of a multinational group.

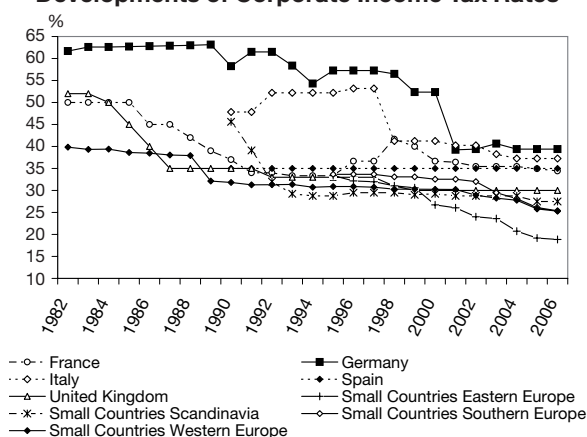
In this article, we compute time series for both the EMTR and the EATR and present time series of the CITR. The computations build on previous work by

⁴ Cf. M. P. Devereux, R. Griffith: The Taxation of Discrete Investment Choices, IFS Working Paper W98/16, Revision 2, London 1999.

⁵ Detailed technical descriptions of the calculation of effective tax rates are provided by M. P. Devereux, R. Griffith: The Taxation of Discrete Investment Choices, IFS Working Paper W98/16, Revision 2, London 1999; U. Schreiber, C. Spengel, L. Lammersen: Measuring the Impact of Taxation on Investment and Financing Decisions, in: Schmalenbach Business Review, Vol. 54, 2002, pp. 2-23.

⁶ Cf. 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, 1998, pp. 335-367; T. Buettner, M. Ruf: Tax Incentives and the Location of FDI: Evidence from a Panel of German Multinationals, International Tax and Public Finance, Vol. 14, 2007, pp. 151-164.

Figure 1
Developments of Corporate Income Tax Rates



Note: Small Countries Eastern Europe: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia; Small Countries Scandinavia: Denmark, Finland, Norway, Sweden; Small Countries Southern Europe: Cyprus, Greece, Malta, Portugal; Small Countries Western Europe: Austria, Belgium, Ireland, Luxembourg, Netherlands, Switzerland (Zurich).

Source: ZEW.

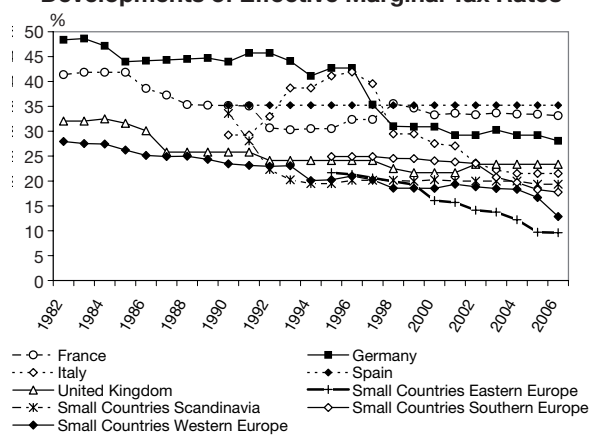
Overesch⁷ but are augmented by additional data and locations. The following time series aim to provide some insight into the dynamic of the European tax competition process. The results show the development of individual tax policies and, in particular, of relative tax positions of locations over time.

Developments over the Last 25 Years

We examine corporate tax levels in all 27 EU member states and, additionally, in Norway and Switzerland. Depending on the data availability, our time series cover up to 25 years from 1982 until 2006. In the case of smaller countries, the results are pooled over geographical groups in order to preserve clearness of display. Figure 1 indicates a clear trend of decreasing statutory tax rates during the last decades, although a few countries display increasing tax levels in several periods. For example, France, Germany and Italy imposed higher taxes in several periods but they were obviously unable to abide by this course. France and Italy levied certain surcharges and taxes. Germany temporarily augmented the tax rate in the context of the reunification during the 1990s. However, increasing tax rates were never very persistent. Overall, the last 25 years showed a clear trend of reducing the statutory corporate tax rates.

⁷ Cf. M. Overesch: The Effective Tax Burden of Companies in Europe, CESifo DICE Report, Vol. 4, 2005, pp. 56-63.

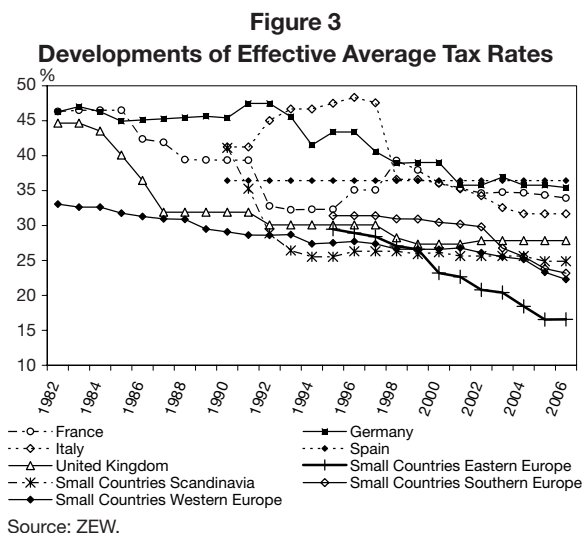
Figure 2
Developments of Effective Marginal Tax Rates



Source: ZEW.

The development of effective tax rates, which additionally consider the determination of the tax bases and non-income taxes, is also affected by these significant rate cuts. This can be seen, for example, from Figure 2, where time series in terms of the EMTR are reported. Although marginal investments benefited less from rate cuts, the resulting effects were not fully compensated by typical base broadening activities. In the 1980s, for example, the UK enforced a rate cutting cum base broadening strategy by means of reduced capital allowances. The tax burden attributable to marginal investments displayed in Figure 2 shows that this policy, however, implied an only slight effective tax reduction. The time series of Figure 3 shows the development of the tax burdens attributable to profitable investments. Hence, the statutory rate cuts particularly improved the relative position of the UK as an investment location for highly profitable investments, since profitable investments benefited more from the statutory tax rate cuts.

In the early 1990s, significant reductions in effective tax rates had taken place in Scandinavia. The Scandinavian countries lowered the effective tax burden by introducing dual income tax systems. These tax systems impose a significantly lower tax rate on capital profits compared to other kinds of income. During this period, the Scandinavian locations offered comparably favourable tax levels. However, by now this advantage has been mitigated by tax reductions at competing locations. In particular, other small countries in Southern and Western Europe have significantly reduced their tax levels. Currently, among the smaller countries of Europe the group of Scandinavian countries exhibit comparably high tax levels.



From 1982 until 2006, the smaller Western European countries reduced their effective tax rates in several tax reforms. A comparison between the time series of the EMTR and the CITR of the smaller countries in Western Europe indicates that the reduction in tax levels stems largely from cutting statutory tax rates. That means the attractiveness of these locations increases most for the location of highly profitable investment and paper profits. An important exception is the Belgium tax reform of 2006. Since then, Belgian corporations may deduct a notional interest on corporate equity from the tax base. As a consequence, the EMTR has diminished significantly and thus attractiveness has increased for equity financed marginal investments.

The figures clearly show the aggressive tax reductions in the new EU member states in Eastern Europe. Since these countries have significantly reduced their statutory tax rates, the effective tax rates are likewise very low, irrespective of the expected profitability of investments. Furthermore, changes in the determination of the tax base such as capital allowances were not very important. The graphs suggest a continuous tax reduction process during the last years. However, the effective tax rates of the new EU member states before joining the EU must be interpreted with caution. The indicators do not reflect the noteworthy tax incentives such as tax holidays which were granted by these states before the EU enlargement.⁸ These special tax regimes have been abolished in favour of overall cuts in the statutory tax rates.

⁸ See ZEW, Ernst & Young: Company Taxation in the New EU Member States, First Edition, Frankfurt, Mannheim 2003.

Generally, the five big European economies France, Germany, Italy, Spain and the United Kingdom have the highest tax levels among the countries considered. This confirms the theoretical predictions of tax competition that small open economies in particular should offer low tax levels. Most of the decreases in effective tax rates are due to significant reductions in the CITR over the last decades. Moreover, non-income taxes at corporate level have been abolished, e.g. in Germany in 1997 and 1998. Particularly marginal investment projects benefit from the abolishment of non-income taxes. However, France and Spain still levy non-income taxes to a significant extent, which results in the highest EMTRs among European countries. At these locations, it is less attractive to increase investment levels.

With regard to the attractiveness for highly profitable investments indicated by the EATR, Figure 3 shows similar comparatively unfavourable positions for locations in Germany and Italy due to the high statutory tax rates in these countries. Currently, the German statutory tax rate is the highest among European countries. In 2006, the gap between the latter and the average rate of the other 28 European countries considered amounted to 14.8 percentage points. The gap between the German CITR and the average of the 10 new EU member states in Eastern Europe comprised more than 20 percentage points. Since 2001, the gap between the German CITR and the average of the other European countries has increased by 5.2 percentage points. Apart from the negative effects on investment decisions, the increasing gap might also have an impact on incentives to shift paper profits out of German affiliates. Therefore, the tax reform currently going through the legislative process in Germany seems to comprise a straightforward approach. For 2008, the German government have announced a decrease in the statutory tax rate of 8.8 percentage points. Considering ongoing tax rate cuts in other countries, however, this will only enable Germany to recapture the relative position gained after the last major tax reform in 2001.

Germany is not the only country currently discussing a tax reform. The tax rate cutting is continuing in the smaller European countries as well as in the larger ones. In 2007, Bulgaria reduced its CITR from 15 per cent to 10 per cent. Estonia and Slovenia are steadily reducing their tax rates with a view to ending up with a final tax rate of 20 per cent in 2009 and 2010 respectively. Greece has lowered the tax

rate by 3 percentage points to 25 per cent from 2007 on. The Dutch CITR decreased from 29.6 per cent to 25.5 per cent in 2007. Moreover, the high tax country Spain implemented a substantial tax reform. After having had a constant CITR of 35 per cent over the last decades, it will decrease gradually from 35 per cent in 2006 to 30 per cent in 2008. Taking these dynamics into account, Germany might again occupy the last position in Europe with respect to the corporate tax burden – despite the company tax reform in 2008.

Some Evidence on the Effects of Differences in Tax Levels

Effective tax rates can be used to analyse the differences in the tax burden of investment in Europe. However, from a theoretical point of view it is unclear whether and to what extent companies' decisions about the location of production and profits are affected by these differences. It is reasonable to assume that multinationals' decisions are significantly affected by other non-tax location characteristics such as the size of, and distance from, local markets or factor costs such as the cost of the workforce. Our analysis shows significant differences between the tax burdens at European locations, which might reflect these non-tax location factors. However, this argumentation does not seem entirely convincing if one compares, for example, countries such as Benelux, which exhibit comparatively low tax levels, with France or Germany.

Indeed, empirical studies based on European firm-level data show that, despite the role other factors play, taxes also matter. This literature confirms significantly negative effects of the host country's tax level on the size or the frequency of FDI.⁹ These results suggest that tax policy can be used to attract foreign investment. In particular, in cases where the non-tax characteristics differ only minimally, significant differences between the tax levels may have a strong impact on investment decisions. Furthermore, there is strong evidence that, apart from real investment decisions, multinationals' location of paper profits is affected by the disparity in statutory tax rates in Europe. Several studies show that financial

structures¹⁰ and transfer pricing¹¹ are used as profit shifting tools. The success of such shifting strategies is confirmed by studies which find that the profitability of multinationals' affiliates is affected by the local tax rate.¹² Therefore, countries compete for both real investments and paper profits. The time series presented above suggest that the countries react in both dimensions and have lowered their effective marginal and average tax rates in order to attract investment. Moreover, they have also lowered their corporate income tax rate in order to compete for the location of paper profits. The developments of the tax indicators presented also suggest that countries tend to close increasing gaps in tax levels by means of tax reforms.

The tax reduction process in Europe is associated with a tightening of legislative measures designed to restrict cross-country profit shifting. In 1996, only 12 of the 29 European countries considered exhibited a specific thin-capitalisation rule to restrict profit shifting by means of intra-company finance. Until 2006, the number of countries which implemented such constraints on intra-company financing, increased to 20. Furthermore, the existing thin-capitalisation rules were tightened during this period. Currently, additional restrictions on interest deduction are pending, e.g. in Germany. A similar trend can be found in the increasing controlled-foreign-company (CFC) legislation designed to combat tax-haven affiliates. In 1996, only ten of the countries considered had special CFC-legislation. In 2006, this number rose to fourteen.

Obviously, the idea behind sharpening anti-avoidance legislation and restricting paper-profit shifting is to generate tax revenue. However, from a theoretical point of view it is to be expected that companies' real investment decisions will become more tax sensitive if tax evasion by means of cross-country profit shifting

⁹ For a survey of tax effects on FDI see R. de Mooij, S. Ederveen: Taxation and Foreign Direct Investment: A Synthesis of Empirical Research, in: *International Tax and Public Finance*, Vol. 10, 2003, pp. 673-693, recently updated by R. de Mooij, S. Ederveen: Explaining the Variation in Empirical Estimates of Tax Elasticities of Foreign Direct Investment, Tinbergen Institute Discussion Paper No. 2005-108/3, 2005.

¹⁰ Cf. e.g. J. Mintz, A. Weichenrieder: Taxation and the Financial Structure of German outbound FDI, CESifo Working Paper 1612, Munich 2005; T. Buettner, M. Overesch, U. Schreiber, G. Wamser: Taxation and Capital Structure Choice – Evidence from a Panel of German Multinationals, CESifo Working Paper 1841, Munich 2006; H. Huizinga, L. Laeven, G. Nicodème: Capital Structure and International Debt Shifting in Europe, CEPR Discussion Paper 5882, London 2006.

¹¹ Cf. e.g. M. Overesch: Transfer Pricing of Intrafirm Sales as a Profit Shifting Channel – Evidence from German Firm Data, ZEW Discussion Paper 06-084, Mannheim 2006.

¹² Cf. e.g. A. Weichenrieder: Profit Shifting in the EU – Evidence from Germany, Paper presented at the European Tax Policy Forum Conference "The Impact of Corporation Taxes across Borders", London 2006; H. Huizinga, L. Laeven: International Profit Shifting within European Multinationals, CEPR Discussion Paper 6048, London 2007.

is restricted. This theoretical prediction is empirically confirmed, for example, by Buettner et al. Based on a panel of German multinationals, they find that the elasticity of real investment decisions with regard to the local tax rate increases significantly when a host country exhibits a thin-capitalisation rule.¹³ Hence, a reinforcement of tax-competition in Europe can be expected.¹⁴ From a high tax country's perspective, the importance of the relative level of the local tax burden on companies' investment will increase. That means, for example, that after Germany's announced tightening of several anti-avoidance rules in the 2008 tax reform, the level of the tax burden on investments in Germany will become more important. Hence, the effective tax level measured by indicators based on a standardised investment project may become more meaningful for the tax impact on investment decisions, since profit-shifting opportunities will be restricted. Since the tax elasticity of real investments with regard to the host country's tax level will be increased by the tightening

of anti-avoidance legislation, policy-makers should be aware of future tax reductions in other European countries. Otherwise, a high tax country might lose not only tax revenues but also real investments and jobs due to their neighbouring countries' future tax policy.

Conclusion

Corporate tax levels in Europe show a clear downward trend. In this article, we have shown the developments of statutory tax rates and effective tax rates, including the determination of tax bases, over time. We can conclude that a standardised investment faced a decreasing tax burden in all countries over the last 25 years, despite some base-broadening legislation. There is empirical evidence that taxes matter for the size and frequency of foreign direct investment. Hence, it can be concluded that the tax-cutting policies in Europe improve the attractiveness of locations. There is also strong evidence that differing tax levels result in cross-country profit shifting activities. The time series presented suggest that the countries react in both dimensions and compete for both real investments and paper profits. However, the countries' efforts at tightening anti-avoidance legislation to keep tax revenues in their own country may increase the tax elasticity of real investment decisions, and thus may enforce tax competition.

¹³ Cf. T. Buettner, M. Overesch, U. Schreiber, G. Wamser: The Impact of Thin-Capitalization Rules on Multinationals' Financing and Investment Decisions, CESifo Working Paper 1817, Munich 2006.

¹⁴ Cf. e.g. M. Keen: Preferential Regimes can make Tax Competition less Harmful, in: *National Tax Journal*, Vol. 54, 2001, pp. 757-762; S. Peralta, X. Wauthy, T. van Ypersele: Should Countries Control International Profit Shifting?, in: *Journal of International Economics*, Vol. 68, 2006, pp. 24-37.

Bernd Genser and Dirk Schindler*

Dual Income Taxation as a Stepping-stone Towards a European Corporate Income Tax

Although globalisation in trade and in particular in financial markets forced national governments to adjust their capital income tax regimes to capital mobility and to strategic tax competition since the mid 1980s, there is evidence that national governments facing this increased pressure have an interest in taxing corporate income at the national level. This interest is also true for EU member states but it has not led to coordinated actions in the past. The Commission denied the necessity of harmonising corporate income taxation when the proposals of the Ruding report¹ were discussed in the early 1990s. One reason was

certainly the EC Treaty which, although fundamentally revised and extended by the European Single Act and the Treaty of Maastricht, only addresses the harmonisation of commodity taxes. There have, however, been agreements and EU directives concerning the abolition of income tax discrimination for transborder capital flows (merger directive, parent subsidiary directive), improved transborder cooperation of tax authorities (administrative assistance, arbitration convention), or harmful tax practices (code of conduct on business taxation). Objectives behind these measures have been competitiveness in the internal market and administrative issues rather than revenue and tax policy targets.

* University of Konstanz, Germany. The authors are indebted to Andreas Reutter for helpful comments.

The Bolkestein report² marked a change in the EU's position towards capital taxation by stressing the importance of supranational coordination of capital taxation. Most member countries seem to subscribe to the necessity for stronger capital income tax coordination, but little if any progress can be identified. Governments are very reluctant and unwilling to shift competences in capital income taxation to the EU, because this is recognised to have major fiscal repercussions on national income taxation and national tax revenue. To overcome this standstill Sijbren Cnossen recently proposed an agenda for capital income tax coordination in the EU, which in his view should pave the way towards broader political support.

The paper is organised as follows. To begin with, the Cnossen agenda, which calls for the introduction of a dual income tax (DIT) in EU member countries as a first step, is presented. The characteristic features of a pure dual income tax are then sketched. This is followed by a discussion of the current DIT system in the Nordic countries, which after recent reforms differs from the traditional DIT system implemented in the 1990s. Next we show that tax reforms in many other EU member countries introduced DIT type schedular tax elements. This is also true for the most recent German tax reform, which we sketch subsequently. We argue in the concluding part that both the deviation from pure DIT in the Nordic countries and the reform steps in non-DIT countries may prove beneficial for the Cnossen reform agenda.

The Cnossen Agenda for a Coordinated European Capital Income Tax

Based on important common features in the very heterogeneous picture of highly diverse capital income tax traditions across the EU, Sijbren Cnossen³ proposes a corporate income tax coordination agenda which comprises five sequential steps.

1. All member states introduce a dual income tax system which taxes capital income at a single flat rate below the top rates on separately taxed labour income. The low flat rates on capital income at the personal level should mitigate the distorting effects

of effective capital tax differentials due to corporate and personal tax rates on capital income.

2. All member countries introduce a flat withholding tax on interest income at a rate that equals the national corporate income tax rate. This mandatory interest tax should treat interest and dividend income alike and mitigate incentives for debt financing and thin capitalisation.
3. The EU recommends an approximation of corporate income tax rates among EU member states, e.g. by introducing a lower bound to reduce transfer pricing incentives.
4. Based on the results attained by steps 1-3 the EU proposes the introduction of an EU-wide comprehensive business income tax⁴ which uses a common tax base in all member countries, in line with the proposal made in the Bolkestein report. The comprehensive business income tax does not allow for deducting interest from the income tax base and treats returns on equity and bonds symmetrically. This, however, does not mean a change in the economic returns, because the withholding tax introduced in step 2 already made the tax system equivalent to a comprehensive business income tax. The splitting of the common tax base of multinational companies must be solved by formula apportionment.
5. The final long-term harmonisation step is a European corporate income tax with a single tax rate set by the Council of the EU.

In his evaluation of the five agenda steps Cnossen is reluctant and inserts a break after step 3 for a fresh review of the Bolkestein proposals. He also admits that a true European corporation tax requires fundamental changes in the EC Treaty. In the following we concentrate on steps 1-3 and show that recent tax reforms in the EU member states have provided an even more favourable environment for the Cnossen agenda.

Characteristic Features of a Pure DIT

The most characteristic feature of a DIT⁵ is its tax base split of total income into capital and labour in-

¹ European Commission: Report of the Committee of Independent Experts on Company Taxation (Ruding report), Luxembourg 1992.

² European Commission: Company Taxation in the Internal Market (Bolkestein report), SEC 1681, Luxembourg 2001.

³ S. Cnossen: The Future of Corporate Income Taxation in the EU, in: Austrian National Bank (ed.): Capital Taxation after EU Enlargement, Proceedings of OeNB Workshops No. 6, Vienna 2005, pp. 165-201; S. Cnossen: Reform and Coordination of Corporation Taxes in the European Union: An Alternative Agenda, in: Bulletin of International Fiscal Documentation, 2005, pp. 134-150.

⁴ Cf. for example S. Cnossen: Company Taxes in the European Union: Criteria and Options for Reform, in: Fiscal Studies Vol. 17, 1996, pp. 67-97.

⁵ Cf. for example R. Boudway: The Dual Income Tax System: An Overview, in: CESifo Dice Report, Vol. 2, No. 3, 2004, pp. 3-8; S. Cnossen: Taxing Capital Income in the Nordic Countries: A Model for the European Union?, in: FinanzArchiv, Vol. 56, 1999, pp. 18-50; B. Genser, A. Reutter: Moving Towards Dual Income Taxation in Europe, in: FinanzArchiv, Vol. 63, 2007, forthcoming; P. B. Sørensen (ed.): Tax Policy in the Nordic Countries, London 1998, Macmillan; P. B. Sørensen: Dual Income Tax: Why and How?, in: FinanzArchiv, Vol. 61, 2005, pp. 559-586.

come. Both kinds of income are liable to separate tax rates or tax scales. The higher degree of freedom for tax policy allows for reducing the excess burden of income taxation.⁶

Assigning income from different economic activities to the two schedules is clear for traditional income classes: wages and salaries, as well as fringe benefits, but also social security transfers and pension payments belong to labour income. Interest income, dividends, rents and capital gains in real capital assets (including property) are classified as capital income. The tax base split is, however, more complicated for business income, because business income is an aggregate consisting of return to capital invested into the firm and of employer's salary, paid for work in the firm. Dividing up this aggregate has been regarded as the "Achilles Heel" of a DIT,⁷ and two different methods for coping with this problem were developed. Under the *source principle* an imputed capital return on business assets determines capital income and the residual annual profit is taxed as labour income. Under the *fence principle* business income is taxed as capital income, as long as profits are retained, and the split into capital and labour income is only enacted when profits are distributed to the owners. Unfortunately, both methods generate problems, e.g. discrimination, lock-in effects, overcapitalisation.⁸ These were one reason for the DIT reforms in the Nordic countries discussed below.

Under a pure DIT, all capital income is taxed at a flat rate, whereas labour income is liable to a progressive tax schedule. In order to prevent tax arbitrage incentives and possibilities – at least for low-income earners – the lowest labour income bracket is set equal to the capital tax rate. Personal allowances can be deducted from labour income implementing indirect progressivity also for the lowest labour income bracket. These allowances should, however, be precluded for capital income in order to sustain the advantage of final withholding taxes.

In the case of negative capital income, loss offsets are granted. Two ways are possible. The somewhat critical first option is to offset capital losses against positive labour income – thereby reintroducing an ele-

ment of comprehensive income taxation. The preferable second option is a capital income tax credit, which can be used to balance other tax liabilities.

A last important feature of a pure DIT is the abolition of double taxation of dividend income by corporate and personal income taxes. If the corporate tax rate is equal to the DIT rate on capital income, full integration can be accomplished efficiently either by exempting dividends from the withholding tax (either directly or via a corporate income tax credit) or by deducting dividends from the corporate income tax base. In either case, the incentive to retain company profits vanishes.

The Current DIT System in the Nordic Countries

Norway, Finland and Sweden implemented dual income tax systems in the early nineties, which taxed interest income and dividend income of passive shareholders at a flat rate which was equal to the first bracket rate on progressively taxed labour income. Another characteristic feature was mandatory income splitting for entrepreneurial income of active shareholders in closely held companies and of proprietors or partners in non-incorporated businesses. The required splitting of compound income into a capital and a labour income component was based on the imputation of capital income by applying a publicly fixed normal rate of return on entrepreneurial assets. This imputed capital income was taxed at the flat rate on capital. The residual business income was regarded as labour income and taxed progressively.

Apart from difficulties in defining the two tax bases appropriately due to the tax incentive to transform highly taxed labour income into preferentially taxed capital income, there was a systematic bias in the treatment of capital income. Capital income from passive shareholding was subject to the low capital income tax rate on dividends irrespective of its rate of return. Imputation of capital income from active ownership implied that only the normal rate of return was taxed at the flat rate, whereas excess returns were regarded as labour income and taxed progressively. Sweden was the first Nordic country to break with the dual income tax reform and to switch back to double taxation of dividends from passive shareholding in 1994. Recent tax reforms in Finland (2005) and Norway (2006) changed their DIT systems in a similar way. Denmark already gave up full integration during the parliamentary discussion on the tax reform act and introduced a reduced personal income tax (PIT) regime in 1987.

⁶ This was first shown in A. B. Atkinson, A. Sandmo: Welfare Implications of the Taxation of Savings, in: *Economic Journal*, Vol. 90, 1980, pp. 529-549.

⁷ P. B. Sørensen: From the Global Income Tax to the Dual Income Tax: Recent Reforms in the Nordic Countries, in: *International Tax and Public Finance*, Vol. 1, 1994, pp. 57-79.

⁸ Cf. for example A. Alstadsæter: The Achilles Heel of the Dual Income Tax. The Norwegian Case, in: *Finnish Economic Papers*, forthcoming.

Table 1
Tax Rates in Selected European Countries for 2006

(in %)

Country	CIT	PIT on dividends	Integration below NRR	Integration above NRR	PIT on interest	PIT on labour income
Denmark	28	28/43	DT	DT	38.8-47.9	38.8-47.9
Finland	26	28	DT RRA ^a	DT RDB	28	26.5-50
Norway	28	28	Exemption RRA	DT	28	28-40
Sweden	28	30	DT RRA ^a	DT	30	31.6-56.6
Austria	25	25	DT	DT	25	38.3-50
Belgium	34	25	DT	DT	15	26.88-54.25
Czech Republic	24	15	DT	DT	15	12-32
Estonia	23	0	Exemption	Exemption	0	23
France	33.3	6.8-48.1	DT RDB	DT RDB	16	6.8-48.1
Greece	29	0	Exemption	Exemption	10	15-40
Italy	33	12.5	DT	DT	12.5	23.9-44.9
Lithuania	15	15	DT	DT	15	27
Netherlands	28	25	DT	DT	25	34.15-52
Poland	19	19	DT	DT	19	19-40
Portugal	25	20	DT	DT	20	10.5-42
Slovakia	19	0	Exemption	Exemption	19	19
Germany 2009	15 ^b	25	DT	DT	25	15-42/45

Notes: CIT: corporate income tax; PIT: personal income tax; NRR: normal rate of return;

DT: double taxation; RRA: rate of return allowance; RDB: reduced dividend base.

^a DT for listed companies, RRA for unlisted companies; ^b 29.83% if local business tax is incorporated.

Source: J. Kesti (ed.): European Tax Handbook 2006, International Bureau of Fiscal Documentation, Amsterdam 2006

Thus the current DIT systems in the Nordic countries may be regarded as triple rather than dual income taxes as capital income is split into two components, a normal return to capital and an excess return to capital. Only the normal return to capital is subject to the low capital income tax rate, whereas the excess return to capital is subject to a higher rate. This higher rate is accomplished by double taxation: capital income above the normal rate of return bears the corporate income tax rate and a reduced flat rate on capital income. For active shareholders and proprietors excess returns are still taxed at the labour tax rate. Although there is still some discrimination between taxing excess returns in both forms of business, the gap has become significantly smaller.

Table 1 shows the relevant tax rates for the four Nordic countries in 2006. In Norway dividends are taxed at the corporate income tax rate of 28%. At the personal level dividends are subject to a flat rate of 28%, but a rate-of-return allowance exempts the part of dividend income which reflects the normal rate of return. Capital income below the rate-of-return allowance gives

rise to a carry-forward of unused allowances. Income splitting for non-incorporated firms is maintained and charges capital income reflecting the normal rate of return with the 28% flat rate, whereas the remaining income (including excess returns on capital) is taxed at progressive rates.

In Finland the 2005 tax reform reduced the corporate income tax rate from 29% to 26% and the withholding capital income tax rate from 29% to 28%. The imputation system was abolished. Double taxation of dividends from listed companies is mitigated by exempting 30% of dividend income which implies a flat rate of 19.6%. Dividends from unlisted companies are exempt up to a dividend threshold by the normal rate of return allowance. Dividends exceeding the threshold are taxed at 19.6% for capital yields below the normal rate of return and are then taxed progressively as excess dividend income.

Sweden already reintroduced the double taxation of dividends in 1995. The flat rate of 30% is applied to all capital income at the personal level, i.e. to dividends from listed companies, interest income and capital

gains. Dividends from unlisted companies are subject to a normal rate of return allowance. Dividend income in excess of the normal rate of return is taxed at the flat rate for passive shareholders, but is taxed progressively as earned income for active shareholders.

Denmark was the first country to implement a dual income tax reform as early as 1987, but the government's proposal was modified already during the parliamentary process and capital income was never taxed at a single flat rate.⁹ The Danish income tax code distinguishes personal income, capital income and income from shares. But only income from shares is taxed at reduced rates, whereas personal and other capital income, in particular interest income, is taxed according to a progressive schedule. Income from shares is double taxed at the corporate and the personal level. Dividends are taxed at a reduced rate of 28% if dividend income is below a threshold and at 43% if it is above. A separate schedule is applied to capital gains.

DIT Type Tax Systems in the EU

Except for the Nordic countries (including Norway), none of the other EU members has introduced a fully fledged DIT, but half of them have implemented major steps from a comprehensive income tax towards a DIT.¹⁰

There is a final withholding tax on all capital income in Austria, Belgium, Italy, Portugal, Lithuania, Poland and the Czech Republic,¹¹ whereas all these countries apply a progressive tax scale to labour income. Estonia does not tax capital income at the personal level and charges a flat tax rate on earned income. Preferential treatment of capital income is also found in the Netherlands and in Greece, where the latter also differentiates between tax rates for dividend and interest income. France introduced a final withholding tax only for personal interest income.

Although schedular capital taxation constitutes the major step towards DIT there are still important differences to the Nordic DIT. None of the countries above splits business profits into capital and labour income for closely held corporations or non-incorporated firms. Compared to a pure DIT all these countries double tax dividends – except for Greece and Estonia,

which exempt dividends. Double taxation is, however, mitigated by reduced personal income tax rates or, in France, by a reduced dividend base.

Whereas the Nordic countries still provide some loss offset rules in the case of negative capital income, such offsets are granted fully only in Greece and in a limited form in France. In contrast to a pure DIT Lithuania, the Netherlands, France and Estonia also provide a basic allowance also for capital income, whilst Austria and Belgium offer a filing option. In these two countries, low income taxpayers can opt for taxing capital and labour income comprehensively at the progressive (labour) schedule. Finally, the corporate income tax rate coincides with the personal income tax rate on capital in Austria, Lithuania and Poland, but differs in the other countries.

Although the non-Nordic countries listed in Table 1 did not introduce a dual income tax system, there is evidence of some convergence in capital income taxation in these countries and in the Nordic countries. The common features are the final withholding tax on interest and dividend income and the schedular triple income tax structure which exhibits some similarity to the present Nordic countries after their recent DIT reforms.

The German Tax Reform 2008/2009

In Germany, there have recently been several proposals for a tax system switch towards a true DIT,¹² accounting for the fact that loopholes and exceptions from comprehensive income taxation already constituted some kind of schedular taxation. In March 2007, the German federal cabinet agreed on a major tax reform, which passed the Bundestag on 25 May 2007.¹³ The reform will be enacted in two steps in 2008 and 2009 and, although it is announced as a corporate tax reform, most changes refer to the personal income tax code – but fail to achieve a real DIT.

In 2008, the corporate income tax rate will be decreased from 25% to 15% and will then be equal to the lowest personal income tax rate. Incorporating the local business tax (*Gewerbesteuer*), the statutory tax burden on company profits will decrease from 38.65% to 29.83%. To curb strategic profit shifting subsidiar-

⁹ The Danish tax system is a hybrid between a DIT and a comprehensive income tax and exhibits characteristic DIT features only for taxpayers with negative net capital income.

¹⁰ Cf. for example B. Genser, A. Reutter, op. cit.

¹¹ In some countries, however, the tax rate on capital gains can differ from the tax rate on interest income and dividends, e.g. in Belgium and Portugal.

¹² Cf. for example C. Spengel, W. Wiegand: Dual Income Tax: A Pragmatic Reform Alternative for Germany, in: CESifo Dice Report, Vol. 2, No. 3, 2004, pp. 15-22; German Council of Economic Advisors: Reform der Einkommens- und der Unternehmensbesteuerung durch die Duale Einkommensteuer, Wiesbaden 2006.

¹³ Cf. Bundesministerium der Finanzen: Entwurf eines Unternehmenssteuerreformgesetzes 2008, Gesetzentwurf der Bundesregierung, Berlin 2007.

ies of multinational companies face a ceiling for interest deductions of 60% of net financial expense above a threshold of one million euro. This interest threshold (*Zinsschranke*) constitutes an element of a comprehensive business income tax. There is, however, the possibility of avoiding the interest threshold if the German subsidiary proves that the debt structure is typical for the company worldwide and does not reflect thin capitalisation.

From 2009, personal capital and labour income will be taxed on separate schedules. For labour income, the progressive income tax schedule is maintained but capital income is going to be taxed at a flat rate of 25%. This tax rate will not only apply to interest income and dividends, but also to capital gains on assets bought after 31 January 2008. Thus, the current exemption of capital gains, realised after defined holding periods, will be eliminated. Moreover, non-incorporated firms can opt for preferential taxation of retained earnings at a flat rate of 28.25%. This approximately equals the tax rate on corporate profits. Although non-incorporated firms are liable to the business tax (*Gewerbesteuer*) as well, the compound tax burden remains largely unchanged because of an imputed business tax credit. If these retained earnings are withdrawn by the owners, they will be treated like dividends and taxed at the flat rate of 25%.

The tax reform fails, however, to achieve a DIT, because there is no splitting of business profits in non-incorporated firms. Moreover, dividends are double taxed at the company and the personal level, though at competitively low tax rates. The German tax system will therefore create tax deferral incentives and lock-in effects. Final withholding taxation is eroded by keeping a personal savings allowance (*Sparerpauschbetrag*) of €801, and a filing option for the capital income of taxpayers whose marginal (labour) tax rate is below 25%. On the other hand, the costs of earning capital income will be no longer deductible.

Towards a Common Structure of Capital Income Taxation in Europe

When the Ruding report was published in the early 1990s Europe was characterised by sharply contrasting income tax systems: whilst the Nordic countries introduced a pure DIT, the other EU member states defended their comprehensive income tax systems and started introducing final withholding taxes only as a backstop against tax evasion and as a cut in tax administration costs. At that time, a proposal similar to

the Cnossen agenda would have appeared unrealistic and naïve. Fifteen years later, tax reforms across Europe have changed the environment for tax coordination.

On the one hand, the Nordic countries have reformed their pure DIT systems and reintroduced some double taxation of company profits. Problems in income splitting for business income in closely held corporations and in non-incorporated firms led to a further splitting of capital income into a normal return and an excess return component. These excess returns are subject to double taxation and thus bear a higher rate than normal returns, which are taxed only once.

On the other hand, the majority of the other EU members left their comprehensive income tax tradition far behind and introduced, or plan to introduce, withholding capital taxes, which are flat and lower than tax rates on labour income. Schedular taxation is, however, not extended to the business profits of closely held corporations and non-incorporated businesses.

Taken together, there seems to be convergence to a modified form of DIT: labour income is still taxed progressively and the normal rate of return to capital is liable to a low flat rate equal or close to the first bracket rate. However, dividend income reflecting excess returns is regarded as a third tax base, which is liable to a higher flat rate due to double taxation by the corporate income tax and an additional flat tax on excess dividends.

Conceding these facts, the Cnossen proposal should probably be revised, as it appears more likely that European income taxation can be harmonised along the lines of a *triple income tax*. Triple income tax systems of this type seem to generate less political opposition with respect to equity standards. Moreover, they can also be designed to exhibit some favourable neutrality properties,¹⁴ to extend the scope for excess burden reduction, and to allow for a consistent incorporation of income risk in line with optimal taxation models.¹⁵ No revision seems necessary for step 2 although the interest directive of 2003 was a decision against withholding taxes on foreign interest income and in favour of information exchange. But under dual (or triple) income tax regimes withholding taxes will turn out to be less costly and superior in the long run. Finally, the approximation of corporate income tax

¹⁴ P. B. Sørensen: Neutral Taxation of Shareholder Income, in: *International Tax and Public Finance*, Vol. 12, No. 6, 2005, pp. 777-801.

¹⁵ D. Schindler: *Optimale Besteuerung riskanter Einkünfte*, Das Konzept der Triple Income Tax, Tübingen 2006, Mohr-Siebeck.

rates will continue as a result of tax competition for investment location.

While the perspective for harmonisation of personal income tax systems and corporate income tax rates in the EU seems promising, there is still a long way to go to a harmonised corporate income tax. However, reduced incentives for profit shifting and strategic tax

engineering as well as reduced tax collection and control costs within the EU should leave sufficient room for a thorough discussion of the options for tax base harmonisation and tax revenue apportionment within the EU member states before a final decision on the best EU scenario for coordinated corporate income taxation is made.

Gaëtan Nicodème*

Flat Tax: Does One Rate Fit All?

Over the last two decades, many countries in the world have sought to reform their tax systems, which were increasingly perceived as being faulty on two grounds. First, the top marginal rates for personal and corporate incomes were set at relatively high levels. In the EU-15, the average corporate income tax in 1980 was close to 50% and it was not infrequent to have top marginal personal income tax rates above or well above 70%, levels which were seen as confiscatory and detrimental to economic activity. Second, tax systems were also increasingly perceived as too complicated with many exemptions and exceptions in the tax base and many brackets, at least for personal income taxes, for the rates. Economic policies under Thatcher in the UK and Reagan in the USA have marked the beginning of severe cuts in taxes that have progressively spread to continental Europe. Globalisation, economic integration and/or increasing tax competition have accelerated this movement in recent years.

Hence, the belief that simple taxation is necessarily good taxation has developed alongside the belief that the existence of multiple tax brackets is itself a factor in the complexity of the tax systems, while in fact this is the simplest part of the tax declaration and computation.¹ An interesting element of this quest towards lower and simpler taxes is the emergence of so-called flat taxes. Flat taxes appeared in the academic debate in the mid-80s with the publications of Robert

Hall and Alvin Rabushka.² Ever since, the debate has been fierce in the political arena in the United States and more recently in Europe, with over twenty countries in the world having adopted a flat tax (including five Member States of the European Union). The academic debate has been much slower to start but has increased over the last three years. This discussion reviews some of the arguments for and against flat taxes and summarises the economic literature on the topic. The remainder of the paper is organised as follows. First, a definition of the flat tax is presented, its implementation examined and the international discussion outlined. This is followed by a review of some of the microeconomic impacts of flat taxes. We then take a look at the macroeconomic consequences, especially in terms of budget and tax revenues, before drawing some conclusions.

Flat Taxes in the World

The academic debate about flat taxes started more than 25 years ago in the United States with the proposal by Hall and Rabushka, first developed in 1981 in an article for the *Wall Street Journal* and later in two books (1983, 1985).³ The authors argued in favour of an integrated flat tax that applies the same 19% rate to both business and individual cash-flows. The base for the business tax would be the total revenues from

* European Commission and Solvay Business School, ULB, Centre Emile Bernheim, Brussels, Belgium.

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¹ R. P. Hagemann, B. R. Jones, R. B. Montador: *Tax Reform in OECD Countries: Economic Rationale and Consequences*, OCED Working Papers, No. 40, August 1987, p.11. The authors note however that multiple rates provide incentives to smooth revenues between years and individuals, leading to necessary rules on income shifting, which may add complexity.

² R. E. Hall, A. Rabushka: *Low Tax, Simple Tax, Flat Tax*, New York 1983, McGraw-Hill; R. E. Hall, A. Rabushka: *The Flat Tax*, Stanford 1985, Hoover Institution Press.

³ R. E. Hall, A. Rabushka: *Low Tax, Simple Tax, Flat Tax*, op. cit.; R. E. Hall, A. Rabushka: *The Flat Tax*, op. cit.

sales minus the costs in terms of inputs, compensations to workers and investment. The base for the compensation tax is wages, salaries and pension benefits minus the family allowances, to make the system progressive.⁴ In this system, real investments are immediately fully depreciated while financial investments are exempted. This proposal is essentially an expenditure tax. The reform was proposed in the context of a US tax system that suffers from a large complexity due to a wide array of tax expenditures and after the negative experience of inflation pushing taxpayers into ever higher tax brackets (a phenomenon known as bracket creep) until 1981 when the provisions of the tax system started to be indexed.

Despite several attempts to pass flat tax proposals in the Congress in the early 1980s and despite the support of some newspapers, the debate on the flat tax did not emerge until the 1992 presidential campaign (probably because President Reagan had cut the top personal tax rate from 70% to 28% in the meantime). During the Democratic Party's primaries for the 1992 presidential election, former California Governor Jerry Brown campaigned in favour of a 13% rate for both personal income tax and cash-flow expenditure business tax.⁵ Four years later, and again in 2000, Steve Forbes ran for the Republican nomination on a flat tax platform. His proposal was a form of consumption tax as he proposed to tax personal and corporate earned income at 17%.⁶ The debate regained vigour in recent years in the EU with its enlargement by countries that have adopted such a system. Its nature has changed, however, as the proposals are now generally targeted at imposing a single rate on personal income (with an allowance), leaving the corporate tax, and generally its integration with personal income taxes, relatively unchanged.

Most scholars date the beginning of the flat tax experiment to 1994 in Estonia, which introduced a single uniform rate of 26% on personal incomes. Actually, this was only the beginning of a new wave, since some UK dependent territories seem to have already introduced flat taxes in the 1940s. More recently, starting with Russia in 2001, a second wave of countries, mainly from Central and Eastern Europe, have followed suit. Today, as many as twenty-two countries – of which five are current EU Member States – have

introduced some form of a flat tax,⁷ but the detailed provisions vary a lot across countries.⁸

It is very difficult to make strong conclusions in terms of the patterns of flat tax adoptions. In terms of timing, flat tax is not a recent phenomenon with five countries having made the experience prior to 1990. However, since 1994, an increasing number of countries have opted for a flat tax, starting with the Baltic countries and Russia. Since 2003, eleven countries have adopted the flat tax. Most of these countries have opted for a single rate with a personal allowance. Georgia (with no allowance), Russia (with its progressive but discontinued withdrawal as income rises), and Ukraine (with its sudden withdrawal above a threshold) differ in that respect. Countries differ however in terms of their tax base with some countries taxing just labour income and others including all types of income. In two cases, Bolivia and Paraguay, VAT paid is deductible from the tax base as flat taxes were designed as a means to combat VAT fraud.

Nor is there any general rule in terms of rate setting. Several countries have set the flat tax rate at a level that equates the lowest marginal rate of the previous progressive tax system (Georgia, Kyrgyzstan, Mongolia, Mauritius) or at a level just below (Macedonia, Romania) or above (Russia) this lowest marginal rate. Some others, such as Latvia and Lithuania, have just done the opposite, with a rate set at the previous highest marginal rate. In terms of its relationship with corporate taxation, the personal income tax rate and the corporate income tax rates have been equalised in about half of the reforms, and, in eight cases (six of which corresponding to equalisation), the corporate tax rate has been decreased in the same year (in contrast to that, it was increased in the case of Russia). Many differences – not reported here – also occurred in the parallel developments of social security contributions, VAT and exemptions to the personal and corporate income taxes. The many differences between flat taxes are a striking fact and it would therefore not be surprising that their effects may differ in practice.

Microeconomic Impacts

As rightly pointed out by Keen et al.,⁹ “a notable and troubling feature (of the discussion on flat tax in all countries), is that it has been marked more by rhetoric

⁴ R. E. Hall, A. Rabushka: *The Flat Tax*, op. cit.

⁵ Note that contrary to Hall and Rabushka's flat tax, Jerry Brown's proposal did not integrate both taxes so that profit would still be taxed at both corporate and personal level.

⁶ Unearned income – savings, capital gains, pensions and inheritance – would not be taxed.

⁷ Note that no country has adopted anything close to the original pure form of the Hall and Rabushka proposal.

⁸ The introduction of a flat tax is, or was, also discussed in many countries, among which are Germany, Greece, Poland, Slovenia and Spain.

⁹ M. Keen, Y. Kim, R. Varsano: *The “Flat Tax(es)”: Principles and Evidence*, IMF Working Paper 06/218, 2006.

Table 1
Flat Taxes on Personal Income in the World

Country	Year of introduction of flat tax PIT	Personal Income Tax			Corporate Income Tax		
		Previous	Introduction of flat tax	2007	Previous	At reform flat tax	2007
Jersey	1940	n.a.	^a	20%	n.a.	n.a.	20%
Hong Kong	1947	n.a.	16% ^b	16%	n.a.	n.a.	17.5%
Guernsey	1960	n.a.	20% ^{a,c}	20%	n.a.	20%	0%
Jamaica	1980	n.a.	33.3%	25% ^d	n.a.	33.3%	33.3%
Bolivia	1986	n.a.	10% ^e	13%	n.a.	25%	25%
Estonia	1994	16% - 35%	26% ^f	21%	35%	26%	21% distributed, 0% retained
Lithuania	1994	18% - 33%	33%	33%	29%	29%	15%
Latvia	1995	25 and 10% (degressive)	25%	25%	25%	25%	15%
Russia	2001	12, 20 and 30%	13% ^g	13%	30%	35%	24%
Serbia	2003	n.a.	14% ^h	14%	14%	14%	10%
Ukraine	2004	10% - 40%	13%	15% ⁱ	30%	25%	25%
Iraq	2004	Up to 75%	15%	15%	n.a.	15%	15%
Slovak Rep.	2004	10, 20, 28, 35 and 38%	19%	19%	25%	19%	19%
Georgia	2005	12, 15, 17 and 20%	12% ^j	12%	20%	20%	20%
Romania	2005	18% - 40%	16%	16%	25%	16%	16%
Kyrgyzstan	2006	10% - 20%	10%	10%	20%	10%	10%
Paraguay	2006	none	10% ^k	10%	20%	10%	10%
Macedonia	2007	15% - 24%	12%	12% ^l	15%	12%	12%
Iceland	2007	24.75 and 26.75%	22.75% ^m	22.75%	18%	18%	18%
Mongolia	2007	10, 20 and 30%	10% ⁿ	10%	15 and 30%	10 and 25%	10 and 25%
Montenegro	2007	up to 23%	15%	15% ^o	9%	9%	9%
Mauritius	2009		15% ^p	15% - 22.5%	22.5%		22.5%
Tonga	n.a.	n.a.	10% ^q	10%	n.a.	n.a.	15% and 30% ^r

Sources: A. Rabushka: Flat and Flatter Taxes Continue to Spread Around the Globe. Hoover Institution 2007, <http://www.hoover.org/research/russianecon/essays/5222856.html>; "The Flat Tax Revolution", in: The Economist, 16 April 2005, page 9; R. Teather: A flat tax for the UK, a practical reality, Adam Smith Institute Briefing 2005, available from: <http://www.adamsmith.org/images/uploads/publications/flattaxuk.pdf>; A. Greç u: Flat tax: the British case, Adam Smith Institute 2004, available from: <http://www.adamsmith.org/images/uploads/publications/flattax.pdf>; S. Wallace, J. Alm: The Jamaican Individual Income Tax, Jamaica Tax Reform Project Working Paper 5, 2004, http://aysps.gsu.edu/publications/2004/alm/jamaica_individtax.pdf; R. M. Bird: Tax Reform in Latin America: A Review of Some Recent Experiences, in: Latin American Research Review, Vol. 27, No. 1, 1992, pp. 7-36; S. Piper, C. Murphy: Flat Personal Income Taxes: Systems in Practice in Eastern European Countries, Australian Treasury 2006; M. Keen, Y. Kim, R. Varsano: The "Flat Tax(es)": Principles and Evidence, IMF Working Paper 06/218, 2006.

Notes: In bold characters, the EU Member States. The following countries have no tax on personal income: Andorra, the Bahamas, Bahrain, Bermuda, Burundi, Cayman Islands, Kuwait, Monaco, Nigeria, Oman, Qatar, Saudi Arabia, Somalia, United Arab Emirates, Uruguay and Vanuatu.

^a Applied to personal and corporate incomes for both Jersey and Guernsey. None have VAT. The channels islands do not tax dividends, interest or capital gains. ^b Taxpayers have the choice between being taxed at a 16% flat tax or under a progressive tax system with marginal tax rates ranging from 2 to 19%. Hong Kong does not tax dividends, wealth, and capital gains and has no VAT, sales tax or payroll tax. ^c Capped at £250,000, making it therefore regressive as soon as revenues reach £1,250,000. From 2007, the corporate tax rate is reduced to zero. ^d On wages, interest, dividend, pensions, trusts, and annuities. 25% since 1993. Dividends are tax-free since 2002 at the shareholder level. ^e 13% since 1992. The tax base is all income (wages, salaries, rentals, interest, royalties etc.) except foreign income and capital gains, which remain tax-free. There is also a general allowance equivalent to two (previously four) monthly minimum wages (this minimum wage is about Bs 240 or US\$ 45). The system is designed to fight VAT fraud, so that individuals can offset the VAT paid against this tax, provided they have invoices or receipts. The rate was introduced at 12.5% for the self-employed. ^f Reduced to 24% in 2005, 23% in 2006, 21% in 2007, 20% in 2008. Estonia has a zero corporate tax rate on retained earnings but taxes distribution (mainly dividends) at the flat tax rate. This is accompanied by a general non-deductibility of interest payments. ^g There is an allowance which is discontinuously withdrawn as income rises. The change in CIT reflects an additional local tax. ^h On wages but 20% on other incomes. There is an additional 10% tax on the sum of all worldwide income above a certain threshold (four times the average annual salary (Serbian nationals) or ten times the average annual salary (foreign nationals)). The corporate tax rate was decreased from 20% to 14% in 2002. ⁱ 15% since 2007. There is an allowance for those with incomes of less than 1.4 times the subsistence amount and which is entirely removed above that threshold. ^j With no basic allowance. ^k VAT paid is tax deductible. Personal income tax was up to 30% in the 1990s then disappeared and was reintroduced in 2006. Corporate tax was brought down from 30% in 1997-2004 to 20% in 2005 and 10% in 2006. ^l 10% from 2008. ^m The previous system had two rates. The corporate tax rate is at 18% and capital income is taxed at 10% under a Dual Income Tax System. ⁿ VAT has been reduced from 15% to 10% and a personal allowance of 48,000 MNT is given. ^o From July 2007. The rate is intended to decrease to 9% by 2010. ^p Replacing a two-rate tax schedule of 15% and 25%. The corporate tax rate will be brought down from 25% to 15%. ^q Above 2,500 US\$. The date of implementation is unknown. ^r 37.5% and 42.5% for foreign companies (with lower threshold).

and assertion than by analysis and evidence".¹⁰ Many claims have been affirmed by proponents and opponents of flat taxes. Keen et al. have carried out a remarkable analysis of these claims. Their results can be summarised as follows.

Optimal taxation theory is ambiguous about the degree of linearity. While early works showed that optimal schemes were close to linearity and that the compliance and administrative costs of non-linearity may outweigh any small gains of moving away from it, these conclusions are not robust to alternative welfare functions. The same goes for the claims that flat taxes are superior to maximise revenues and fight evasion as theoretical outcomes depend on the model.

In terms of equity, the results depend heavily on the design of the flat tax. For revenue-neutral reforms that change a progressive tax system into a flat one, progressivity will unambiguously decrease if the tax-free allowance is lowered. In contrast, it will unequivocally increase progressivity if the allowance is increased and if the flat tax rate is equal to, or higher than, the top marginal tax rate under the previous system, as for example in Lithuania. When the tax schedules cross, when reforms are not revenue-neutral or imply concomitant changes in other taxes (in particular social security contributions), or when compliance is not full, then the change in progressivity is an empirical question.

As to whether a flat tax increases work incentives, Keen et al. show that reforms that at the same time increase (decrease) the average tax rate and decrease (increase) the marginal tax rate for workers will gear income and substitution effects in the direction of increased (decreased) work.¹¹ Empirically, Ivanova et al.¹² found no evidence of strong effects of the 2001 Russian reform on work effort. Next, compliance and complexity issues are also ambiguous. Complexity depends at least as much on tax base as on tax rates. The economic literature on compliance is ambiguous as evasion will depend on how the costs of evading are modelled. Empirically, Ivanova et al. found that the Russian tax reform did not change complexity.¹³ Compliance in Russia dramatically increased but the influence of the parallel tightening of enforcement and controls is unclear. These results put doubts on the mechanical Laffer effect that flat taxes would induce.

¹⁰ Ibid.

¹¹ Ibid.

¹² A. Ivanova, M. Keen, A. Klemm: The Russian Flat Tax Reform, in: *Economic Policy*, Vol. 20, 2005, pp. 397-444.

¹³ Ibid.

Macroeconomic Impacts

Several papers have attempted to analyse the macroeconomic effects of flat tax reforms. A first set of papers have used General Equilibrium modelling and simulation models. Jacobs et al. for the Netherlands,¹⁴ Fuest et al. for Germany¹⁵ and Gonzalez and Pijoan-Mas for Spain¹⁶ found that flat taxes can in some circumstances enhance market performance thanks to a substitution effect on primary earners but this is done at the cost of more inequality. All scenarios lead to a sizeable redistribution to the highest incomes and, in some scenarios, to the poorest incomes. One important element is that even if taxpayers agree with more inequality, the case for a flat tax is not crystal-clear as Jacobs et al. find that reforms with non-linear tax structures generally feature better labour market effects for the same increase in inequality.¹⁷ In a paper that seems to have been influential in the decision of Slovenia not to adopt a flat tax, Cajner et al.¹⁸ find that flat tax regimes are inferior to progressive tax regimes from a welfare perspective because efficiency gains are outweighed by an increase in the risk (i.e. dispersion) of the lifetime revenue. The authors also find that some progressive tax systems do a better job than a flat tax in raising GDP and consumption.

A second set of contributions have simply looked at the ex-post results of flat taxes. Extreme caution shall be taken when analysing those ex-post indicators because, as shown by Ivanova et al. in the case of Russia,¹⁹ it may be tempting to attribute some of the effects to unrelated causes while a sound analysis provides other messages. One of the best-documented reforms is the one that took place in the Slovak Republic in 2004,²⁰ which changed the 5-rate progressive system (from 10% to 38%) into a 19% flat tax. We will here concentrate on two aspects: revenues and tax wedges.

¹⁴ B. Jacobs, R. A. de Mooij, K. Folmer: Analysing a Flat Income Tax in the Netherlands, Tinbergen Institute Discussion Paper, 029/3, 2007.

¹⁵ C. Fuest, A. Peichl, T. Schaefer: Is a Flat Tax Politically Feasible in a Grown-Up Welfare State?, FIFO-CPE Discussion Paper, No. 07-6, 2007.

¹⁶ M. Gonzalez, J. Pijoan-Mas: The Flat Tax Reform: A General Equilibrium Evaluation for Spain, CEMFI Working Paper No. 0505, 2005.

¹⁷ B. Jacobs, R. A. de Mooij, K. Folmer, op. cit.

¹⁸ T. Cajner, J. Grobovsek, D. Kozamernik: Welfare and Efficiency Effects of Alternative Tax Reforms in Slovenia, paper presented at the International Academic Forum on Flat Tax Rate in Bled, Slovenia, February 2006.

¹⁹ A. Ivanova, M. Keen, A. Klemm, op. cit.

²⁰ For a review, cf. Financial Policy Institute: First Year of the Tax Reform: 19% at Work, 2005; D. Moore: Slovakia's 2004 Tax and Welfare Reforms, IMF Working Paper. 05/133, 2005.

Table 2
Actual and Budgeted Revenues
in the Slovak Republic

% of GDP (ESA-95)	2003 actual	2004 no reform (budget)	2004 reform (budget)	2004 actual
PIT	3.3%	3.5%	2.1%	2.8%
CIT	2.8%	3.1%	1.8%	2.5%
VAT	6.7%	7.1%	8.8%	7.8%

Sources: Financial Policy Institute: First Year of the Tax Reform: 19% at Work, 2005; European Commission: Structures of Taxation Systems in the EU, 2007.

The flat tax reform in the Slovak Republic was accompanied by reforms to pensions, health care, the labour market and the legal system. One aim of the tax reform was to lower the burden and to shift it from direct to indirect taxes. This was achieved by a decrease in the corporate tax rate, an increase in excise duties and a single 19% VAT rate that replaced a dual VAT rates system of 14 and 20%. The overall reform was set to be almost revenue-neutral with a small 0.2% deficit. Table 2 shows the actual 2003 and 2004 revenues as well as the budgeted amount in the case of no reform and of flat tax reform. What seems to be shown is that the decreases in PIT and CIT led to a decrease in tax collection, albeit by less than expected. At any rate, any possible Laffer Curve effect was not strong enough to offset the decrease in taxes due to falling rates. This seems to be confirmed by the results for VAT collection, which increased (although 2003 was a particularly bad year and VAT collection was remarkably stable at around 7.5% of GDP since 1998) but by much less than expected.

A second aspect of the reform concerns redistribution. A usual claim is that flat tax reforms mainly benefit the richest and, depending on the generosity of allowances, the poorest while the middle-class pays the bill. Table 3 shows the total tax wedge and its composition for three classes of taxpayers in percentage of the average wage.

Looking at the difference between 2003 and 2004, the claim seems to be confirmed by the changes in the total tax wedge as major reductions happened at both ends of the revenue distribution (although the largest changes come from social security contributions by employers). It is even more striking when looking at the PIT component of the wedge as it actually increases for the average wage-worker. Interestingly, this PIT component seems to have returned to its pre-reform levels for the extreme parts of the wage distribution while it has continued to increase for the average wage.

Table 3
The Labour Tax Wedge in the Slovak Republic

(Single person without children, various percentages of average wage)

Revenue	Tax type	2002	2003	2004	2005	2006
67% of AW	Total tax wedge	40.77	40.90	39.63	35.26	35.56
	due to PIT	3.87	4.00	3.68	3.88	4.18
	due to SSC by employees	9.26	9.26	9.91	10.62	10.62
100% of AW	due to SSC by employers	27.64	27.64	26.04	20.76	20.76
	Total tax wedge	42.49	42.86	42.46	38.31	38.51
	due to PIT	5.58	5.95	6.51	6.93	7.14
167% of AW	due to SSC by employees	9.26	9.26	9.91	10.62	10.62
	due to SSC by employers	27.64	27.64	26.04	20.76	20.76
	Total tax wedge	45.94	46.31	44.34	40.34	40.49
	due to PIT	9.03	9.51	8.85	9.46	9.57
	due to SSC by employees	9.26	9.24	9.68	10.38	10.40
	due to SSC by employers	27.64	27.56	25.81	20.50	20.52

Note: From 2005, the Slovak Republic has introduced the fully funded pillar. Under this system, 9 percentage points of the social security contributions paid by the employer to the pension insurance go directly to pension funds and not to the social insurance company as previously. The pension funds are treated outside of the general government so that these contributions are not accounted for in the OECD calculations. Hence the 2005 drop in employers' SSC tax wedge.

Source: OECD: Taxing Wages report.

Although they do not constitute very good indicators of progressivity, the ratios of tax wedges between various categories²¹ tell an interesting story. The ratios of social security contributions between the three categories have remained constant over time. Interestingly, the ratio of PIT tax wedge between the extreme categories has not changed significantly either. The major changes concern the average wage category that sees its PIT wedge coming much closer to the wedge of the 167% category and further away from the 67% category.

Concluding Remarks

Flat taxes have been a reality for many years. A second wave of flat tax reforms starting in 2001 has revived the enthusiasm of its proponents and fuelled the political debate in most European countries. The academic profession became interested, examined the effects of flat taxes and came up with ambiguous results. Obviously, flat taxes are not a panacea and their adoption remains predominantly a normative issue. Hence, it is far from obvious that one rate would fit all.

²¹ For example, the evolution of the ratio of the PIT tax wedge for 167% AW to the one for 100% AW.