

HOW CORPORATE TAX COMPETITION REDUCES PERSONAL TAX REVENUE

RUUD DE MOOIJ AND
GAËTAN NICODÈME*

Declining corporate tax rates in Europe during the past decades have fuelled fears of tax competition. Indeed, governments successively undercut each others' tax rates in order to attract mobile tax bases. This is considered to be harmful for European welfare since it might create a race-to-the-bottom, which could ultimately erode corporate tax revenues and impose a threat to the financing of the European welfare states. The fears of tax competition have been played down, however, by observations on corporate tax revenues as these have remained remarkably stable over time. Yet, new research shows that the revenue implications of corporate tax competition do not show up in lower corporate tax revenue but in lower personal tax revenue. This article explains how this occurs and estimates the magnitude of its impact.

The corporate tax rate-revenue puzzle

Statutory corporate tax rates in Europe have been falling ever since the early 1980s. The left panel of Figure 1 shows this by means of GDP-weighted averages in Europe. The average rate in the EU-15 has dropped from 48 percent in 1985 to below 30 percent in 2006. In the new member states, it has fallen from around 36 percent in 1993 to 18 percent in 2006.

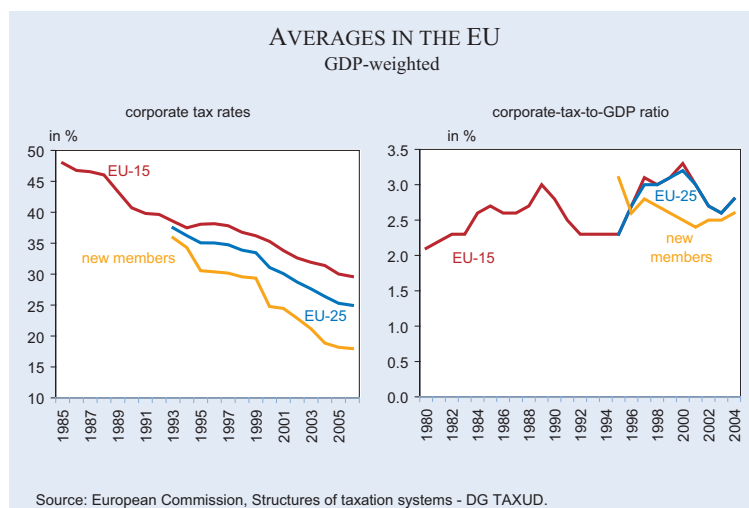
While rates have fallen, corporate tax revenues have remained remarkably stable dur-

ing the past decades. This is shown in the right panel of Figure 1. In fact – although heavily influenced by the economic cycle – corporate tax revenues, expressed as a percentage of the gross domestic product, have increased broadly from about 2 percent in the early 1980s to between 2½ and 3 percent in more recent years.

The discrepancy between falling corporate tax rates and increasing corporate tax revenues is generally seen as the consequence of a widening of the corporate tax bases. Indeed, corporate tax rate reductions have been accompanied by base-broadening policies in many OECD countries, e.g. by means of reduced investment tax credits, loss offset rules, interest deductibility and fiscal depreciation. If this explained the corporate tax rate-revenue paradox, fears for a race to the bottom would indeed be misplaced. Yet, studies on average effective tax rates of companies reveal that these have been falling too (Devereux et al. 2002). It suggests that base-broadening policies have not made up for the adverse revenue implications of rate reduction and that the rate-revenue puzzle remains partly unresolved.

Recent studies have tried to seek alternative explanations for the puzzle. For instance, Auerbach (2006) suggests that the reduction in losses that can be offset can partly explain the rise in the implicit tax rate on corporations in the United States. Becker and Fuest (2007) argue that pre-tax profitability in the economy has increased in light of globalisation, thus causing higher profit shares and a broadening of the corporate tax base. Finally, Devereux et al. (2004) suggest that a rising share of the financial sector in the economy is a potential explanation for the growing share of corporate profits in the economy.

Figure 1



* Ruud de Mooij: Erasmus University Rotterdam and CPB Netherlands Bureau for Economic Policy Analysis. Gaëtan Nicodème: European Commission and Solvay Business School. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They should not be attributed to the European Commission. Correspondence via e-mail: radm@cpb.nl or gaetan.nicodeme@ec.europa.eu.

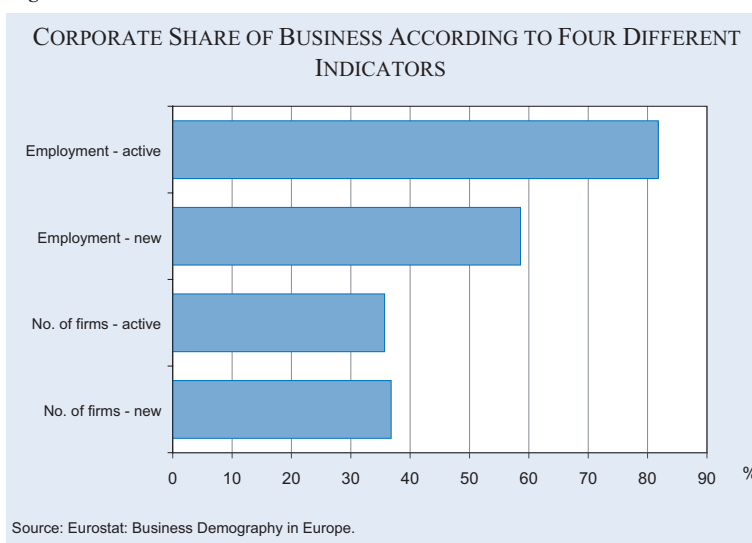
In a recent paper, we have explored an alternative explanation for the puzzle: income shifting from personal to corporate income (De Mooij and Nicodème 2008). In particular, entrepreneurs need to decide on the legal form of doing business. This choice can be influenced by the difference between personal and corporate income taxes. Indeed, if entrepreneurs are taxed more lightly under the corporate tax regime than under the personal tax regime, they will be encouraged to shift their legal form towards incorporation. Some authors find that the

corporate share of business income has indeed increased during the past decades in a number of countries. For instance, Weichenrieder (2005) reports that in Austria, the corporate share increased from 50 percent in the mid-1970s to 75 percent today. In Germany, it rose from less than 40 percent to around 55 percent. The question is, however, how important are taxes for the incorporation decision, given that various non-tax factors are usually important in the firm's choice of incorporation as well. If taxes turn out to be important, it will shed new light on the corporate rate-revenue puzzle and the consequences of tax competition. In particular, if falling corporate tax rates under the pressure of tax competition induce entrepreneurs to change their legal form from the non-corporate into the corporate form, the revenue implications will show up partly in lower personal tax revenue rather than lower corporate tax revenue. The overall adverse revenue implications from tax competition might then be more substantial than would be envisaged from observations on only corporate tax-to-GDP ratios.

European data on legal form of business

In our analysis on the impact of taxes on the degree of incorporation, we exploit panel data from Eurostat on business demography in Europe. It contains aggregate information on 17 European countries, for 6 years between 1997 and 2003, and for

Figure 2



60 sectors (see Schrör 2005 for a description) on firms in three different legal forms:

- Personally owned firms that have no limit to personal liability, i.e., sole proprietorships (SP) that are subject to personal taxation.
- Private or publicly quoted joint stock companies with limited liability (LL) for those owning shares. This category captures corporations that are subject to corporate taxation.
- Partnerships (PA), consisting of personally owned limited and unlimited liability partnerships. Included are also other legal forms, such as co-operatives and associations. Partnerships belong to a hybrid category of companies that can be taxed under either the corporate income tax regime or the personal income tax.

Because of the uncertainty about the tax treatment of partnerships, we concentrate on an indicator that divides the share of enterprises registered as limited liability (LL) companies by the sum of companies with limited liability (LL) and personal liability firms (SP), i.e. $CORP = LL/(LL+SP)$.¹

The data contain information on the number of active firms and the number of enterprise births per year. Apart from count data on the number of firms, there are data on employment shares in each of the three legal forms, both for active firms and enterprise births. We therefore consider four indicators for the share of the corporate sector in the economy:

- The corporate share in the total number of active firms.

¹ In De Mooij and Nicodème (2008), we also consider shares where we add partnerships to either corporate or non-corporate firms. The results of the regression analysis remain qualitatively unchanged.

- The corporate share in the total number of new firms.
- The corporate employment share of active firms.
- The corporate employment share of new firms.

Figure 2 shows the mean corporate share of business for all four indicators, i.e. averaged over all countries, years and sectors. It shows that the corporate share in terms of the number of companies (36 percent for active and 37 percent for new firms) is substantially smaller than the corporate share measured in terms of employment (82 percent for active firms and 59 percent for new firms). Hence, corporations, on average, employ more people than companies in the non-corporate form. This holds in particular for more mature enterprises.

The upper panel of Figure 3 shows the mean of the corporate employment share of active firms per sector. In general, we observe that the incorporation rate exceeds 90 percent in mining, utilities, the financial sector and manufacturing. It is around 70 percent in construction and some service sectors (hotels and restaurants, health and social work, social activities, retail).

The degree of incorporation differs also across countries, which is shown in the lower panel of Figure 3. It shows the corporate employment share of active

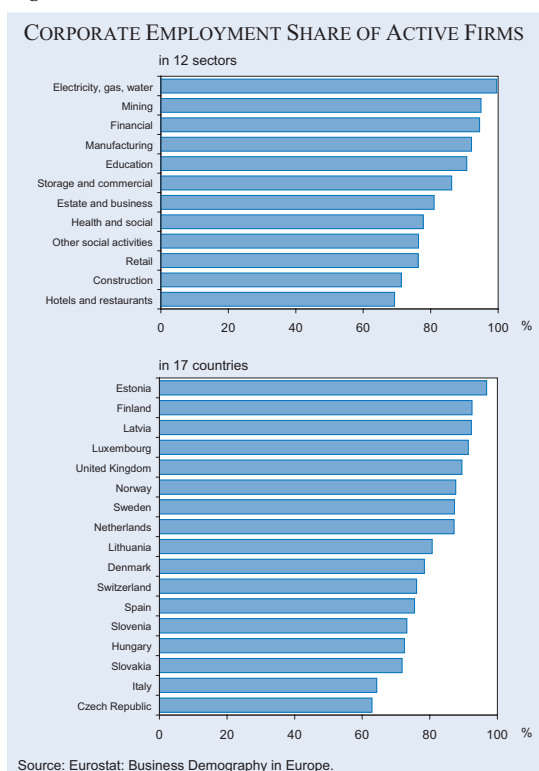
firms for all 17 countries in the sample, averaged across years and sectors. The employment share varies between 63 percent in the Czech Republic to 97 percent in Estonia. Note, however, that before 2001 Estonia, Latvia and Slovenia only considered larger firms and thus used different definitions of corporate share. Nevertheless, Finland and Luxembourg feature corporate employment shares of over 90 percent.

How important is income shifting?

To assess the systematic impact of taxes on incorporation decisions, we regressed the degree of incorporation to the tax differential between the corporate and the non-corporate form. Following Mackie-Mason and Gordon (1997) and Goolsbee (2004) we used the statutory corporate tax on small business and the top personal income tax rate to approximate the relevant tax rates for the respective legal forms. In doing the regressions, we included several dummies and control variables such as the minimum capital required to start a business and the number of procedures required to start a business.

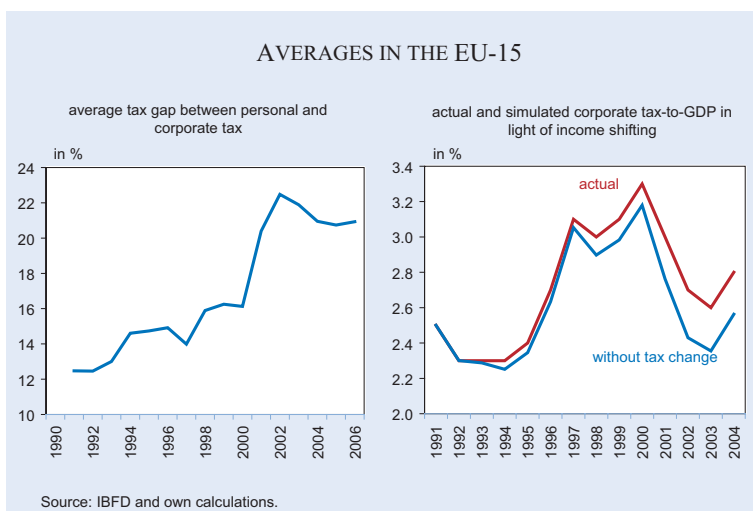
From the regressions, we inferred a quantitative indication on the impact of taxes on incorporation decisions. In particular, we found that a larger tax difference between personal and corporate taxes exerted a significantly positive effect on the degree of incorporation. This is consistent with income shifting. The so-called semi-elasticity of the tax share, measuring the percentage change in the corporate tax share in response to a 1 percentage-point change in the tax differential between corporate and the non-corporate sector, was found to be equal to 1.0. This value can be compared to previous studies, using US data. Some of these find smaller effects of taxes. For instance, with the same specification and data for the US, Goolsbee (2004) reported a semi-elasticity of 0.4 for the corporate employment share. MacKie-Mason and Gordon (1997) considered the share of corporate assets in the US and found a somewhat lower semi-elasticity between 0.03 and 0.2. Other studies, however, have reported larger elasticities for income shifting. For example, estimates by Gordon and Slemrod (2002) suggested that a 1 percentage-point increase in the tax differential between corporate and personal taxes increased reported labour income by 3 percent. Using data for the OECD, Fuest and Weichenrieder (2002) estimated that a 1 percent-point reduction in the corporate tax rate

Figure 3



Source: Eurostat: Business Demography in Europe.

Figure 4



increased the fraction of corporate savings in total private savings by some 2.6 percent.

Policy implications

Our result has important policy implications. For instance, for an average European country, it indicates that for each euro ex-ante reduction of corporate income tax, 24 euro cents are regained in terms of corporate tax revenue through income shifting from personal to the corporate tax. Hence, the corporate tax relief that is initially estimated to cost one euro will cost only 76 euro cents after firms have responded with their choice of legal form. However, this regain in corporate tax revenue will come at the expense of a decline in personal tax revenue. Therefore, this behavioural effect does not create a regain in government revenue in general.

The elasticity of income shifting via the legal form of doing business is also large compared to other behavioural consequences of corporate taxes. De Mooij (2005) reviewed the empirical evidence on several of these effects, including distortions in investment, the financial structure of companies, international investment location and profit allocation by multinationals. He has found that the largest revenue effects are related to the channels of foreign direct investment (revenue gain of 12 percent for an average EU country) and international profit allocation (revenue gain between 20 and 30 percent). The channels of investment and financial structure yield much smaller effects. Our estimate of 24 percent for income shifting via the legal form of business is large compared to the other behavioural effects.

Using our estimate, we have simulated the impact of tax changes on the corporate tax-to-GDP ratio. In doing so, we first compute the tax difference between the top personal tax and the reduced corporate tax averaged for the EU-15 between 1991 and 2006. It is shown in the left panel of Figure 4. We see that the average tax gap rose from around 12 percentage points in the early 1990s to more than 20 percentage points in recent years. This is primarily the result of decreasing corporate tax rates, which fell from an average of 41 percent to

27 percent. The right panel of Figure 4 shows how this might have influenced the corporate-tax-revenue-to-GDP ratio. In particular, it shows two alternative developments of the tax-to-GDP ratio in the EU-15 between 1991 and 2004. The first is the development of the actual corporate tax-to-GDP ratio. The other line shows the simulated development of the corporate tax-to-GDP ratio if the tax gap between personal and corporate taxation had remained unchanged since 1991. It is constructed by subtracting the revenue effect associated with income shifting from the personal to the corporate tax induced by the rising tax gap since 1991 from the actual tax-to-GDP ratio. The difference between this line and the actual corporate tax-to-GDP ratio thus yields insight into the corporate tax gain from income shifting. We see from the right panel of Figure 4 that this gain has gradually increased over time to around 0.25 percentage points in recent years. The legal form choice in combination with a rising tax gap since the early 1990s thus explains 0.25 percentage points of the stabilization of the corporate tax-to-GDP ratio during the past 15 years.

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