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TAX COMPETITION
AND FISCAL DEMOCRACY

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ABSTRACT

How does international tax competition affect fiscal democracy? To what extent does it constrain the autonomy of democratic governments in choosing the level and structure of national taxation? While tax competition has not reduced the level of total taxation in OECD-22 countries, it has revenue effects at the level of selected taxes, especially taxes falling on mobile tax bases such as the corporate tax or taxes on private capital income. The nominal tax burden has shifted from capital to labor and consumption (domestic redistribution). While this result suggests that tax competition has a negative effect on national tax autonomy, because all competing countries see their ability to tax mobile capital constrained, small countries see their capacity to raise revenue from mobile capital increased at the expense of large countries (international redistribution). Because of these countervailing effects, the overall effect on small countries is ambiguous. By contrast, the tax autonomy of large countries has unambiguously declined because international and domestic pressures work in the same direction. Given that governments have to meet mandatory spending requirements on the expenditure side this may have contributed to higher fiscal deficits in large countries.

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1. FISCAL DEMOCRACY CONSTRAINED

What is “fiscal democracy”? The term was coined by Eugene Steuerle but has never been defined properly. The meaning is quite intuitive, however. Democracy, according to Steuerle, is fundamentally “about equal rights to vote – and have your representatives vote – on the nation’s current priorities” (Steuerle, 2008). Since a nation’s current priorities usually have financial implications – they require the allocation of public money – democracy is at its core a fiscal affair. It concerns equal rights to vote on tax and expenditure policies. Yet, voting confers democratic control only to the extent that votes can make a difference in policy terms. If “there is no alternative” (Margaret Thatcher’s TINA), voting is redundant. Fiscal democracy has not only formal prerequisites – equal voting rights, but also substantive prerequisites, which are policy choice and autonomy: Fiscal democracy is when voters have the power to change the government and the government has the power to change fiscal policies in light of voter preferences.

In his own work, Steuerle focused on the substantive prerequisites of fiscal democracy, and more specifically on the constraints policy obligations entered by “yesterday’s legislators” (Steuerle, 2010: 876) impose on the fiscal choices of today’s legislators. To measure these constraints Steuerle developed the so-called “Fiscal Democracy Index”. The index is defined as the percent of public revenue available after expenditures on mandatory programs (including interest payments on the public debt). Applied to the federal budget of the United States, it shows a steady decline since the 1960s (Steuerle, 2010: 878). In 2010 it turns negative indicating that even before Congress voted on any spending program for that year, more than the available revenue was already allocated to mandatory expenditure programs. Streeck and Mertens report a similar downward trend in fiscal discretion for Germany (Streeck and Mertens, 2010). Other empirical studies also point to the long-term accumulation of expenditure-side constraints on fiscal democracy (Pierson, 1998). The recent sovereign debt crisis greatly exacerbates the problem.

Fiscal democracy is not only threatened by the expenditure side but also from the revenue side. New or mounting obstacles to the raising of public revenue can reduce the scope for fiscal policy discretion as well. Our concern in this paper is with one particular revenue side constraint: international tax competition. We want to find out if, and to what extent, it undermines fiscal democracy. The political economy literature is split on this issue. Some scholars argue that tax competition harms fiscal democracy by constraining national tax autonomy. Others claim that tax competition fails to constrain national taxation and therefore cannot harm fiscal democracy. The first position became popular in the late 1980s and early 1990s, when radical tax reforms in the US and the UK, and rapid advances in global and regional economic integration seemed to herald a

new era of international competition (Sinn, 1988, Steinmo, 1994, Swank, 2006). Many authors feared, and some hoped that this would lock governments into a race to the bottom in taxation that all but erases national tax autonomy (Edwards and Keen, 1996). This concern was particularly widespread in Europe. Economists warned that the completion of the Single Market would turn the EU into “a single large tax haven” (Giovannini and Hines, 1991: 172) in which fiscal competition will wipe out redistributive taxes on mobile factors and turn the tax system into one of mere benefit taxation (Sinn, 1994). The second position rose to prominence in the late 1990s and early 2000s when scholars began submitting the predictions of the first position to empirical testing and failed to find clear cut evidence of a dramatic race to the bottom. Some authors concluded that competitive constraints on national taxation were largely irrelevant: Governments “wishing to expand the public economy for political reasons may still do so (including increasing taxes on capital to pay for new spending)” (Garrett, 1998: 823). The notable success of Denmark, a small, open, high-tax economy, seemed to vindicate this conclusion (Campbell, 2009: 262).

Both positions are wrong! The latter is wrong because it underrates the stringency of tax competition. As we will show for a sample of 22 OECD countries (OECD-22)¹, tax competition does constrain national taxation in important ways. The former is wrong because it assumes competitive constraints on national taxation to translate one-to-one into constraints on national fiscal democracy. This is not the case. Tax competition has ambiguous effects: While it undermines fiscal democracy in most countries, it expands the scope for fiscal democracy in some (mostly small, poor, and peripheral) countries.

Five following sections structure this paper. Section 2 briefly reviews the concept of tax competition and explains why it affects fiscal democracy differently in different countries. The next three sections investigate the extent of tax competition among OECD-22 countries. Section 3 scrutinizes competitive constraints on tax rates, section 4 focuses on competitive effects on tax revenues, and section 5 analyses the redistributive consequences of tax competition. Section 6 summarizes the empirical findings and discusses implications for fiscal democracy.

2. TAX COMPETITION: SYMMETRIC AND ASYMMETRIC

Tax competition refers to national governments vying for internationally mobile tax base by strategically undercutting each other’s taxes. In order to analyze its implications for fiscal democracy, we start with a very simple conceptual model. In its starkest form,

¹ OECD-22 countries include Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States of America.

this baseline model features two identical countries sharing one international mobile tax base ('capital') (Zodrow and Mieszkowski, 1986, Wilson, 1999). The tax policies of both countries are interdependent: high taxes in country A swell country B's revenues by pushing a larger share of the mobile tax base towards B; low taxes in A depress B's revenues by poaching tax base from B. This policy interdependence triggers a 'race to the bottom' in taxation as each country tries to appropriate a disproportionate share of the mobile tax base by undercutting the other country's tax rate. In equilibrium, tax rates are lower in both countries than they would otherwise be, resulting in lower tax revenues or a shift of the tax burden to immobile tax bases. The effects on fiscal democracy are straight forward. Tax competition constrains the revenue raising capacity for both competing countries as a group *and* for each country individually. The range of feasible fiscal policies shrinks. Fiscal democracy is universally undermined. The obvious antidote is tax harmonization²:

[I]f citizens are to retain the ability to choose the goods and services they would like to provide to themselves collectively through democratically elected institutions, and to use the tax system to achieve a more socially acceptable distribution of income, the forces of globalization ... will have to be neutralized. The most obvious way for that to happen is for countries to agree to coordinate and harmonize aspects of their tax systems, particularly as they relate to the taxation of income from capital (Brooks/Hwong 2010: 819)

Thus far, our baseline model assumes both countries to be identical: tax competition is symmetric. Obviously, however, real-world countries are not identical but differ across various dimensions including country size. The introduction of differences in country size (in terms of initial endowments of tax base) changes the results of the baseline model considerably: If countries differ in size, they no longer face similar competitive constraints and no longer suffer equal welfare losses. Rather the smaller country has stronger incentives to cut tax rates than the larger country and suffers a smaller revenue loss in the competitive equilibrium (Bucovetsky, 1991, Kanbur and Keen, 1993). Indeed, if the difference in country size is large enough, the smaller country generates more revenue under tax competition than in its absence. Intuitively, this is because for the small country, the revenue loss from a tax cut – i.e. revenue forfeited from the (initially small) domestic tax base – is relatively minor compared to the major revenue gain from the inflow of part of the (initially large) foreign tax base of the other country. Hence, the small country faces a more elastic supply of the mobile tax base than its large competitor. In equilibrium, it will undercut the rate of the large country and attract a disproportionately large share of the internationally mobile tax base. There is a clear

² We use tax harmonization here as a catch-all term for cooperative measures to curb tax competition.

“advantage of ‘smallness’” in tax competition (Wilson, 1999 278). Tax competition is asymmetric³.

Asymmetric tax competition has ambiguous effects on fiscal democracy. The overall effect is negative because the competitive dynamics constrain the taxing capacity of the group of competing countries as a whole. The effect for the small country is positive, however. It gains in revenue raising capacity and hence gains in policy options for democratic choice. Yet, what the small country gains, the large country loses even more. The effect of tax competition on national fiscal democracy is clearly negative for this country. As a consequence, tax harmonization to curb tax competition is likely to be contested between the large country (which potentially benefits) and the small country (which potentially loses). Asymmetric tax competition is a matter of common concern for voters and governments in all competing countries but not a matter that lends itself easily to commonly acceptable solutions.

So much on the theory of tax competition, what about its reality? To the extent that tax competition exists, the baseline model leads us to expect three major tax policy trends:

- (1) Race towards the bottom: a downward trend in tax rates and tax revenues as countries engage in interactive tax cutting.
- (2) Asymmetry: a pronounced tendency of small countries to undercut the tax rates of large countries, and raise more tax revenue from mobile bases.
- (3) Redistribution: a shift of mobile tax base from large to small countries (international redistribution) and a shift of tax burden from mobile to immobile tax bases (domestic redistribution).

A lot of high-powered econometric research has gone into evaluating these predictions. Most of this research is narrowly focused on corporate taxation. The findings are mixed. Results vary with prediction tested, time frame, sample selection, and measure of the corporate tax burden. In this paper, we take a different approach. Based on simple indicators on all three predictions, we show that the existence of tax competition is more obvious and straightforward than much of the econometric research makes it appear. The analysis starts in the 1980s (before the onset of deep economic integration) and ends in 2007 (the last year before the financial crash and for most variables also the last year for which data were available) and covers all major taxes.

³ Cross-national differences in wealth, location and domestic institutions can also create asymmetric effects under tax competition (see Baldwin and Krugmann 2002; Basinger and Hallerberg 2004; Plümper, Troeger and Winner 2009; Hays 2009).

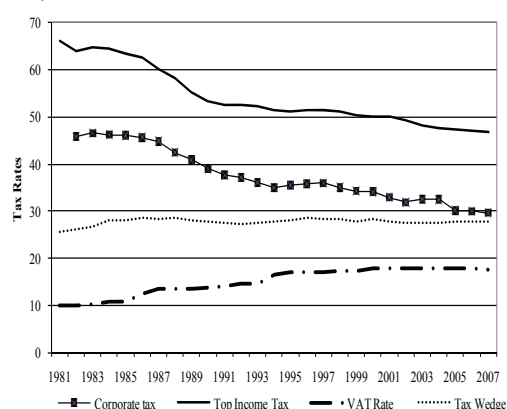
3. TAX COMPETITION AND TAX RATES

Does tax competition trigger a race to the bottom in tax rates? Does it cause country size-related asymmetries in tax rate levels? In order to investigate these questions, it is important to distinguish two modes of tax competition: general and targeted (Keen, 2001; Kemmerling/ Seils 2009). Under *general tax competition*, governments vie for mobile tax base by cutting *general* tax rates such as, for instance, the standard corporate tax rate. Under *targeted tax competition*, by contrast, they compete for mobile tax base by offering *preferential tax treatment* specifically for particularly mobile parts of the base. Think of special corporate tax regimes as an example, which reduce the level of taxation selectively on specific corporate forms and functions such as foreign-held companies, companies located in special business zones, holding companies, and captive insurance.

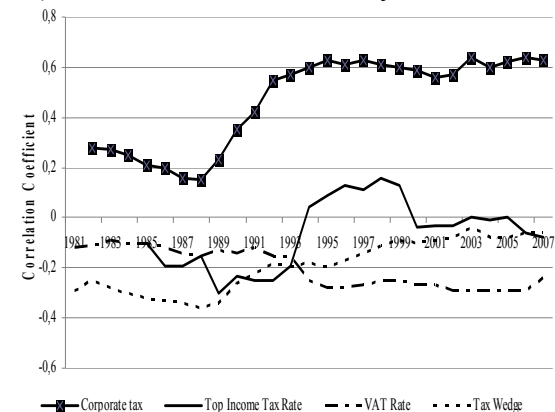
Figures 1a and 1b provide evidence on *general tax competition*. Figure 1a tracks historical trends in four general tax rates. It shows a dramatic fall of the corporate tax rate (down, on OECD-22 average, from 46 percent in 1985 to less than 30 percent 2007). The top personal income tax rate also fell by 16 percentage points but from a higher initial level (63 percent in 1985 down to 47 percent in 2007). The VAT rate increased (from roughly 11 percent in 1985 to roughly 18 percent in 2007). The tax wedge⁴ of an average wage earner (single, no children) has been more or less stable since the mid-1980s (at around 28 percent). In short, there is evidence of a pronounced race towards the bottom in general corporate tax rates and a relatively less pronounced downward trend in top personal income tax rates but not in tax wedges or VAT rates.

Figure 1: Tax rates, OECD-22 averages

1a) Historical trends



1b) Correlations with Country Size



Sources: top income tax rate; VAT rate and corporate tax: Bundesministerium der Finanzen, *Die wichtigsten Steuern im internationalen Vergleich*, several issues; Tax Wedge: OECD, *Taxing Wages*.

⁴ The tax wedge refers to the sum of personal income tax and employee social security contributions together with any payroll tax, expressed as a percentage of labor costs.

Figure 1b tracks the correlation of the general tax rates and country size of OECD-22 countries over time⁵. If tax competition has indeed asymmetric effects on small and large countries, as the baseline model suggests, we should observe a positive correlation of tax rates and country size. The correlation should gain in strength over time as the level of market integration, and, hence, competitive pressure increases. This is indeed what we find for the corporate tax rate. The correlation of the corporate tax rate with country size increased from 0.21 in 1985 to 0.63 in 2007, indicating a growing tendency of small states to undercut the corporate tax rates of large states. Much of the empirical literature takes this as strong evidence of increasing competitive pressure (Devereux, Griffith and Klemm 2002; Ganghof, 2006; Plümper, Troeger and Winner 2009; Genschel and Schwarz 2011). All other correlations are negative or show no clear trend. In sum, figure 1b suggests that general tax competition affects corporate tax rates but not personal income rates, tax wedges or VAT rates.

Table 1 presents evidence on *targeted tax competition*. The countries are arranged according to country size (column 2). Column 3 provides information on targeted competition in corporate taxation. While there has been strong anecdotal evidence of the spread of special corporate tax regimes since the 1980s, systematic internationally comparative time-series data has been lacking (Kemmerling and Seils 2009). The best we can do is to list the number of “potentially harmful” corporate tax regimes identified by the OECD among its member states in 2000 (OECD, 2006). The list shows that all OECD countries but four have adopted one or more special corporate tax regime suggesting that targeted competition is widespread in corporate taxation. The correlation between country size and number of special corporate tax regimes is negative but small: large states are only slightly less likely to have such regimes than small states. Closer inspection suggests that domestic institutions may matter more for the probability of adopting special corporate tax regimes. The number of such regimes tends to be high among continental welfare states (Belgium, France, Germany, Luxembourg, Netherlands, and Switzerland) and Mediterranean states (Greece, Italy, Portugal but not Spain) but low among Anglo-Saxon economies (Australia, New Zealand, United Kingdom, United States but not Canada and Ireland) and Nordic welfare states (Denmark, Finland, Norway, and Sweden).

Targeted competition in personal income taxation focuses mainly on high wage professionals and private investors. There is widespread anecdotal evidence of countries offering special tax regimes for foreign professionals (“expats”) temporarily working in the domestic economy in order to attract human capital and the multinational companies

⁵ Following standard practice, we operationalize country size as the logarithm of population size in order to dampen the impact of very small and very large countries on the correlation.

Table 1: Targeted Tax Rates

	Country Size (Mio. Pop)	Special Corporate Tax Regimes	Top Rate on Personal Interest Income			
			Residents		Non-Residents	
	2000	2000	1985	2007	1985	2007
Luxembourg	0.5	3	57	10 ^{b)}	0	0
NZ	3.8	0	...	...	...	...
Ireland	3.9	2	65	20 ^{b)}	35	0
Norway	4.5	1	64	.40	0	...
Finland	5.2	1	...	28 ^{b)}	...	0
Denmark	5.4	0	73	59	0	0
Switzerland	7.3	2	39	40	35	15
Austria	8.1		67	25 ^{b)}	5	0
Sweden	8.9	1	80	30 ^{b)}	0	0
Portugal	10.4	3	60	20 ^{b)}	13,8	20
Belgium	10.3	5	25 ^{b)}	15 ^{b)}	25	15
Greece	10.6	4	63	10 ^{b)}	56,8	10
Netherlands	16.2	7	72	52	0	0
Australia	19.7	1	...	...	...	...
Canada	31.4	3	50	46	25	25
Spain	40.5	1	66	43	18	0
Italy	58.0	2	12,5 ^{b)}	27 ^{b)}	21,6	27
UK	59.2	0	60	40	30	0
France	59.5	2	65	48	25	16
Germany	82.6	2	56	47	0	0
Japan	127.6	0	75	20 ^{b)}	20	15
United States	283.0	1	50	42	30	30
OECD-22		1,95	57,87	33,10	17,91	9,11
Correlation ^{a)}		-0,16	-0,13	0,38	0,25	0,49

Notes: a) correlations are with the population logarithm b) scheduler taxation

Data sources: population: <http://stats.oecd.org/index.aspx?queryid=254> ; Special corporate tax regimes; OECD 2006 Top rate on personal interest income: Bundesministerium der Finanzen, *Die wichtigsten Steuern im internationalen Vergleich*, several issues

employing it (PWC, 2005). For example, Sweden provides tax incentives to foreignexperts residing no longer than five years in the country, the Netherlands have tax incentives for foreign experts, artists and sportsmen; and Spain, until recently, offered a special rate of only 24% to football players (“Lex Beckham”). Unfortunately, lack of internationally comparative data prevents us from presenting systematic data for all OECD-22 countries. Data is available, by contrast, on targeted competition for private investment income. We focus on interest income. As a rule, interest income is fully taxable in the residence country of the investor with a tax credit given for any withholding tax

charged by the source country of the investment. In practice, however, the investor may evade residence-country taxation by not reporting their foreign interest income. Governments can compete for interest income in two ways. First, they can selectively cut the top personal income tax rate on resident interest income so as to reduce the incentive for domestic investors to engage in outbound tax evasion (column 4 and 5). Second, they can reduce their withholding taxes on the interest income of foreign investors so as to attract inbound investment of non-residents (column 6 and 7).

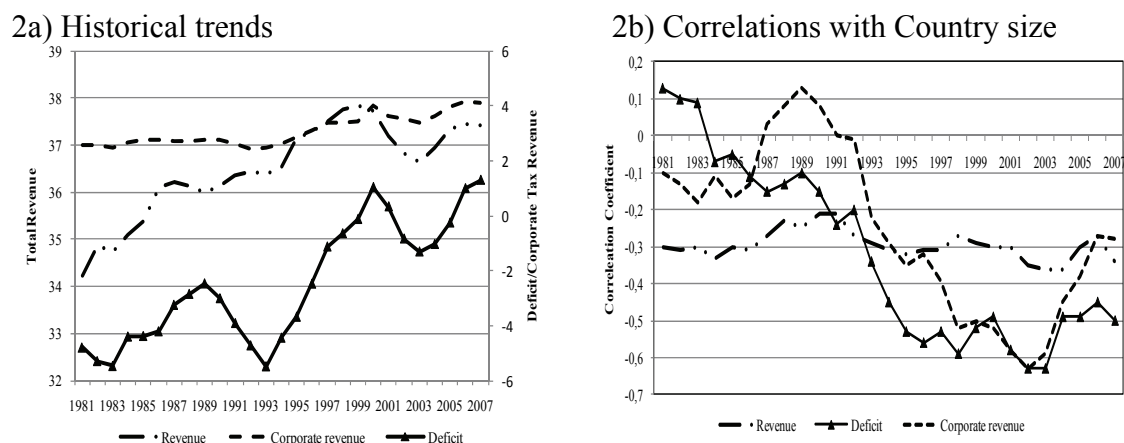
The standard approach to cutting the tax burden on resident investors is to tax interest income outside the framework of the progressive personal income tax at low proportional rate (so-called “schedular taxation”). As column 4 shows, only two of the OECD-22 countries applied a schedular approach in 1985. By 2007, however, 10 out of the 20 OECD-countries did so (column 5). The spread of schedular taxation has caused the top rate on resident personal interest income to fall faster than the top personal income tax rate. While the latter fell by only 16 percentage points, on OECD-22 average, between 1985 and 2007 (see figure 1a), the former went down by 25 percentage points from 58 percent (1985) to 33 percent (2007). Personal interest income is now often taxed at substantially lower rates than personal income from other sources. The rate gap between the (low) tax rate on resident personal interest income and the (high) top personal income tax rate was as wide as 14 percentage points, on OECD-22 average, in 2007. The rate of interest income taxation is now positively correlated with country size (0.38 in 2007) as the baseline model would predict: small countries are more likely to have low interest income tax rates (and to adopt a schedular approach to interest income taxation) than large countries. At the same time, governments have also cut the withholding tax burden on non-resident interest income. As columns 6 and 7 show, the withholding tax rate dropped from averagely 18 percent in 1985 to 9 percent in 2007. There is also a positive association with country size (0.49 in 2007): Small states are more likely to charge no or low withholding taxes than large states. In conclusion, while governments tried to stem outbound tax evasion of domestic residents by targeted cuts on resident interest income, they vied for inbound tax evasion of foreign investors by reducing the withholding taxes on non-resident interest income.

The evidence presented in this section suggests that tax rate competition has increased since the 1980s. Corporate taxation is now subject to strong general *and* targeted tax competition. Personal income taxation is subject to strong targeted competition for interest income and arguably some limited competition for highly qualified labour (“expats”). But there is no indication that the drop in top personal income tax rates was caused by general tax competition. There is also no evidence of tax competition in VAT or in the tax wedge on the average production worker.

4. TAX COMPETITION AND TAX REVENUES

Does tax rate competition matter for tax revenues? Looking at figure 2a, it is far from obvious that it does. As the figure shows, the trend in total tax revenues is up, not down. On OECD-22 average, they increased from roughly 35 percent of GDP in 1985 to roughly 37 percent in 2007. The budget balance also improved. While budget deficits oscillated around 4 percent of GDP over the 1980s and early 1990s, budgets were close to balance, over the business cycle, for most of the 2000s⁶. Even if we focus on corporate taxation, arguably the “most well-supported case” (Devereux and Sørensen, 2006: 14) of tax competition, there is no clear cut evidence of a race to the bottom in tax revenues. A huge empirical literature has tried to estimate the influence of economic openness on capital tax revenues – with mixed results. Some studies find a positive relationship: economic openness is associated with more capital taxation (e.g. Quinn, 1997, Garrett and Mitchell, 2001). Some find a negative relation: openness is associated with less capital taxation (Rodrik, 1997, Winner, 2005, Schwarz, 2007, Devereux et al., 2008). And some find essentially no relation at all (e.g. Swank, 2006, Slemrod, 2004). On average, corporate tax revenues have increased in OECD-22 countries by almost a quarter, from roughly 3 percent of GDP in 1981 to close to 4 percent in 2007 (figure 2a)⁷.

Figure 2: Revenues and Deficits, OECD-22 averages



Sources: OECD Stat Extracts, <http://stats.oecd.org/index.aspx?>

Yet, a closer look at the reasons behind the increase in corporate tax revenues warns against denying revenue effects of tax competition lightly. First, governments have partly compensated the negative revenue effects of falling statutory tax rates by tax base broadening, e.g. by curtailing tax credits, depreciation allowances and deductions

⁶ What happened to public deficits after 2007 is, of course, a different story entirely.

⁷ Not shown in the figure, corporate tax revenues declined rapidly in the wake of the financial crisis 2008.

(Stewart and Webb, 2006). As the tax base grows broader and broader, the scope for this compensation strategy shrinks. The probability of future tax cuts having negative revenue effects increases. This suggests that the revenue effects of corporate tax competition may become felt with a time lag. Second, rising corporate tax revenues are driven by an increase in the underlying macro-economic tax base. The share of corporate income (profits and capital gains) in national income has risen continuously since the 1980s (see also table 3 below). The positive revenue effect of this increase has partly offset the negative effects of competitive rate cuts (Kramer 1998). Third, the increase in corporate profitability is partly endogenous to corporate tax competition. To some extent, the endogeneity is purely statistical: tax competition increases inward FDI and profit shifting into small countries and thus increases the share of corporate profits in these countries (table 3 below). The uneven number of small and large countries leads to an increase of (unweighted) average profitability. To some extent, the endogeneity is real: the competitive downward pressure on corporate tax rates creates an increasing gap (in relative terms and sometimes even in absolute terms) between low corporate and high top personal income tax rates (see table 4 below). This gap encourages domestic income shifting from the personal into the corporate sector: Corporations turn into on-shore tax shelters for rich individuals (Ganghof and Genschel, 2008). According to one estimate, a one percentage point increase in the gap between the top personal tax rate on interest income and the statutory corporate tax rate induces a 2.6 percent increase in the share of private savings channelled through the corporate sector (Devereux and Sørensen, 2006: 12). Another study suggests that a reduction of the corporate tax rate by 10 percentage-points will raise the share of incorporated businesses in total business, and hence the corporate tax base by seven percent (de Mooij and Ederveen, 2008: 682).

What do the correlation data reported in figure 2b add to this debate? As the figure shows, the level of total tax revenues is negatively associated with country size (- 0.34 in 2007): large countries collect less tax revenue than small countries. While this is in line with the predictions of the baseline model, it is unlikely to be caused by tax competition. First, the negative correlation predates the onset of deep economic integration in the 1990s and does not discernibly increase thereafter. Second, small states have higher spending requirements than large states because the provision of public goods such as defence, monetary, financial and regulatory institutions, technical infrastructure or embassies is often subject to economies of scale. This forces small states to spend more in per capita terms on public goods provision than large states, and, hence, to tax more, all else equal (e.g. Alesina and Spolaore, 2003: 3).

The picture is different with respect to corporate tax revenues (figure 2b). While corporate revenues were essentially unrelated to country size over the 1980s (oscillating between -0.1 in 1981 and 0.13 in 1989), the correlation coefficient drops dramatically

over the 1990s, reaches a low of -0.63 in 2002 and stays negative thereafter (-0.28 in 2007): Over the 2000s, large OECD countries have been collecting significantly less corporate tax revenues than their smaller peers as the baseline model would predict. To be sure, the corporate tax is not a major revenue raiser in OECD-countries so that the absolute revenue effect may be small. Yet, even marginal revenue losses (or gains foregone) are politically painful for governments constrained by high levels of mandatory expenditure. Also, the revenue losses (or gains foregone) from corporate taxation may just be the tip of the iceberg of hard to measure losses from other mobile capital tax bases such as personal capital income. This view is supported by the data on budget deficits. While budget deficit tended to be slightly higher in small countries during the 1970s and early 1980s (0.13 in 1981), the correlation coefficient fell dramatically over the 1990s, largely in step with that of corporate tax rates. The correlation reached a low of -0.63 in 2002, and stayed negative for the rest of the 2000s (-0.5 in 2007): Large states (France, Germany, Italy, Japan, United Kingdom, United States) ran large budget deficits, while many small states recorded budget surpluses (Denmark, Finland, Ireland, Luxembourg, New Zealand, Norway, Sweden). This is consistent with the idea that tax competition helped small countries to reduce their reliance on debt by increased revenues from corporate profits and other mobile forms of capital income, and also through positive knock-on effects on labour taxation. To the extent that the influx of foreign capital drives up labour demand and wages, it tends to improve revenues from labour taxation as well.

To further explore this idea we perform a simple regression analysis of budget deficits in OECD-22 countries (Table 2). Our expectation is that high corporate tax revenues should be associated with low budget deficits: As tax competition enhances the capacity of small states (and restricts that of large states) to collect revenues from corporate profits and other forms of mobile capital, their budget balance should improve. Hence, corporate tax revenues should be positively associated with the budget balance. In order to assess this prediction, we control for two other variables which potentially influence the budget balance. One is economic growth (in terms of GDP). High growth rates reduce deficits by decreasing outlays on unemployment benefits and other countercyclical social transfers, and by increasing the yield of progressive taxes (Darby and Melitz, 2008). The other is country size. As various authors have argued, tax competition is not the only way in which small states benefit from economic openness. They also benefit because their small size allows them to specialize on, and live handsomely off, developing comparative advantage in exclusive niches of global product and services markets (Streeck, 2000), and because their high degree of economic openness enables them to externalize part of the costs of fiscal adjustment on foreign countries

(Laurent and Cacheux, 2007). Thus, even at a given level of corporate tax revenues we expect small open economies to have lower deficits than large countries.

The results presented in table 2 are in line with expectations. The coefficients of corporate tax revenues and country size are sizeable and have the predicted sign. Corporate tax revenue is positively associated with the budgetary balance, country size negatively. The significance of both variables increases over time. The impact of growth, by contrast, is relatively small, has no clear direction and is insignificant at all times. The model fit has been improving over time. In 2007, the model explained almost 70 percent of the variance in budget deficits. With the exception of 2007 a 1 percent point increase of corporate tax revenues as a share of GDP improves the budget balance by roughly 1 percent point. The effect is larger in 2007 perhaps due to cyclical overheating in that year.

Table 2: Explaining the size of budget deficits in OECD-21 countries, 1992-2007

	1992	1997	2002	2007
Corporate Tax Revenue (% of GDP)	1.11 (1.57)	0.98 (2.42)**	1.05 (2.49)**	1.67 (5.63)***
GDP Growth	0.28 (0.82)	0.29 (1.14)	-0.08 (-0.34)	-0.43 (-0.73)
Ln Population	-0.31 (-0.67)	-0.53 (-1.36)	-0.78 (-1.53)	-1.10 (-2.31)**
Nobs	21	21	21	21
Adj. R2	15.7	42.3	47.7	68.2

Notes: a= t-values are shown in parentheses; Three, two, or one asterisk represents a corresponding significance of 1%-, 5%-, or 10%-level respectively. Dependent variable is overall government deficit scaled by GDP.

This section holds three lessons on the revenue effects of tax competition: First, tax competition has not reduced the level of total taxation in OECD-22 countries. Second, tax competition has revenue effects at the level of selected taxes. As we have shown for the corporate tax, small states find their revenue raising capacity enhanced by tax competition, large states constrained. Third, the tax competition has induced variance in revenue raising capacity partly accounts for the significant improvement in the budgetary position of small OECD countries since the 1980s and the persistence of chronic deficits in large countries.

5. TAX COMPETITION AND REDISTRIBUTION

According to the baseline model, tax competition redistributes mobile tax base from large to small countries (international redistribution), and tax burden from mobile to immobile tax bases, i.e. from capital to labour and consumption (domestic redistribution). We investigate both redistributive effects in turn.

International redistribution

According to the baseline model, small countries will attract a disproportionately large share of the mobile tax base under tax competition (‘advantage of smallness’). We use two indicators to check this proposition: the share of corporate income (profits and capital gains) in GDP and employment created by inbound foreign direct investment as a share of the domestic labour force (table 3)⁸. Both indicators are broadly in line with the baseline model thus lending further support to the claim that tax competition partly accounts for different trends in the corporate tax revenues and deficits of large and small countries (section 4).

As table 3 shows, the share of corporate income in national income has increased, on average, from roughly 30 percent in 1995 to roughly 33 percent in 2007 in OECD-22 countries. The correlation with country size is negative at both points in time (-0.56 and -0.54 respectively): small countries tend to have large shares of corporate income in national income due to the inflow of tax-sensitive corporate profits and investments (for a recent review of the tax sensitivity of corporate profits see de Mooij/ Ederven 2008).

The picture is broadly similar if we turn to employment created by inward foreign investment (table 3). Manufacturing employment by foreign multinationals accounted for 2.6 percent of the total labour force of average OECD-22 countries in 1995 and 2.7 percent in 2005. The employment share is negatively correlated with country size (-0.62 and -0.64 respectively): small countries attract relatively more job creation by foreign firms than large states. Data on services employment is more limited. It suggests that the share of services employment in the total labour force has increased significantly. The negative correlation with country size is very strong in 2007 (-0.75). These data, limited as they may be, are in line with survey findings suggesting that the location of service activities is more sensitive to tax than the location of manufacturing activities (Ruding Report, 1992 102). Service establishments such as holding companies, financial services, coordination centres, or headquarters often serve as receiving ends of profit shifting operations out of high-tax jurisdictions. Companies are particularly concerned, therefore, to locate these service establishments in low-tax jurisdictions {see also Palan, Murphy and Chavagneux, 2010: 52-57}.

In conclusion, small countries do indeed attract a disproportionate share of the mobile corporate tax base as the baseline model suggests. This brings fiscal advantages in terms of improved revenues as argued in section 4. It also has non-fiscal advantages such as better access to the technology of foreign firms (stimulating innovation and

⁸ Unfortunately, data on the share of non-resident capital income in total domestic capital income is not easily available. Thus, we present no evidence of the international distribution of the mobile personal capital income tax base.

growth), and higher levels of employment, and upward pressure on wages. The influx of foreign investments increases the relative scarcity of labour and hence pushes labour demand and the national average wage up (with positive knock-on effects on labour taxation!). Also, multinational companies usually pay wages above the national average. The markup is 40 percent, on average, in OECD countries (OECD own calculations). In fact, it is these positive employment effects rather than narrow fiscal reasons that motivated Ireland to embrace tax competition as a strategy of national economic development, and that motivated other countries, especially in Eastern Europe, to copy Ireland's apparent success (Laurent and Cacheux, 2007).

Table 3: International distribution of mobile tax base

	<i>Corporate income as percentage of national income</i>		<i>Employment by foreign MNE's as percentage of the national labor force</i>			
	<i>1995</i>	<i>2005</i>	<i>manufacturing</i>		<i>services</i>	
			<i>1997</i>	<i>2007</i>	<i>1997</i>	<i>2007</i>
Luxembourg	37	40	5,98	4,08	...	...
NZ	...	...	...	...	...	...
Ireland	...	44	7,47	4,60	...	6,55
Norway	36	48	1,84	2,43	2,38	...
Finland	34	34	2,03	2,75	...	5,01
Denmark	28	28	1,65	2,90	...	...
Switzerland	27	28	...	2,97	...	5,13
Austria	26	33	...	4,25	2,32	7,18
Sweden	32	28	3,05	4,59	3,01	6,68
Portugal	30	28	1,65	1,92	0,96	...
Belgium	29	31	...	...	5,77	4,09
Greece	...	40	...	...	...	...
Netherlands	32	34	2,10	2,03	2,11	...
Australia	30	33	...	...	...	...
Canada	32	35	...	...	...	...
Spain	...	28	2,25	1,74	...	3,34
Italy	37	35	...	1,87	...	3,09
UK	30	28	2,63	2,80	3,25	6,34
France						
Germany	27	32	1,10	2,74	...	...
Japan	...	31	0,14	0,28	0,08	0,42
United States	23	24	1,47	1,29	1,54	2,15
<i>OECD-22</i>	<i>30</i>	<i>33</i>	<i>2,60</i>	<i>2,74</i>	<i>2,38</i>	<i>4,34</i>
<i>Correlation</i>	<i>-0,56</i>	<i>-0,54</i>	<i>-0,62</i>	<i>-0,64</i>	<i>-0,40</i>	<i>-0,75</i>

Sources: own calculations from: OECD Stat Extracts, <http://stats.oecd.org/index.aspx?>

Domestic Redistribution

According to the baseline model, tax competition shifts the (relative) tax burden from mobile to immobile tax bases, i.e. from capital to labour and consumption: The ratio of capital to labour taxes should fall (race to the bottom), and smaller countries should end up with lower ratios because they face stronger incentives to engage in competitive tax cutting than large countries (asymmetry). Various authors have tested these predictions by regressing different measures of the capital-labour tax ratio on batteries of independent variables including economic openness and country size for different country samples (Garrett and Mitchell, 2001; Schwarz, 2007; Winner, 2005; Krogstrup, 2004; König/Wagener, 2008; Garretsen/ Peters 2007; Bretschger/ Hettich, 2002). The results are not completely conclusive. Many studies confirm a negative effect of economic openness on the capital-labour tax ratio: open borders are associated with relatively lower capital relative to labour taxes. Others do not find such evidence (e.g. Garrett and Mitchell, 2001). Also, some studies purport to show that small countries have lower capital to labour tax ratios than large countries (Winner, 2005; Schwarz, 2007; Garretsen and Peters, 2007), others don't (König/Wagener, 2008, Haufler et al. 2009).

We see at least two reasons why a competition-induced shift in tax burden may not unequivocally show up in lower capital to labour tax ratios. First, many studies use fixed effects estimators to gauge the effect of country size (operationalised by either population size or GDP) (Garretsen and Peters, 2007; Haufler et al. 2009, Devereux et al. 2008). This is problematic because these estimators measure the coefficients of a country's deviations from its mean size only and cancel out cross-national differences in country size: they restrict the effect of country size to changes of a particular country's size over time and fail to capture the effects of differences in size across countries at a given point in time. This makes it very difficult to identify any effect of country size on capital-labour tax ratios because cross-country variation is swept out of the data and within-country variation over time is very scarce. Second, those studies that do not use fixed effects estimator (for example: Bretschger and Hettich, 2002; Schwarz, 2007) usually measure the average effect of country size on the capital-labour tax ratio over a certain period of time. This would have been fine if the time period had started in the 1990s, i.e. after the onset of deep market integration. Most studies, however, range back to the 1970s thus lumping together time periods in which country size is unlikely to matter because market integration was shallow (1970s and 1980s), and time periods in which country size should matter because markets are deeply integrated (1990s and 2000s).

We cope with both problems by comparing different measures of the capital-labour tax ratio at two different points of time (1985 and 2007). Have the ratios fallen over time and has the correlation with country size increased? The ratios are computed from

the nominal tax rates analysed in section 3. Recall that important tax rates on mobile capital (the corporate tax rate and the tax rate on the resident interest income of private investors) have fallen considerably since 1985 while tax rates on immobile labour and consumption have either increased (VAT) or stagnated (tax wedge) or decreased by relatively less (top personal income tax rate). As a consequence, the ratios of capital tax rates to labour tax rates have generally fallen, indicating a shift of the nominal tax burden from mobile to immobile bases (table 4). The fall has been most pronounced in the tax rate on personal interest income/ tax wedge ratio: while in 1985 the rate applied to resident personal interest income was 2.07 times higher than the tax wedge, it was only 1.19 times higher in 2007.

Table 4: Tax Rates and Ratios, OECD-22 averages

	OECD-22 average		Correlation with Country Size	
	1985	2007	1985	2007
<i>Tax rates</i>				
<i>capital</i>				
CTR ^{a)}	46,1	29,7	0,21	0,63
TRR ^{II} ^{b)}	57,6	33,8	-0,12	0,34
<i>labour</i>				
VAT	10,7	17,7	-0,10	-0,24
Tax Wedge	28,0	27,8	-0,32	-0,06
TPITR ^{c)}	63,4	46,9	-0,10	-0,08
<i>Tax Ratios</i>				
CTR/VAT	2,53	2,23	0,42	0,37
CTR/Tax Wedge	1,65	1,07	0,33	0,50
CTR/TPITR	0,76	0,69	0,34	0,76
TRR ^{II} /VAT	3,16	2,30	-0,29	0,36
TRR ^{II} /Tax Wedge	2,07	1,19	0,18	0,45
TRR ^{II} /TPITR	0,92	0,76	-0,08	0,25

Notes: a) CTR = corporate tax rate; b) TRR^{II} = tax rate on resident interest income (private investors); c) TPITR = top personal income tax rate

Sources: CTR, TRP^{II}, TPITR and VAT rate: Bundesministerium der Finanzen; Die wichtigsten Steuern im internationalen Vergleich, several issues; Tax Wedge: OECD, Taxing Wages

As table 4 also shows, the race towards the bottom in nominal tax rate ratios was accompanied by growing asymmetries between large and small countries. The correlations of tax ratios and country size have generally increased between 1985 and 2007, except for the corporate tax rate/VAT ratio. In 2007, all correlations are positive and most of them are quite sizeable indicating that small countries impose relatively lighter nominal tax burdens on mobile capital than large countries. To make sure a shift of the nominal tax burden from capital to labour does not translate one-to-one into a shift of the effec-

tive tax burden. But as that nominal tax rates are important determinants of effective burdens, it is likely to have considerable impact. At the very least, therefore, our findings add credence to empirical studies reporting economic openness and country size to significantly reduce the effective capital-labour tax ratio (e.g. Schwarz 2007, Winner 2005).

6. IMPLICATIONS FOR FISCAL DEMOCRACY

The evidence presented in this paper offers strong support to the view that tax competition exists. We note three key findings. First, general and targeted tax rates on real, financial, and human capital are racing towards the bottom since the 1980s while small countries systematically undercut the tax rates of large countries (section 3). Second, capital tax base moves from large to small countries (international redistribution) and the nominal tax burden shifts from capital to labour and consumption (domestic redistribution) (section 5). Third, while the total level of tax revenues remains unaffected, small countries see their capacity to raise revenue from mobile capital increased, large countries decreased (section 4).

The implications for fiscal democracy are ambiguous. First, tax competition has a negative effect on national tax autonomy: All competing countries – large and small – see their ability to tax mobile capital constrained. Governments have to tax immobile labor and consumption relatively more in order to meet mandatory spending requirements. The shift of the tax burden away from capital is borne out not only by the evidence presented in section 4, but also by tax policy reactions to the recent financial crisis. Blaming the financial sector for causing the crisis, policy makers throughout the political spectrum called for additional taxes in this sector to pay for part of the fiscal damage. While the G-20 initially endorsed this position and many governments introduced some new levies at the national level, competitive pressure prevented the coordinated introduction of financial transaction taxes (Brast, 2011). Instead, policy makers address their fiscal woes mostly by spending cuts and tax increases on labour and consumption. As a close inspection of tax policy changes in EU member states 2008-2010 reveals, tax increases are focused on excises, social security contributions and the VAT (Lierse and Seelkopf 2011). Even if governments manage to maintain total tax levels, their ability to make rich capital owners contribute erodes. Tax competition may thus contribute to increased income inequality between the very rich and the rest of society.

Second, tax competition has also positive effects on fiscal democracy in small, peripheral low tax countries. Countries such as Ireland or Luxembourg have profited from the competition-induced inflow of mobile capital both directly in terms of corporate tax revenues and indirectly in terms of new jobs, upward pressure on wages and, as a consequence of that, higher labour tax revenues. As Hannes Winner shows for a panel of

Table 5: Corporate tax rate changes

	Corporate tax rate		Change
	2007	2011	2011-2007
Luxembourg	29,6	28,8	-0,8
NZ	...	...
Ireland	12,5	12,5	0
Norway	28	28	0
Finland	26	26	0
Denmark	25	25	0
Switzerland	21,3	21,3	0
Austria	25	25	0
Sweden	28	26,3	-1,7
Portugal	26,5	29	2,5
Belgium	34	34	0
Greece	25	20	-5
Netherlands	25,5	25	-0,5
Australia	30	30	0
Canada	36,1	32,5	-3,6
Spain	32,5	30	-2,5
Italy	37,3	31,4	-5,9
UK	30	27	-3
France	34,4	34,4	0
Germany	38,7	29,8	-8,9
Japan	39,5	42	2,5
United States	39	39	0
<i>OECD-22</i>	<i>29,7</i>	<i>28,4</i>	<i>-1,3</i>
<i>Correlation</i>	<i>0,69</i>	<i>0,61</i>	<i>-0,26</i>

Source: Eurostat 2011, own calculations

OECD countries, small countries have lower corporate *and* labour taxes than large ones, all else equal (Winner, 2005). This explains why left parties in small countries often support aggressive tax competition strategies. Take the insistence of the new Irish Fine Gael – Labour government to defend the low Irish corporate tax rate as an example. In effect, the government bets on international redistribution from other large countries rather than on domestic redistribution from capital to reach its economic and distributive goals. This may not be a bad bet. While Ireland was particularly hard hit by the financial crisis, it is recovering faster than other small victims of the crisis such as Greece which had never seized upon tax competition as a strategy of national economic development.

Third, even if we accept that tax competition expands the scope for fiscal democracy in small countries, it does so by constraining fiscal democracy in large countries. According to the baseline model, large countries will accept exploitation by the small because the fiscal costs of fighting back are too high. This cannot be relied upon in the real world because large country governments may want to cut their taxes for purely domes-

tic reasons. Thus, as table 5 shows, many large countries including Canada, Germany, Italy, Spain and the UK have recently cut their corporate tax rate to reinvigorate their crisis-stricken economies. France and the US are also considering cuts.

The recent wave of large country corporate tax rate cuts increases competitive pressure on all countries. While large countries suffer relatively more from tax competition than small countries, they also have more power to bring tax competition about. Intuitively, if a large country cut its taxes, much more pressure would be put on other countries to also cut their rates than if a small country enforced a similar cut. As various authors argued, it was the United States tax reform of 1986 which triggered the global downward competition in corporate taxation (Hallerberg and Basinger, 1998, Swank, 2006). An equally dramatic tax cut in, for instance, Norway, would never have had an equal dramatic effect. It follows that large countries also have more power to mitigate tax competition. It is not the likes of Luxembourg, Estonia, and Ireland who hold the key to preventing a meltdown of capital taxation. It is the United States, Japan, Germany, France, and other large countries. If the scope for democratic choice in capital taxation is to be retained, or enlarged, under conditions of tax competition, large countries will have to take the lead. They have to keep their tax rates up, in order to allow smaller states to cut their taxes by less. This preserves more options for fiscal policy choice for all countries but comes at a cost for the large countries. Benevolent hegemony is not for free.

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