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Abstract

This paper estimates the effect of globalization on the implicit tax rates (ITR) on capital income, labor income and consumption, and the share of social protection expenditures in total public expenditures in Western and Eastern Europe. It tests the coexistence of efficiency and compensation effects of globalization on the expenditure as well as the revenue sides of government budgets. In Western Europe, globalization leads to an increase in social expenditures; however these expenditures are to an increasing extent financed by taxes on labor income. There is no effect of the ITR on capital income, whereas the ITR on consumption decreases. There are important differences between the welfare states. In the conservative regimes, social expenditures increase due to globalization, but they are financed to an increasing extent by taxes on labor. In the social democratic regimes, not only social expenditures, but also the ITRs on capital income and consumption decrease as a result of globalization, whereas the ITR on labor income increases. In the liberal regimes, the ITR on labor income is rising, while social expenditures and the ITR on consumption is declining. In the southern regimes, the ITRs on both capital income and consumption are decreasing. In the CEE NMS, on average, there seems to be no statistically significant effect of globalization on social expenditures nor on the ITR on capital and labor income. Globalization affects only the ITR on consumption, leading to a decline. However, different welfare regimes react differently: there is a negative effect of globalization on social spending in the Baltic countries, and a negative effect on the ITR on capital income in the post-communist European regimes.

Key words: globalization, efficiency, compensation, social expenditures, implicit tax rate on labor income, capital income, and consumption, welfare regimes

JEL Code: H23, H24, H25, H50, F19, F21

1. Introduction

This paper analyses the effect of globalization on social expenditures and the distribution of taxes, i.e. the tax burden on capital income, labor income, and consumption in Western and Eastern Europe, building on the literature on tax and fiscal competition. We test the coexistence of efficiency and compensation effects of globalization on the expenditure as well as the revenue sides of government budgets with a particular focus on differences between welfare regimes.

Tax competition theory argues that the increasing mobility of capital makes firms capable of avoiding taxes by choosing countries with a lower tax burden. Thus, capital mobility creates a pressure to reduce taxes on the mobile factor, which results in inefficiently low levels of capital taxes and public good provision (Oates, 1972; Zodrow and Mieszkowski, 1986).¹ If government expenditures are held constant, this implies a shift of the tax burden to the immobile factor, i.e. labor, to finance a given level of expenditures.

Regarding the expenditure side, there are two hypotheses on the impact of globalization on public expenditures. The efficiency hypothesis argues that globalization leads to increasing competition among nations to attract the mobile factor of production, i.e. capital. This in turn leads to an erosion in tax revenues and to a decline in public expenditures (e.g. Zodrow and Mieszkowski; 1986 Garrett and Mitchell, 2001; Dreher et al., 2008a). Additionally, increasing competition changes the composition of public spending and leads to a shift from public goods to public inputs, i.e. a shift from expenditures that are mainly beneficial for residents to expenditures which aim at attracting firms (e.g. Keen and Marchand, 1997). The compensation hypothesis argues to the contrary: that globalization is accompanied by an increase in spending on public inputs, in particular

¹ For a comprehensive overview see Wilson (1999) and Krogstrup (2004).

compensating social protection expenditures (Rodrik, 1998; Swank, 2002; Garrett and Mitchell, 2001). The background assumption of this hypothesis is that globalization is leading to an increase in external risks and thereby to greater volatility in domestic income and consumption. Governments increase expenditures, and in particular social security and welfare spending, to mitigate that risk by reducing volatility for citizens. Thus, the citizens' demand for social expenditure changes the structure of government expenditures and increases its level. The two hypotheses may be complementary rather than conflicting, as, in reality, there are two opposing effects of globalization on expenditures working through these two channels, i.e. efficiency pressures and the demand for compensation, which might even offset each other.

Although there is a rich empirical literature on the effects of globalization on either the spending- or the revenue-side of the government budget, studies that analyze the effects on both taxation and spending simultaneously are, to the best of our knowledge, limited to Bretschger and Hettich (2002), Adam and Kammas (2007), Dreher (2006a) and Dreher et al. (2008a). Bretschger and Hettich (2002) and Adam and Kammas (2007) interpret their results as evidence of joint existence of the efficiency and compensation hypotheses, albeit via opposite effects on the two sides of the budget. On the one hand the tax burden is shifting from capital to labor, which militates in favor of the efficiency hypothesis. On the other hand, social expenditures are increasing due to globalization, which is consistent with the compensation hypothesis.

Our paper belongs to this strand of literature. It uses an updated database covering the period 1970-2007. Using two different sets of panel data for the old EU member states (EU 15) and the Central and Eastern European New Member States (CEE NMS), we estimate the effect of globalization on the implicit tax rates (ITR) on capital income, labor income and consumption, and

the share of social protection expenditures in total public expenditures. Most studies focus on taxes on capital and labor income, and omit the taxes on consumption. However, as taxes on consumption are regressive taxes, which create a heavier tax burden on lower income groups, it is important to observe the effects of globalization on taxes on consumption as well. On the expenditure side, we use social protection expenditures as the best component of spending to test the compensation vs. the efficiency hypothesis, since it is clearly a public consumption good, whereas education or health can be public consumption goods as well as public inputs as they are part of human capital. As a measure of globalization we employ comprehensive indices of globalization developed by Dreher (2006b) and Dreher et al (2008a), which capture the economic as well as the social and political dimensions of globalization.

The first contribution of our paper is the focus on Western Europe and the Central and Eastern European New Member States. Secondly, we estimate whether the effects differ between the different welfare state regimes in both the West and the East. Leibrecht et al. (2011) is the only study in this literature that distinguishes the effects in different welfare regimes in Western Europe, but they do not account for differences within the CEE NMS due to the short time series they use. We use an updated data set for both the EU 15 and the CEE NMS, and the extension of the data back to 1995 and the inclusion of 2007 also allows us to distinguish different regimes in the CEE NMS. Our database for the Western European countries also dates back to 1980s for some countries. Furthermore, Leibrecht et al. (2011) estimate only the effects of globalization on social expenditures whereas we analyze the expenditure as well as the revenue side.

Welfare regimes, and hence national economic and political institutions matter, as they shape or narrow how states react to globalization via tax and spending decisions (Campbell, 2005). Different dependencies within the

population and citizens' expectations of the responsibilities of the welfare states are created in an historical institutional context and change may be slow (Kautto and Kvist, 2002). Thus path dependency is an important factor in tax and expenditure policy (Scharpf and Schmidt, 2000; Esping-Andersen, 1999). Different welfare states also create different types of labor and business organizations and alliances, which in turn have an impact on the tax and expenditures policy and reforms (Campbell, 2005). For example, in social-democratic countries tax rates on both capital and labor income are the highest in Europe, since there is a social consensus about high tax rates as the revenue is utilized to finance expenditures on social protection. In contrast, if social protection expenditure is historically low, it may be difficult to increase it under the efficiency pressures of globalization, which limits the room for tax increases (Kautto and Kvist, 2002). However, path dependency does not mean that change does not occur. Globalization might also lead to a convergence of welfare states (e.g. Brady et al., 2005; Adelantado and Cuevas, 2006). Convergence might take the form of welfare retrenchment in social-democratic states, where there might be little room to increase already high tax rates and spending further (Huber and Stephens, 2001). In the case of less generous states globalization might cause upward convergence as a response to the demands of citizens for compensation or as result of increasing political integration in the EU and the new aspirations that come with it (Kautto and Kvist, 2002).

For Western Europe, we adapt an extended version of the welfare state typology of Esping-Andersen (1990), which groups countries into three regimes depending on the degree of stratification, decommodification, and the mix between private and public social security institutions. The social-democratic regimes (Sweden, Denmark, Finland and Norway) are characterized by a high decommodification index, little stratification and social security

payments provided universally by the state. In the conservative regimes (Germany, France, Austria, Belgium, Italy, Netherlands and Luxembourg) social security is provided partly by the state and is partly private, but it is strongly linked to the status of employment and to families, with a medium degree of decommodification. The liberal regimes (United Kingdom, Ireland and United States) are characterized by low decommodification, a low level of social security and a priority for the market providing public goods and social security payments. This classification has been extended by adding a fourth regime, the southern regime, i.e. the Latin rim including Spain, Italy, Greece, and Portugal (Ferrara, 1996; Bonoli, 1997; Esping-Andersen, 1999). Southern countries have a higher degree of fragmentation and polarization than those in the conservative regime; a highly collusive mix between public and private institutions in the welfare sphere and persistence of clientelism in the distribution of cash subsidies.

We estimate the response of tax and spending decisions in the CEE NMS separately as globalization might exert different effects on transition countries compared to advanced Western European democracies. Due to the transition crisis extensive financial needs emerged, caused by increasing unemployment, early pension schemes and a decline of womens' participation in the labor force (Onaran, 2008; Havlik and Landesmann, 2005). This, along with the process of the EU accession, increased the need for developing a more comprehensive welfare state (Orenstein and Haas, 2005). However, the transition also created negative pressures on tax and spending decisions. In an effort to attract Foreign Direct Investment, the Central and Eastern European Countries (CEECs) cut corporate income tax rates (Bellak and Leibrecht, 2009) or introduced flat rate personal income taxes (Keen et al., 2008). Finally the presence of a large informal economy led many governments to lower tax rates to encourage formalization (Duman, 2010).

In addition to the specific aspects of the macroeconomic environment in the post-transition CEECs, these countries constitute welfare regimes in transition different from those found in Western Europe. Although early studies position the CEECs within the liberal regime with a mix of social insurance and social assistance and a partial privatization of social policy with little corporatist attributes (e.g. Ferge, 2001; Standing, 1996), later studies argue that the CEECs constitute a separate regime type (Aidukaite, 2004; Lelkes, 2000). Bohle and Greskovits (2007) distinguish further and identify a neoliberal type in the Baltic States, an embedded neoliberal type in the Visegrad states and a neo-corporatist type in Slovenia. The Baltic States outperformed the other regimes in market radicalism, but lag behind in industrial transformation, social inclusion and protection by industrial policy and welfare state institutions. The Visegrad states are more socially inclusive, which makes their “neoliberalism” embedded, but lag behind in building institutions that safeguard macroeconomic stability. The least market-radical type is Slovenia, which combines macroeconomic stability with social indicators closer to West European standards. Concerning taxation policy, all three Baltic States introduced flat tax very early in 1994-95, followed by Slovakia later (Brook and Leibfritz, 2005). Fenger (2007) distinguishes a "post-communist European type" (Bulgaria, Czech Republic, Hungary, Poland, Slovakia and Croatia), a "former USSR type" (Estonia, Latvia, Lithuania, Ukraine, Russia and Belarus) and a group of developing welfare states (Georgia, Romania and Moldova). Orenstein and Haas (2005) group all CEE NMS as well as other former Yugoslav republics in a European post-communist welfare state regime. They argue that good prospects of joining the EU militated towards the development of welfare states in the CEE NMS, and they therefore find less of a difference between the Baltic countries and other countries within the CEE NMS.

Based on this literature, we first follow Orenstein and Haas (2005) and treat the CEE NMS as a single European welfare regime in transition. As a second step we distinguish two welfare state regimes, the Baltic and the post-communist European regime based on Fenger (2007). Thirdly, we conduct a jackknife analysis by excluding Slovenia, which is classified as a separate neo-corporatist type by Bohle and Greskovits (2007).² Finally, we conduct a jackknife analysis to all countries in the post-communist European regime to make sure that results are not driven by an individual country.

The paper is structured as follows: Section two describes the data and stylized facts. Section three presents the estimation methodology and section four discusses the results. Section five concludes.

2. Data and stylized facts

2.1 The Tax Burden on capital income, labor income and consumption

Different types of tax rates are used as dependent variables in empirical studies on the effects of globalization. Statutory tax rates (STRs) on capital or corporate income are directly derived from the tax code. However, they do not account for the tax base. Effective marginal and average tax rates (EMTRs and EATR) likewise use data from the tax code. They measure the tax burden on a hypothetical investment project based on actual tax law data (Devereux and Griffith, 1998; Devereux et al., 2002 and 2008). A third widely used measure is average effective tax rates (AETRs), calculated by dividing the total tax revenue from capital or corporate income, labor income or consumption by the pre-tax income of the respective production factor or consumption, based on the method of Mendoza et al. (1994) and Carey and Rabesona (2002). These rates are backward-looking and are available not only for corporate income but also for capital income, labor income and consumption. Eurostat is adapting

² It is not possible to include Slovenia as a separate regime due to the limited availability of time series data.

this method to calculate implicit tax rates (ITRs).³ These tax rates are especially suitable for exploring whether globalization has led to a decline in the tax burden on capital or an increase in the tax burden on labor income and/or consumption within a unified framework. Therefore we base our analysis on the ITRs.

For the ITRs Eurostat data is employed (see European Commission, 2000 and 2009) which, in contrast to other data sources, covers all 27 European Union Member States and thus allows an analysis of the CEE NMS. The data source for the period starting in 1990 is the Eurostat online database. These data are extended backwards to 1970 or 1980 with the growth rates of the ITR tax rates calculated by the European Commission (2000). The data on the implicit tax rates on capital income for Romania, Bulgaria and Slovenia are extended with our own calculations, based on the method used by the European Commission. Thus, the data for nine countries⁴ reaches back until 1970, for six countries⁵ until 1980, and for most CEE NMS until 1995.

Figures 1-3 show the development of the unweighted average of the ITR on capital income, labor income and on consumption grouped by welfare state regime.

[Figure 1 about here]

Although STRs decreased (Devereux et al., 2002; European Commission, 2008), due to the broadening of the tax base, the ITR on capital income stayed rather stable at 24.9% (overall sample mean). However the level of capital taxation is much lower in the CEE NMS with a mean of 16.1%

³ Eurostat's terminology for AETR is ITR. We will further use this terminology.

⁴ Belgium, Germany, Denmark, France, Ireland, Italy, Luxemburg, Netherlands and United Kingdom

⁵ Austria, Spain, Finland, Greece Portugal and Sweden

compared to Western Europe with a mean of 27.0%. Comparing the different welfare regimes, the ITR on capital income has fallen in the liberal welfare regimes (apart from a recent increase) from 34% to 30.6%, while it has been rising in the social democratic regimes in particular since the mid 1990s and is now at 36% higher than in the other regimes. In the conservative regimes the ITR on capital income slightly decreased from 30.6% to 27.8% over the whole period 1980-2007. France stands out among conservative regimes with an ever rising ITR on capital income. In the southern regimes the ITR on capital income had been considerably lower than in the other welfare state regimes until the beginning of the 1990s, but since then it has increased and now corresponds to that of the liberal regime. The level of capital taxation is considerably lower in both CEE regimes. In the post-communist European regimes, the ITR on capital has slightly increased from 16.8% to 17.7%. However there are important differences in the trends within the post-communist European type. In Slovenia the ITR increase started at a very low level, while it fell strongly in Slovakia and remained quite stable in the other countries. In the Baltic regimes the ITR on capital decreased from 14.6% to 12.3%, with a major downturn starting at the end of the 1990s.

[Figure 2 about here]

The ITRs on labor income are on average higher than those on capital income with a mean of 33.26% in the EU 15 and 36.7% in the CEE NMS. Thus the difference between the ITR on capital and labor income is much higher in the CEE NMS. With the exception of the liberal regimes there is a converging trend in the ITRs on labor income. Countries in the social-democratic welfare regimes have the highest ITR on labor income, which rose until the mid 1990s and then started to slightly decrease. Over the period 1980-2007 it increased from 36.1% to 40.5%. The ITR on labor income in the conservative regimes lies between those of the social-democratic and liberal regimes. It has

constantly risen from 33.8% to 38.2%. Thus, there is a convergence of the tax rates on labor in the social-democratic and conservative regimes. The strongest increase can be observed in the southern regimes, which started at a very low level of 18.9% and increased to 35.2%, reaching nearly the level of the conservative regimes. The liberal regimes now have the lowest ITR on labor income at 25.9%. It increased until the late 1980s and since then it has slightly decreased. In the countries of the post-communist European regimes the ITR on labor income has a similar level to that in the conservative regime and since 1999 has decreased from 38.2% to 35.1%. In the Baltic regimes it has fallen from 37.4% to 32.4%.

[Figure 3 about here]

Figure 3 shows the development of the ITR on consumption. The mean of the ITR on consumption in the EU 15 is 21.2% slightly higher than in the CEE NMS with 21%. The social-democratic regimes again have the highest tax burden on consumption, which has slightly increased since 1980s from 27.9% to 29.3%. In the liberal regimes the ITR on consumption increased until the early 1980s and then decreased slightly since 1985. Overall it rose from 20.8% to 22.0%. The conservative regimes show a slightly rising ITR on consumption (from 19.9% to 22.8%). Again the southern regimes have the lowest ITR in the West, although it has been constantly increasing since 1980 from 10.0% to 17.2%. The level of the ITR on consumption in the post-communist European regimes at 22.6% (2007) corresponds to those of the conservative and liberal regimes, whereas the rate in the Baltics is at 20.6% (2007) slightly lower.

2.2 Social expenditures

In order to capture the effect of globalization on the composition of spending with regard to public consumption goods, we focus on social expenditures, rather than intermediate spending categories like education or health, which are both public goods and inputs. We prefer normalizing social expenditures by

total public expenditures to normalizing by GDP in order to pin down the effects on the distribution of spending (Kaufman and Segura-Ubiergo, 2001). Eurostat's classification of the functions of government (COFOG) database provides data on 10 functional expenditure categories, including the item 'social protection' which captures socially motivated expenditures on sickness and disability, old age, family and children, survivors, unemployment and housing. The advantage of the COFOG data is that it also covers all the CEE NMS; however the COFOG data as a ratio to total expenditures in Eurostat is available only since 1990. Thus, the time series are extended with data from OECD National Accounts Vol. II.

Figure 4 shows the development of the unweighted average of social protection expenditure as a ratio to total expenditures (socexp) for the EU 15 and the CEE NMS grouped by welfare state regime.

[Figure 4 about here]

In the EU 15 the social-democratic regimes have the highest share of social protection expenditures as a ratio to total expenditures, which has been slightly rising to 41.9% since 1995. The level in the conservative regime is at 40.4% comparable to that of the social-democratic regimes. The southern regimes increased their level of social expenditures from 32.4% to 38.1% and are catching up. Again, stylized facts indicate convergence among the social democratic, conservative, and southern regimes. On the other hand in the liberal regimes, the share of social expenditures increased until 1994 and since then has decreased to a level of 31.4%. In the CEE NMS the share of social expenditures has been declining in both regimes. The Baltics have a much lower share of social expenditures than the post-communist European type. The share in the Baltics has been falling much faster from 32.4% to 27.5% (mainly caused by a strong decrease in Latvia), compared to the European type, where it decreased from 34.1% to 32.6%.

3. Estimation methodology

We employ the KOF indices of globalization to measure its effects, which were developed by Dreher (2006b) and Dreher et al. (2008a). We use both the index of economic globalization (*KOFecon*) and the index of overall globalization (*KOFglobal*), which captures not only the economic, but also the political and social dimension of globalization. *KOFecon* is composed of the actual flows-index, which includes trade, FDI, income payments to foreign nationals and portfolio investments, and the index of restrictions, which includes restrictions on trade and capital flows. *KOFglobal* includes *KOFecon* as well as the index of social globalization, which consists of data on personal contact, information flows and cultural proximity, and the index on political globalization, which consists of data on the number of embassies and the membership in international organizations. We think that the multi-dimensional KOF indices are a better way to reflect the joint effects of globalization compared to individual variables like FDI or trade or restrictions on capital flows.

We introduce a broad set of control variables common to both the spending and tax equations based on the previous empirical literature (e.g. Adam and Kammas, 2007; Bretschger and Hettich, 2002; Dreher et al., 2008a and 2008b; Leibrecht et al., 2011; Swank and Steinmo, 2002; Gemmel et al., 2008; Sanz and Velazquez, 2007; Winner, 2005).

The ratio of total expenditures of general government to GDP (variable *expenditure*) captures the importance of the public sector in an economy. It is expected to be positively related to the ITRs as higher expenditures should induce higher financial needs. It should have a positive impact on social expenditures, as in minimalist states these expenditures will probably be of lower importance (Dreher et al., 2008a).

Government consolidated gross debt as a percentage of GDP (*debt*) is introduced to reflect the budget constraint as well as alternative means of finance. Thus it has an ambiguous effect on the ITRs. On the one hand, it can serve as a substitute for taxes, if lower taxes are accompanied by debt based financing of expenditures. On the other hand higher public debt might induce an increase in taxes, when taxes are levied to pay for public debt. On the expenditure side, there is also a dual effect. On the one hand an increase of the share of interest payments in total expenditures caused by high debts simultaneously decreases the share of social expenditures. On the other hand pressure to reduce debt might also decrease the share of social expenditures, if the cut in expenditures falls mainly on social welfare (e.g. Sanz and Velazquez, 2007; Leibrecht et al., 2011). Hence a positive as well as a negative effect of public debt on the ITRs and social expenditures might be plausible.

The fraction of population older than 65 years as a share of total population (*oldage*) captures the effect of the increasing proportion of the dependent population on the tax and expenditure system. Increasing fiscal needs due to an ageing society should lead to higher ITRs and to higher social expenditures. However, the effect on labor tax is ambiguous. Pensions are either exempted or taxed at a lower rate; therefore the decrease in labor force size in an ageing society may lead to lower taxes paid out of labor income, if the pressure of the aging society on tax rates on labor income is not strong (Adam and Kammas, 2007).

The growth rate of real GDP (*growth*) aims to capture cyclical effects. It is expected to have a negative effect on taxes as well as social expenditures (Bretschger and Hettich, 2002; Adam and Kammas, 2007). In periods of high growth, thus decreasing unemployment, fiscal needs and social transfer payments are expected to be lower. As a robustness check we also estimate specifications with the unemployment rate instead of economic growth.

Inflation measured as the change in the GDP deflator (*inflation*) is expected to affect taxes through two channels. Firstly, tax brackets with progressive income tax, personal income tax allowances, or depreciation allowances for corporate taxation are not always indexed to inflation; thus the ITRs may increase despite constant tax rates. However, if there is a lag in the collection of taxes, the tax base increases faster than the revenues; thus the ITRs fall. With respect to social expenditures, since most social expenditures are not inflation adjusted, a negative effect is expected.

Government Party (*govparty*) reflects the composition of the government's cabinet. It ranges from 1 to 5 (1 = hegemony of right-wing (and centre) parties, 5 = hegemony of social-democratic and other left parties). The tax rates are expected to be lower, the more right wing the governing political parties tend to be, assuming that they would advocate a more tight fiscal policy and lower public expenditures, as well as lower taxes to stimulate business and increase labor supply. Thus a positive effect of *govparty* on the ITRs and social expenditures is expected.

As smaller countries are typically more open than larger, a country's relative size (*size*) is included in the set of regressors following Winner (2005) in order to cope with a possible small country bias in the coefficient of the globalization indices. This variable is measured as the proportion of a country's GDP to the average sample GDP. We expect a positive effect in particular on the ITR on capital income as larger countries have an incentive to levy higher tax rates (Bucovetsky, 1991).

Tables A.1 to A.3 in the appendix contain information on the measurement of the variables, the databases used and descriptive statistics.

We explore the effect of globalization on social expenditures and the various ITRs by using the baseline model shown in Equation 1:

$$B_{jit} = \alpha_{ji} + \omega_{jt} + \beta_{jg} G_{it-1} + \beta_{jc} C_{it-1} + \varepsilon_{jit} \quad (1)$$

where B_j =social expenditures as a ratio to total expenditures, the ITRs on capital income, labor income, or consumption. We estimate separate equations for Western Europe and CEE NMS to allow for country-group-specific coefficients. Thus, the country index i ranges from 1 to 15 for Western Europe and from 1 to 10 for the CEE NMS; t is the time index ranging from 1970-2007 for the ITRs in Western Europe, 1980-2007 for social spending in Western Europe, and 1995-2007 in the CEE NMS for all equations. α_{ji} are country fixed effects, ω_{jt} are time fixed effects, which are included if jointly significant. ε_{jit} is the error term.⁶ G_{it-1} is the globalization index (KOFecon or KOFglobal), and C_{it-1} is the matrix of control variables, all of which except for government cabinet gravity enter into the equations with a one year lag. The aim of using lagged explanatory variables is to incorporate the time lags in the political and fiscal decision process as well as to address the problems of endogeneity. Due to the low number of countries (cross-sections), a GMM-estimation to cope with endogeneity is not possible; therefore we follow Wooldridge's (2002: 301) suggestion to use lagged explanatory variables as a second best approach. Since GMM-estimation is not possible, we also do not include a lagged dependent variable as an explanatory variable to avoid endogeneity problems in a fixed effects panel estimation.

We did not use a seemingly unrelated regression method, since our explanatory variables do not vary over the four equations and therefore equation-by-equation estimation is as efficient as SUR estimation. The total

⁶ Estimations are carried out with Schaffer's `xtivreg2` Stata command (Schaffer, 2010). The standard errors are fully robust with respect to serial correlation as well as general heteroskedasticity as the variance-covariance-matrix of the error term is calculated using the approach developed by Newey and West (1987). The alternative cluster-robust standard errors need a rather large number of clusters (here countries) for reliable inference (Nichols and Schaffer, 2007).

expenditures as a control variable serves as the common exogenous constraint on both the revenue and the social expenditure side. It also captures the dynamic effects of path dependency.

Finally we test for the heterogeneity of the effects of globalization in different welfare state regimes by estimating the following equation:

$$B_{jit} = \alpha_{ji} + \omega_{jt} + \sum_{k=1}^n \beta_{jgk} D_k G_{it-1} + \beta_{jc} C_{it-1} + \sum_{k=1}^{n-1} \rho_k D_k T + \varepsilon_{jit} \quad (2)$$

where D_k is a dummy variable representing the different welfare regimes; n is the number of different regimes. In Western Europe D_1 , D_2 , D_3 and D_4 stand for the social-democratic, conservative, southern and liberal regimes respectively, i.e. D_1 is 1 if a country belongs to the social-democratic welfare regime and 0 otherwise etc. In the CEE NMS we distinguish between two regimes: D_1 stands for the post-communist European regimes and D_2 for the Baltic regimes. The estimated coefficients β_k can be directly interpreted as the marginal effect of a one-unit increase in the globalization index on the ITRs or social expenditure in the respective welfare regimes. Due to limitations of degrees of freedom, other control variables are not interacted. However, a welfare regime specific trend is also included along with time dummies in order to account for path-dependency of the particular welfare regimes, which are not captured by the control variables or the common time dummies. Due to the presence of time dummies, one welfare specific trend cannot be identified. Therefore one welfare specific trend is excluded. Regime-specific trends are excluded if jointly insignificant.

4. Estimation Results

4.1 EU 15 and welfare state regimes

Table 1 shows the results for the basic specification for the EU 15 member states. In the EU 15 an increase of economic globalization (KOFecon) has a positive effect on social expenditures as a ratio of total government expenditures (socexp), whereas overall globalization (KOFglobal) is

insignificant. Countries seem to be compensating for increasing economic risk caused by globalization by augmenting social expenditures. This compensation effect is in line with Gemmel et. al (2008), Hicks and Swank (1992), Bretschger and Hettich (2002), Dreher et al. (2008b) and Leibrecht et al. (2011), although the measure of globalization may differ among the studies. However, Dreher (2006a), Sanz and Velazquez (2007), Dreher et al. (2008a), and Potrafke (2009) find no significant effect of globalization on the share of social expenditures, but the results are not directly comparable, since they are very sensitive to country coverage, as we will show below based on the heterogeneity of the effects in different welfare regimes.

[Table 1 about here]

Regarding the control variables, high growth, inflation, the relative size of a country and public debt lead to lower shares of social expenditures, whereas total expenditures have a positive effect on the share of social protection expenditures. The fraction of elderly people and government party are insignificant. The time dummies are jointly significant in the specification with KOFglobal, but insignificant in the specification with KOFecon, and therefore excluded in the latter. However, the results are robust, if insignificant time effects are included. Regarding the effect of globalization on taxation, there is no significant effect on the tax burden on capital income (Columns (3) and (4)). This is in line with Dreher et al. (2008a), Swank (2006) and Swank and Steinmo (2002). However, Winner (2005) finds a negative effect of globalization on the ITR on capital income, while Dreher (2006a) finds a positive effect. Adam and Kammas (2007), Bretschger and Hettich (2002), as well as Bretschger (2010) likewise find a negative effect of globalization using the ITRs on corporate income as dependent variables. However, their measures of globalization are limited to trade volume, and different indices to measure legal restrictions. The results are furthermore sensitive to the country sample,

as mentioned above. Columns (5) and (6) show the results for the ITR on labor income (ITR_lab). Both globalization indices have a positive effect on the tax burden on labor income. Thus, while there is no effect on taxes on capital income, the tax burden on the immobile factor is rising due to globalization. This positive effect is in line with Dreher et al. (2008a), Adam and Kammas (2007) and Winner (2005). Likewise, Bretschger and Hettich (2002) as well as Garret and Mitchell (2001) and Schwarz (2007) find a shift of the tax burden from capital to labor, when estimating the ratio of taxes on the mobile factor to taxes on the immobile factor. Nevertheless, Dreher (2006a) finds no effect and Swank and Steinmo (2002) find a negative effect on taxes on labor income; however the latter study uses only the liberalization of capital controls (Quinn index) as the measure of globalization. The positive effect is, as Ganghof (2000) and Adam and Kammas (2007) show, mainly driven by increasing social security contributions.

Regarding the ITR on consumption (ITR_con) economic globalization is insignificant, but overall globalization leads to falling taxes on consumption (results in Columns (7) and (8)). The negative effect may be due to declines in tariffs or agglomeration effects that may offset the pressure to lower taxes on capital, and thereby create room for decreasing other taxes, as suggested by Dreher et al. (2008a).

Concerning the control variables, higher total government expenditures as a share of GDP (expenditure) and the fraction of elderly people in total population (oldage) lead to higher taxes on all three categories. Higher growth is associated with a lower ITR on both capital and labor income whereas it has no significant effect on consumption taxes. Increasing public debt leads to rising taxes on labor income, but declining taxes on capital income and consumption. Thus, while public debt and taxes on capital income are substitutes, public debt seems to be financed by labor. The composition of the

government cabinet (govparty) has a negative effect on the ITR on labor income, albeit only significant in the specification with KOFglobal; thus left-wing governments levy a lower tax burden on labor income whereas it has no significant effect on the ITR on capital or consumption. The relative size of a country positively affects the ITR on both capital income and consumption. Inflation is insignificant in all specifications. Time dummies are jointly significant.

To summarize, in Western Europe the demand side pressures of globalization lead to an increase in social expenditures; however expenditures are financed by taxes on labor income. The decline in taxes on consumption, which is a regressive tax, offsets part of the increase in the tax burden on labor income. On the expenditure side the compensation hypothesis is verified whereas on the revenue side efficiency pressures, which increase taxes on labor income prevail. As Bretschger and Hettich (2002) and Adam and Kammas (2007) suggest, these two hypotheses are complementary rather than competing.

Next, Table 2 reports the results for the four welfare state regimes in Western Europe: the social-democratic (social-dem), the conservative (conserv), the southern and the liberal regimes. Time fixed effects are jointly significant with the exemption of specification (2), where they are excluded. However, the results are robust, if insignificant time effects are included.

[Table 2 about here]

There are significant differences between the four welfare state regimes. As can be seen in Columns (1) and (2) overall globalization (KOFglobal) has a positive effect on social expenditures in the conservative regime, while in the social-democratic and the liberal regime globalization is leading to a decline in social expenditures. In the southern regime social expenditures are not affected by overall globalization. Economic globalization

(KOFecon) also has a positive effect in the conservative regime, but no significant effect in the others. Our results, based on a different database with longer time series are similar to Leibrecht et al. (2011).⁷ They indicate that the compensation effect is mainly driven by the conservative regime; in the social-democratic regime the efficiency effect is predominant, but they do not find the negative effect in the liberal regime. Globalization is leading to a convergence between the conservative regime with lower social spending level and the social-democratic regime, which starts from a higher level of social expenditure, as suggested in the political economy literature (e.g. Kautto and Kvist, 2002; Adelantado and Cuevas, 2006; Achterberg and Yerkes, 2009). Thus there is no general race-to-the-bottom in terms of welfare regimes, but rather a convergence towards the middle in the case of the conservative and social democratic regimes, which can be explained by globalization and Europeanization. The negative effect of overall globalization in liberal regimes however indicates that catching up convergence is specific to conservative regimes. The lack of a significant effect in southern regimes indicates that in these countries domestic factors are more important than international effects in driving social expenditures. The decline in social expenditures in the social-democratic countries has to be evaluated also within the context of the consequences of the macroeconomic crisis of the early 1990s in Scandinavian countries, which lead to a substantial reversal of fiscal policies. Specifically, as steady economic growth and high employment, which were seen as the cornerstones of the welfare regime, were challenged by the crisis, governments started to consider social cuts (Kautto and Kvist, 2002).⁸ The argument of Huber

⁷ Leibrecht et al (2011) use COFOG database which starts only in 1990s.

⁸ In Sweden, for e.g. the base income used to calculate the social benefits was reduced from 1989 to 1992, co-payments were introduced for certain medical services, and in 1994 a major pension reform was initiated (Hicks, 1999).

and Stephens (2001) about the limits of expansion of the welfare regime in generous welfare regimes becomes particularly relevant under these conditions. The negative effect of globalization on the share of social protection expenditures is consistent with this tightening trend in fiscal policy. It is also worth discussing the case of the conservative regime, which has high social expenditures, but nevertheless has experienced further increases with globalization. Firstly, the macroeconomic stability of these countries may have helped governments to meet citizens' demands for compensation in relation to the vulnerabilities created by globalization. Secondly, in some countries like France and the Netherlands, evidence shows that a "catch-up convergence" has taken place (Kautto and Kvist, 2002).

Regarding the effect of globalization on taxes, the results for different welfare regimes are reported in columns (3) to (8). Interestingly, in the social democratic-regime, rising globalization is leading to decreasing taxes on capital income, whereas in the conservative and liberal regimes there is no significant effect. There is additionally a negative effect of KOFecon in the southern regime, but the effect of economic globalization is insignificant. Thus, it can be argued that in the social democratic regime, where capital taxes have been significantly higher, globalization is leading to a downward convergence.

Globalization leads to a rise in taxes on labor income in the social-democratic, conservative and liberal regimes, although in the latter only KOFecon is significant. There is no significant effect in the southern regime. Even though labor taxes in the southern regime have been rising more strongly than in the other regimes, apparently this rise is not caused by globalization, but by domestic factors. The magnitude of the positive effect is largest in the social-democratic regime.

Finally, globalization has a negative effect on the ITR on consumption in the social-democratic, conservative, southern and liberal regimes. The

negative impact in the liberal regime is only due to KOFglobal, and in the southern regime it is only caused by KOFecon.

Overall, the finding at the aggregate level regarding compensation on the expenditure side and efficiency in terms of increasing taxes on labor applies only to the case of the conservative regime. In the social-democratic regime efficiency effects prevail on the expenditure side as well as both sides of the revenue; thus the ITR on capital decreases, whereas the ITR on labor income increases. However, the decline in the ITR on consumption in both regimes partly offsets this trend of increasing tax burden on labor. In the liberal regime, the ITR on labor is rising, but again the ITR on consumption decreases; and social expenditures is falling, albeit significantly so only in response to overall globalization. Again efficiency effects are present on both the revenue and expenditure sides. In the southern regime, there is some evidence of an efficiency pressure on the revenue side regarding declining taxes on capital, but no globalization effects on the expenditure side.

4.2 CEE NMS and welfare regimes

Table 3 reports the results for the 10 CEE NMS pooled together. The findings indicate that these countries react very differently to increasing globalization compared to the EU 15.

[Table 3 about here]

In aggregate, in the CEE NMS there is no evidence of a statistically significant effect of both globalization indices on social expenditures (socexp) or the ITR on capital and labor income. The only statistically significant effect of globalization is the downward pressure on the ITR on consumption as a consequence of economic globalization; total globalization is insignificant. In the literature, the only study that focuses on the CEE NMS is Leibrecht et al. (2011), which, however, estimates the effects on the share of social expenditures in total expenditures, and not taxes. They find a negative effect of

globalization (also using KOF indices) on expenditures; however their estimation period is 2000-2006 for most of the CEE NMS, whereas our data is updated and for many countries cover the period of 1995-2007; i.e. the earlier period of catching up with European welfare standards, and not only the era of flat tax reforms in countries like Slovakia and Romania. Furthermore, they do not distinguish between different regimes in the CEE NMS due to data limitations.

Concerning the effect of domestic factors in the CEE NMS, higher growth and inflation lead to a lower share of social expenditures as expected. Higher expenditures as a ratio to GDP also go along with lower social expenditures. Interestingly, the fraction of elderly people has a negative effect, thus if the share of elderly people is increasing, the share of social expenditures is decreasing. This might be related to specific reforms; e.g. Slovakia went through a welfare reform in 2004 and cut social assistance benefits significantly (Brook and Leibfritz, 2005). Public debt has a positive effect on social expenditures, but it is only significant in the specification with KOFecon. Thus, in contrast to Western Europe the share of social expenditures is increasing along with rising debt. Cabinet gravity (govparty) as well as size is insignificant. Time dummies are jointly insignificant.

Regarding the control variables in the tax equations, total expenditures lead to higher ITRs in all three categories, and this is the only significant factor that affects the ITR on capital income. Higher growth leads to a lower ITR on labor income, but has no significant effect on other taxes. Public debt has a positive effect on the ITR on labor income but a negative effect on the ITR on consumption; thus debt is financed by taxes on labor, whereas public debt and taxes on consumption are substitutes. The composition of government has a significant negative effect on the ITRs on labor income and on consumption; thus left-wing governments levy a lower tax burden on labor. The share of

elderly people (oldage) has a negative effect on the ITR on labor, but it is only significant in the specification with KOFecon, and has no effect on other taxes. Thus the decrease in the labor force caused by an ageing society leads to lower taxes paid out of labor income, since pensions are either exempted or taxed at a lower rate (Adam and Kammass, 2007). Size and inflation have no statistically significant effect on all three taxes. Time dummies are jointly significant in the specifications for the ITR on capital income and consumption, but not in the specification for the ITR on labor income.

Given the insignificance of the effect of globalization on social expenditures or the ITR on capital and labor in the pooled estimation, it is in particular interesting to repeat the estimations for two different regimes in the CEE NMS, i.e. a post-communist European type, which includes Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia, and a Baltic type, which includes Estonia, Latvia and Lithuania. Table 4 reports the results.

[Table 4 about here]

In the post-communist European welfare regime the effect of globalization on social expenditures are again insignificant, but in the Baltic countries there is a negative effect, although only the effect of KOFglobal is statistically significant. Most interestingly there is a significant and negative effect of globalization (both indicators) on the ITR on capital in the post-communist European regime, whereas the effect is insignificant in the Baltics. In the post-communist European type we additionally find a negative effect of economic globalization on consumption taxes. The effects on the ITR on labor income are insignificant. Thus efficiency effects of globalization prevail on the revenue side via taxes on capital income in the post-communist European regime. However, the ITR on consumption, which is a more regressive tax, has been decreasing in this regime, offsetting some of the effects of the decrease in

capital taxes. Most interestingly the divergence between the Baltics and the other CEE NMS as well as Western Europe in general is widening, as globalization exerts further pressures on social spending in the Baltics, which already have the lowest shares of spending in Europe.

As the allocation of the countries to the post-communist regime is not unambiguous, we did a jackknife analysis. Although some authors regard Slovenia as a separate neo-corporatist regime (e.g. Bohle and Greskovits, 2007), its exclusion does not affect the results. However, the exclusion of Slovakia makes a difference: there is no longer a negative effect on the ITR on capital, but there is a significant positive effect on the ITR on labor. Furthermore, we do not find a negative effect on taxes on consumption. Slovakia has had one of the highest tax burdens in the CEE NMS in the mid-1990s, but lowered the tax burden on labor income continuously since then, not least via a flat tax reform (Brook and Leibfritz, 2005). When Slovakia is excluded, the efficiency effect is still at work, but this time via an increase of the tax burden on labor. The results are robust to the exclusion of other countries.

Finally, we conducted several robustness tests for our estimations for both Western Europe and the CEE NMS. First, cabinet gravity and second, inflation were excluded. Third, instead of growth, we estimated all specifications with unemployment as a measure of macroeconomic cyclical factors. The results are rather robust.⁹

5. Conclusion

We estimate the effect of globalization on the implicit tax rates (ITR) on capital income, labor income and consumption, and the share of social protection expenditures in total public expenditures in Western and Eastern Europe.

⁹ The results are available upon request.

In Western Europe globalization leads to an increase in social expenditures; thus the demand for compensation prevails. However, these expenditures are financed by taxes on labor income. There is no effect on the ITR on capital income, whereas the ITR on consumption decreases. The decline in the ITR on consumption, which is a regressive tax, offsets part of the increase in the tax burden on labor income. Overall on the expenditure side the compensation hypothesis is verified whereas on the revenue side efficiency pressures prevail.

However, important differences exist between the welfare states. The aggregate outcome is dominated by the trends in the conservative regime, where social expenditures increase, but they are financed at an increasing extent by taxes on labor as a consequence of globalization. In the social-democratic regime, not only social expenditures decrease, but also ITR on capital decreases, whereas the ITR on labor income increases; thus efficiency effects dominate on both the expenditure and revenue sides. The conservative and the social-democratic regimes are converging, especially when regarding social expenditures. However, the ITR on consumption in both regimes is decreasing and partly offsetting the effect of increasing ITR on labor income. In the liberal regime, the ITR on labor income increases, the ITR on consumption and social protection expenditures decreases; again there is evidence of efficiency effects of globalization on the revenue and expenditure sides. In the southern regime economic globalization decreases the ITR on consumption, while overall globalization has a negative effect on capital taxes, but mainly internal factors seem to have led to an increase in consumption, labor, capital taxes and the share of social expenditures, leading to an overall upward convergence. In the case of the most generous welfare regime, the social-democratic countries, convergence works through the efficiency pressures on social spending and the ITR on capital; however further increases

in labor tax can be evaluated as part of the social democratic consensus to preserve parts of the welfare regime without increasing the burden on capital.

In the CEE NMS, on average, there seems to be no statistically significant effect of globalization on social expenditures as well as the ITR on capital and labor income. Globalization affects only the ITR on consumption leading to a decline. However, when we distinguish between the two different regimes in the CEE NMS, there is a negative effect of globalization on social spending in the Baltic countries, and a negative effect on the ITR on capital income in the post-communist European regime. In both regimes globalization leads to a decline in the ITR on consumption, but has no effect on the ITR on labor income. Overall efficiency effects of globalization dominate, but on different sides of the budget in different regimes in the CEE NMS: in the Baltic countries through decreasing social expenditures, and in the post-communist European regime through decreasing taxes on capital income. The results of a jackknife analysis point to further interesting results: when Slovakia is excluded, there is a significant positive effect on the ITR on labor income in the post-communist European regime, but no effect on the ITR on capital. Thus the efficiency effect is still dominant, but this time via an increase of the tax burden on labor.

Finally, from a policy perspective globalization is increasing the divergence in terms of the share of social expenditures between the Baltic States and the other CEE NMS as well as Western Europe. In Western Europe globalization is also exerting some downward pressure on social spending in the case of the liberal regime with already low levels of social spending. Furthermore, globalization leads to an increase in the tax burden on labor or a decline in the tax burden on capital income. Overall, the results imply that some coordination of spending and tax policies could improve social cohesion and integration in an enlarged Europe.

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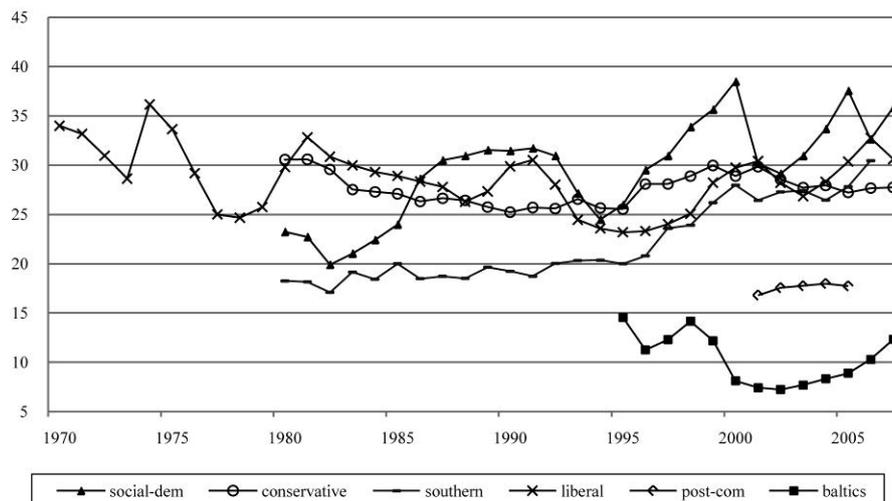


Figure 1. Implicit tax rate on capital income in the EU grouped by welfare state regime 1970-2007

Note: Due to shorter time series for some countries, the aggregation for the regimes start only at a common year, as the aggregation of the unbalanced data for a regime could impose a misleading change in the trend of the aggregate average for the regime as a whole. Therefore the aggregation for the post-communist European regime includes only the years 2001-2005.

Data Source: Eurostat, European Commission (2000)

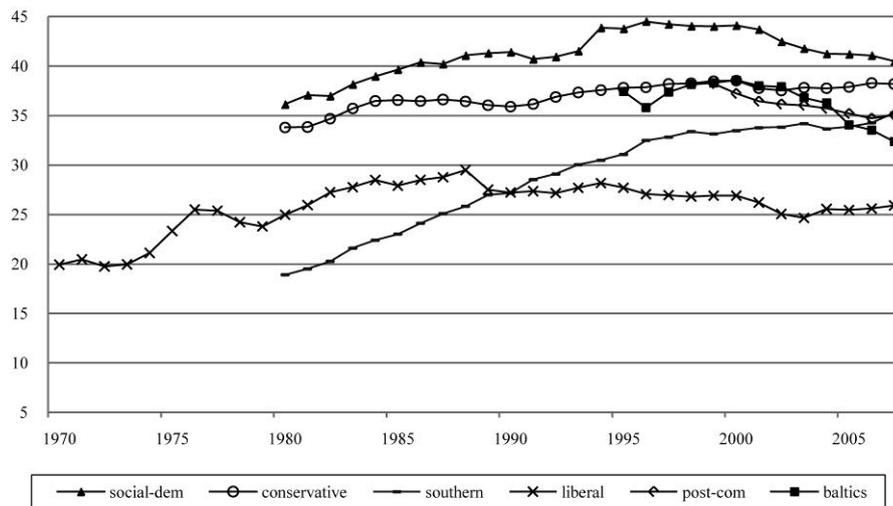


Figure 2. Implicit tax rate on labor income in the EU27 grouped by welfare state regime 1970-2007.

Note: Due to shorter time series for some countries, the aggregation for the regimes start only at a common year, as the aggregation of the unbalanced data for a regime could impose a misleading change in the trend of the aggregate average for the regime as a whole. Therefore the aggregation for the post-communist European regime includes only the years 1999-2007.

Data Source: Eurostat, European Commission (2000)

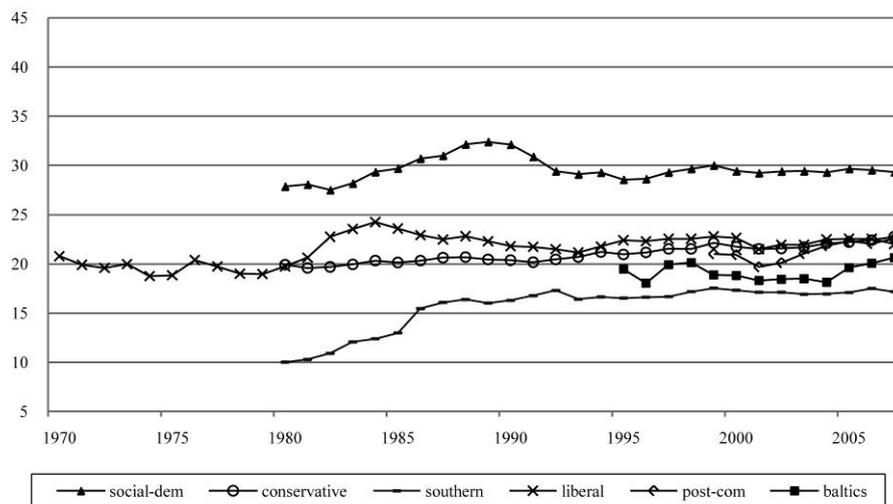


Figure 3. Implicit tax rate on consumption in the EU27 grouped by welfare state regime 1970-2007

Due to shorter time series for some countries, the aggregation for the regimes start only at a common year, as the aggregation of the unbalanced data for a regime could impose a misleading change in the trend of the aggregate average for the regime as a whole. Therefore the aggregation for the post-communist European regime includes only the years 1999-2007.

Data Source: Eurostat, European Commission (2000)

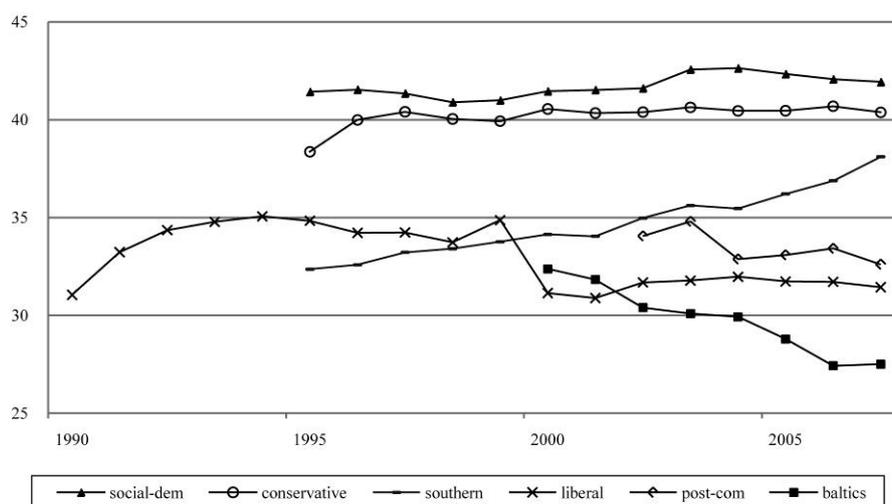


Figure 4. Social protection expenditures as a share of total expenditures grouped by welfare state regime 1990-2007.

Note: Due to shorter time series for some countries, the aggregation for the regimes start only at a common year, as the aggregation of the unbalanced data for a regime could impose a misleading change in the trend of the aggregate average for the regime as a whole. Therefore the aggregation for the liberal regime includes only the years 1990-2007, the aggregations for the social-democratic regime, the conservative regime and the southern regime the years 1995-2007, the aggregation for the post-communist European regime 2002-2007 and for the Baltic regime 2000-2007.

Source: Eurostat, OECD National Accounts Vol. II

Tables

Table 1. Estimation results for the EU 15 member states, 1970 – 2007*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	soexp	soexp	ITR cap	ITR cap	ITR lab	ITR lab	ITR con	ITR con
KOFglobal _(t-1)	-0.055 (0.339)		-0.059 (0.501)		0.241*** (0.000)		-0.103*** (0.001)	
KOFecon _(t-1)		0.139*** (0.000)		0.102 (0.272)		0.174*** (0.000)		-0.092*** (0.000)
size _(t-1)	-1.052*** (0.009)	-1.166*** (0.004)	3.936*** (0.000)	3.993*** (0.000)	-0.111 (0.716)	0.344 (0.208)	0.544*** (0.007)	0.330* (0.099)
growth _(t-1)	-0.189*** (0.010)	-0.229*** (0.000)	-0.424** (0.026)	-0.462** (0.018)	-0.037 (0.416)	-0.100** (0.043)	0.008 (0.877)	0.040 (0.431)
inflation _(t-1)	-0.212*** (0.001)	-0.196*** (0.004)	-0.080 (0.434)	-0.082 (0.399)	-0.003 (0.945)	-0.054 (0.234)	0.025 (0.507)	0.048 (0.196)
expenditure _(t-1)	0.121** (0.015)	0.135*** (0.004)	0.267*** (0.008)	0.215** (0.049)	0.177*** (0.000)	0.147*** (0.000)	0.163*** (0.000)	0.182*** (0.000)
debt _(t-1)	0.002 (0.897)	-0.025* (0.061)	-0.043* (0.064)	-0.050** (0.026)	0.044*** (0.000)	0.060*** (0.000)	-0.049*** (0.000)	-0.056*** (0.000)
oldage _(t-1)	0.209 (0.392)	0.226 (0.285)	1.469*** (0.006)	1.381*** (0.008)	0.507*** (0.001)	0.695*** (0.000)	0.727*** (0.000)	0.656*** (0.000)
govparty	-0.017 (0.863)	0.061 (0.494)	-0.252 (0.180)	-0.238 (0.218)	-0.119* (0.074)	-0.010 (0.864)	0.053 (0.312)	0.003 (0.956)
R ²	0.642	0.632	0.402	0.405	0.850	0.844	0.455	0.460
N	280	280	384	384	402	402	402	402
time effects	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
F-test TD	0.036	0.769	0.000	0.000	0.006	0.048	0.000	0.000

Newey-West-HAC robust p-values in parentheses; estimates based on Schaffer's xtivreg2 command with bw(2) robust option; F-test TD = p-values of test of significance of time dummies; F-test trend = p-value of test of joint significance of trends; soexp: social protection expenditures as share of total expenditures, ITR cap: implicit tax rate on capital income, ITR lab: ITR on labour income, ITR con: ITR on consumption; * p < 0.10, ** p < 0.05, *** p < 0.01

*1980-2007 for social expenditures

Table 2. Estimation results for the EU 15 – 4 regimes, 1970 – 2007*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	soexp	soexp	ITR cap	ITR cap	ITR lab	ITR lab	ITR con	ITR con
KOFglobal*soc-dem _(t-1)	-0.233*** (0.000)		-0.580** (0.024)		0.301*** (0.000)		-0.230*** (0.000)	
KOFglobal*conserv _(t-1)	0.187*** (0.001)		0.137 (0.343)		0.228*** (0.000)		-0.165*** (0.001)	
KOFglobal*southern _(t-1)	-0.038 (0.659)		-0.237* (0.091)		0.081 (0.201)		-0.038 (0.442)	
KOFglobal*liberal _(t-1)	-0.638*** (0.000)		-0.176 (0.366)		0.011 (0.858)		-0.211*** (0.000)	
KOFecon*soc-dem _(t-1)		0.015 (0.696)		-0.285* (0.077)		0.288*** (0.000)		-0.181*** (0.000)
KOFecon*conserv _(t-1)		0.119*** (0.007)		0.101 (0.401)		0.152*** (0.000)		-0.196*** (0.000)
KOFecon*southern _(t-1)		0.003 (0.971)		0.101 (0.502)		0.093 (0.170)		-0.085* (0.059)
KOFecon*liberal _(t-1)		-0.028 (0.827)		0.024 (0.909)		0.154** (0.011)		0.020 (0.721)
size _(t-1)	-0.779* (0.051)	-1.206*** (0.006)	3.434*** (0.000)	2.980*** (0.000)	-0.171 (0.439)	-0.078 (0.681)	0.181 (0.407)	-0.099 (0.612)
growth _(t-1)	-0.080 (0.198)	-0.181*** (0.001)	-0.324* (0.058)	-0.372** (0.043)	0.008 (0.843)	-0.034 (0.445)	0.057 (0.272)	0.055 (0.259)
inflation _(t-1)	-0.063 (0.381)	-0.148* (0.055)	-0.004 (0.971)	-0.006 (0.954)	0.058 (0.127)	0.011 (0.765)	0.112** (0.016)	0.105** (0.012)
expenditure _(t-1)	0.168*** (0.000)	0.112** (0.019)	0.141 (0.141)	0.138 (0.176)	0.187*** (0.000)	0.153*** (0.000)	0.144*** (0.000)	0.150*** (0.000)
debt _(t-1)	0.009 (0.452)	-0.013 (0.333)	-0.058** (0.019)	-0.075*** (0.004)	0.053*** (0.000)	0.060*** (0.000)	-0.039*** (0.000)	-0.039*** (0.000)
oldage _(t-1)	-0.173 (0.530)	-0.021 (0.948)	1.233* (0.088)	0.996 (0.180)	-0.353* (0.054)	-0.368* (0.057)	0.160 (0.433)	0.061 (0.762)
govparty	0.052 (0.578)	0.131 (0.175)	-0.071 (0.678)	-0.019 (0.911)	-0.118** (0.028)	-0.063 (0.203)	0.089* (0.092)	0.021 (0.699)
trend*soc-dem	-0.105 (0.414)	0.238*** (0.000)	0.848*** (0.002)	0.870*** (0.001)	-0.193** (0.049)	-0.170*** (0.009)	0.114* (0.071)	0.252*** (0.000)
trend*conserv	-0.568*** (0.000)	0.045 (0.414)	-0.047 (0.818)	0.135 (0.563)	-0.081 (0.218)	0.083 (0.151)	-0.006 (0.908)	0.146** (0.021)
trend*southern	-0.191 (0.244)	0.270* (0.065)	0.621** (0.032)	0.387 (0.212)	0.376*** (0.000)	0.469*** (0.000)	0.074 (0.358)	0.251*** (0.001)
trend*liberal		0.064 (0.456)						
R ²	0.751	0.664	0.498	0.486	0.881	0.888	0.545	0.563
N	280	280	384	384	402	402	402	402
time effects	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
F-test TD	0.000	0.680	0.000	0.000	0.000	0.003	0.000	0.000
F-test trend	0.000	0.001	0.000	0.003	0.000	0.000	0.221	0.000

Newey-West-HAC robust p-values in parentheses; estimates based on Schaffer's xtivreg2 command with bw(2) robust option; F-test TD = p-values of test of significance of time dummies; F-test trend = p-value of test of joint significance of trends; soexp: social protection expenditures as share of total expenditures, ITR cap: implicit tax rate on capital income, ITR lab: ITR on labour income, ITR con: ITR on consumption; * p < 0.10, ** p < 0.05, *** p < 0.01

*1980-2007 for social expenditures

Table 3. Estimation results for the CEE NMS, 1995-2007

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	soexp	soexp	ITR cap	ITR cap	ITR lab	ITR lab	ITR con	ITR con
KOFglobal _{t-1}	0.137 (0.268)		-0.211 (0.285)		-0.078 (0.356)		-0.128 (0.144)	
KOFecon _{t-1}		0.066 (0.169)		0.019 (0.849)		-0.030 (0.473)		-0.076* (0.055)
size _{t-1}	-6.852 (0.514)	-8.278 (0.421)	-2.809 (0.795)	-0.995 (0.928)	-4.234 (0.480)	-3.137 (0.611)	-4.705 (0.460)	-2.280 (0.700)
growth _{t-1}	-0.235** (0.050)	-0.227* (0.061)	-0.024 (0.869)	-0.059 (0.686)	-0.192** (0.035)	-0.200** (0.024)	0.070 (0.150)	0.050 (0.307)
inflation _{t-1}	-0.124** (0.033)	-0.123** (0.029)	-0.008 (0.793)	-0.009 (0.760)	-0.049 (0.119)	-0.048 (0.114)	0.001 (0.950)	-0.002 (0.904)
expenditure _{t-1}	-0.143 (0.125)	-0.156** (0.044)	0.238* (0.053)	0.243* (0.058)	0.155** (0.015)	0.163** (0.014)	0.173*** (0.000)	0.173*** (0.000)
debt _{t-1}	0.045 (0.142)	0.049* (0.101)	0.007 (0.824)	0.004 (0.895)	0.060** (0.011)	0.057** (0.018)	-0.071*** (0.000)	-0.073*** (0.000)
oldage _{t-1}	-2.399*** (0.004)	-2.116*** (0.003)	1.664 (0.153)	1.620 (0.173)	-0.668 (0.160)	-0.866** (0.021)	-0.075 (0.854)	-0.318 (0.417)
govparty	0.033 (0.919)	0.031 (0.917)	0.287 (0.159)	0.292 (0.166)	-0.372** (0.014)	-0.366** (0.015)	-0.333*** (0.006)	-0.315*** (0.008)
R ²	0.374	0.374	0.321	0.311	0.562	0.559	0.573	0.579
N	90	90	103	103	109	109	109	109
time effects	No	No	Yes	Yes	No	No	Yes	Yes
F-test TD	0.199	0.234	0.063	0.069	0.590	0.453	0.000	0.000

Newey-West-HAC robust p-values in parentheses; estimates based on Schaffer's xtvreg2 command with bw(2) robust option; F-test TD = p-values of test of significance of time dummies; F-test trend = p-value of test of joint significance of trends; soexp: social protection expenditures as share of total expenditures, ITR cap: implicit tax rate on capital income, ITR lab: ITR on labour income, ITR con: ITR on consumption; * p < 0.10, ** p < 0.05, *** p < 0.01

Table 4. Estimation results for the CEE NMS – 2 regimes, 1995-2007

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	soexp	soexp	itr cap	itr cap	itr lab	itr lab	itr con	itr con
KOFglobal*postcom _{t-1}	0.143 (0.370)		-0.587** (0.015)		-0.071 (0.550)		-0.105 (0.251)	
KOFglobal*baltic _{t-1}	-0.526* (0.054)		0.165 (0.598)		0.197 (0.340)		-0.204 (0.291)	
KOFecon*postcom _{t-1}		0.022 (0.737)		-0.193* (0.085)		-0.006 (0.892)		-0.083** (0.030)
KOFecon*baltic _{t-1}		-0.191 (0.238)		0.281 (0.227)		0.062 (0.660)		-0.165 (0.187)
size _{t-1}	-13.311 (0.219)	-13.736 (0.198)	-22.406* (0.065)	-12.801 (0.234)	-4.443 (0.539)	-3.349 (0.622)	-4.566 (0.470)	-3.184 (0.591)
growth _{t-1}	-0.173 (0.115)	-0.186* (0.099)	0.072 (0.597)	-0.007 (0.956)	-0.174* (0.065)	-0.179* (0.070)	0.070 (0.128)	0.070 (0.156)
inflation _{t-1}	-0.127** (0.029)	-0.112* (0.052)	0.027 (0.237)	0.018 (0.435)	-0.022 (0.565)	-0.035 (0.314)	-0.001 (0.950)	-0.001 (0.969)
expenditure _{t-1}	-0.091 (0.297)	-0.128 (0.141)	0.064 (0.623)	0.110 (0.380)	0.090 (0.171)	0.114* (0.069)	0.181*** (0.000)	0.170*** (0.000)
debt _{t-1}	0.040 (0.194)	0.044 (0.135)	0.037 (0.214)	0.026 (0.363)	0.072*** (0.003)	0.068*** (0.006)	-0.072*** (0.000)	-0.071*** (0.000)
oldage _{t-1}	-2.181* (0.079)	-1.991 (0.107)	4.831*** (0.000)	4.204*** (0.000)	0.683 (0.267)	0.488 (0.427)	0.001 (0.999)	0.028 (0.951)
govparty	-0.011 (0.972)	-0.051 (0.876)	-0.055 (0.824)	-0.017 (0.943)	-0.413*** (0.002)	-0.388*** (0.005)	-0.328*** (0.004)	-0.321*** (0.003)
trend*postcom	0.102 (0.703)	0.232 (0.357)	1.947*** (0.008)	1.609*** (0.003)	-0.233 (0.259)	-0.298* (0.091)	-0.112 (0.755)	-0.015 (0.950)
trend*baltic	0.784 (0.148)	0.282 (0.528)			-0.845** (0.010)	-0.600** (0.022)		
R ²	0.423	0.407	0.427	0.413	0.593	0.588	0.575	0.588
N	90	90	103	103	109	109	109	109
time effects	No	No	Yes	Yes	No	No	Yes	Yes
F-test TD	0.240	0.417	0.005	0.000	0.316	0.269	0.000	0.000
F-test trend	0.350	0.630	0.008	0.003	0.022	0.050	0.755	0.950

Newey-West-HAC robust p-values in parentheses; estimates based on Schaffer's xtvreg2 command with bw(2) robust option; F-test TD = p-values of test of significance of time dummies; F-test trend = p-value of test of joint significance of trends; soexp: social protection expenditures as share of total expenditures, ITR cap: implicit tax rate on capital income, ITR lab: ITR on labour income, ITR con: ITR on consumption; * p < 0.10, ** p < 0.05, *** p < 0.01

Appendix

Table A.1. Data Sources and description

KOFglobal	index of economic, political and social globalization, ranging from 1 to 100	Dreher (2006b), updated in Dreher et. al (2008a)	1970-2007
KOFecon	index of economic globalization, combining actual flows and restrictions	Dreher (2006b), updated in Dreher et. al (2008a)	1970-2007
growth	growth rate of real GDP	AMECO database	1970-2007
debt	general government consolidated gross debt as a percentage of GDP	AMECO database	1970-2007
inflation	inflation (GDP deflator)	AMECO database	1970-2007
expenditure	total expenditures of general government as a percentage of GDP	AMECO database	1970-2007
oldage	fraction of elderly people (>64) in total population	AMECO database	1970-2007
govparty	government cabinet composition (Schmidt-Index) ranging from (1) hegemony of right wing (and centre) parties to (5) hegemony of social-democratic and left parties	Comparative Political Dataset I and III, University of Bern	1970-2007
size	GDP of a country as share of the sample GDP	AMECO database	1970-2007
ITR_cap	implicit tax rate on capital income	Eurostat, European Commission	1970-2007
ITR_lab	implicit tax rate on labor income	Eurostat, European Commission	1970-2007
ITR_con	implicit tax rate on consumption	Eurostat, European Commission	1970-2007
socexp	social protection expenditures as share of total public expenditures	Eurostat, OECD National Accounts Vol. II	1980-2007

Table A.2. Data Summary: EU 15, 1970-2007

Variable	Obs	Mean	Std. Dev.	Min	Max
KOFglobal	570	70.911	14.672	35.290	93.380
KOFecon	570	70.897	15.645	40.000	98.900
growth	570	2.972	2.428	-6.571	11.495
debt	554	51.550	29.274	4.056	134.160
inflation	570	6.311	5.552	-1.877	27.213
expenditure	432	47.933	6.696	29.267	71.682
oldage	569	14.165	2.140	9.150	19.992
govparty	552	2.650	1.469	1.000	5.000
size	570	6.399	7.072	0.147	24.267
itr_cap	471	26.924	9.020	7.036	56.015
itr_lab	510	33.261	7.576	8.168	49.400
itr_con	510	21.186	5.475	5.430	34.000
socexp	284	37.168	5.017	22.877	48.185

Table A.3. Data Summary: CEE NMS, 1995-2007

Variable	Obs	Mean	Std. Dev.	Min	Max
KOFglobal	130	71.413	9.077	49.130	87.000
KOFecon	130	71.793	12.648	35.940	92.620
growth	130	4.818	3.323	-9.397	12.233
debt	123	30.083	20.220	3.488	105.056
inflation	130	19.346	84.328	-0.853	948.281
expenditure	125	41.568	5.621	33.169	54.468
oldage	130	14.207	1.673	10.872	17.285
govparty	130	2.677	1.136	1.000	5.000
size	130	0.473	0.550	0.056	2.250
itr_cap	114	16.119	6.474	4.900	35.100
itr_lab	122	36.711	3.398	28.000	43.700
itr_con	122	20.966	3.279	15.500	30.800
socexp	94	31.844	4.015	21.936	42.143

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