

# REM WORKING PAPER SERIES

**Social Dominance**

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**REM Working Paper 030-2018**

February 2018

**REM – Research in Economics and Mathematics**

Rua Miguel Lúpi 20,  
1249-078 Lisboa,  
Portugal

ISSN 2184-108X

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# Social dominance

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31. Jan. 2018

## Abstract

Based on the observation of an unabated trend towards higher social spending ratios in advanced countries, the study analyzes the risk of “social dominance”, where social expenditures dominate fiscal policy, and undermine growth and fiscal sustainability. We scrutinize this risk by analyzing drivers of social expenditures and their interaction with other fiscal variables. Results show, that social expenditure expansion is largely ageing driven, it crowds out other primary expenditures and there is evidence of unsustainability. These findings and the accelerating trend of population ageing and particularly high political costs to reforming social expenditure suggest significant and rising risks of “social dominance”.

**Keywords:** fiscal policy, social expenditures, political economy, crowding out, fiscal sustainability

**JEL Codes:** E62, H30, H55

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## 1. Introduction

The economic policy debate sees an important role for fiscal policy. First, automatic stabilizers and counter-cyclical policies should stabilize economies in the short run. Second, growth enhancing public spending and sound public finances should boost potential output. Third, social expenditure should enhance income distribution and social cohesion. Attaining these objectives, however, should not endanger sustainability nor should the attainment of social goals “dominate” all others.

Social expenditures – a major part of government expenditures – show, however, evidence of an unabated upward trend relative to GDP in advanced countries. Since 1980 social expenditure ratios increased on average at roughly 2 percentage points of GDP per decade in our sample of 21 advanced economies. By 2015, total social expenditure averaged almost one quarter of GDP, about 8 pp. more than in 1980. Moreover, data show an increasing share of social expenditures in total government expenditures. Social expenditure shares in total expenditure ranged from about one third to little over 40% in 1980. This share increased to mostly well over 50 percent by 2015.

In this paper we ask, whether the observed social expenditure dynamic could lead to or already reflects a scenario where social expenditures dominate fiscal policy. In such a scenario, the rise in social expenditure leads to the crowding out of more productive spending, undermines growth potential and endangers fiscal sustainability. Even social cohesion might be at risk if only the rich can replace deteriorating public services (security, education, infrastructure) with private spending. We term this scenario as “social dominance”.

When thinking about the risk of social dominance, we have to consider the political economy of social expenditures. Social expenditures are expected to have higher (short term) political pay-off than growth-friendly expenditure or than keeping balanced budgets. This is because the political benefits in terms of voters and special interest support from social expenditure accrue immediately while the benefits of more productive spending and sound public finances tend to accrue only over time (Tullock and Buchanan 1962).

Political costs might therefore explain why rising social expenditure crowds out or prevents a desirable crowding in of other public expenditure. This is because such spending could be stopped (or eroded) much more actively than social spending, e.g. via investment project stops, salary and hiring freezes, or larger classes. Moreover, tax increases also have immediately visible effects and, thus, political costs (Rodrik 1996). Deficits and debt might, therefore, be used to finance social expenditure.

We investigate the risk of “social dominance” by analyzing the interaction of social expenditures with other more growth-oriented public expenditure and with fiscal sustainability. We first examine the driving forces of the observed social expenditure growth. Second, we analyze how the increasing social expenditure ratio has been “financed” and whether it has coincided with the crowding out of other expenditures. Lastly, we scrutinize whether the observed trend in social expenditure growth puts sustainability at risk. We conclude with some observations and advice related to the risk of “social dominance”.

## **2. Drivers of social expenditure**

### **a) A continuing growth of social expenditure ratios**

Social expenditure grew very strongly in the hay days of Keynesian economics in the 1960s and 1970s (Table 1).<sup>2</sup> From 1960 to 1980, they almost doubled from 8.5 % of GDP to 16.0 % of GDP on average over the sample countries. This was the period of deep faith in a far-reaching role of government in redistributing income and fine-tuning the economy (Tanzi and Schuknecht 2000).

With the onset of the 1980s, a much more rational view on what governments can and should do set in. High average and marginal taxes that emerged in the inflationary 1970s were seen to undermine growth. High interest rates forced government to look at their financing constraints in earnest. On

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<sup>2</sup> We constructed a data set that allows a comparative analysis of expenditure developments and other relevant fiscal variables over time and across countries. All fiscal data refer to general government for 21 advanced economies for the 1960/1980 to 2016 period (see data Annex). While we occasionally reference the total 55 year period, the analysis focuses on the post 1980 period.

the whole, however, the rise in social spending did not stop but only slowed between 1980 and today. Social expenditure increased in advanced economies at roughly 2 percentage points of GDP per decade since 1980.

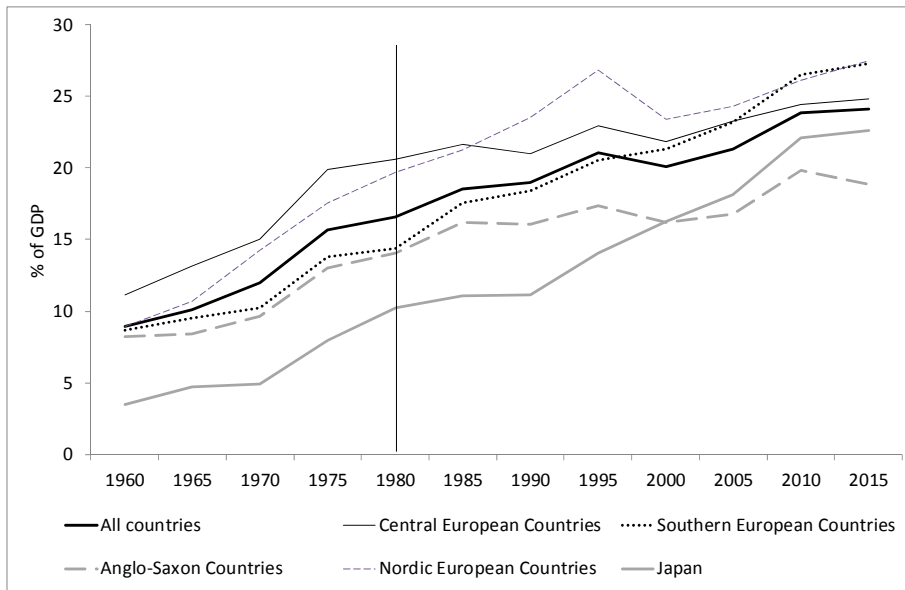
**Table 1: Social expenditures in percent of GDP**

	<b>1960</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2015</b>
Australia	5.9	5.9	10.3	13.1	18.2	16.7	18.8
Austria	15.0	17.9	22.0	23.2	25.5	27.6	28.0
Belgium	11.4	15.1	23.1	24.4	23.5	28.3	29.2
Canada	8.1	10.5	13.3	17.5	15.8	17.5	17.2
Denmark		15.2	20.3	22.0	23.8	28.9	28.8
Finland	8.2	12.5	17.7	23.3	22.6	27.4	30.6
France	12.0		20.2	24.3	27.5	30.7	31.7
Germany	15.4	16.6	21.8	21.4	25.4	25.9	25.0
Greece	3.3	6.6	9.9	15.7	18.4	23.8	26.4
Ireland	7.1	9.7	15.7	16.8	12.6	22.4	17.0
Italy	10.7	13.9	17.4	20.7	22.6	27.6	28.9
Japan	3.5	4.9	10.2	11.1	16.3	22.1	22.6
Netherlands	9.6	18.4	23.3	24.0	18.4	22.1	22.3
New Zealand	11.4	10.1	16.7	20.5	18.5	20.3	19.7
Norway	6.0	12.4	16.1	21.6	20.4	21.9	23.9
Portugal			9.5	12.2	18.5	24.5	24.1
Spain			15.0	19.2	19.5	25.8	25.4
Sweden	4.2	7.2	12.8	27.2	26.8	26.3	26.7
Switzerland	4.2	7.2	12.8	12.1	16.3	18.4	19.6
United Kingdom	9.7	12.5	15.6	15.2	17.7	22.8	21.5
United States	7.0	9.2	12.8	13.2	14.3	19.3	19.0
<b>all countries*</b>	<b>8.5</b>	<b>11.4</b>	<b>16.0</b>	<b>19.0</b>	<b>20.1</b>	<b>23.8</b>	<b>24.1</b>

\* unweighted average; Sources: OECD (1985), OECD Social Expenditures Database, own calculations.

The trend of rising social spending ratios can be illustrated by looking at regional country groups (Figure 1, see notes for country grouping). For all groups, there was only one direction over the total 1960-2015 period. When looking at sub-periods, there are few exceptions to the general upward trend. The Anglo-Saxon countries show the lowest average social spending ratio. Southern European countries show the biggest increase since 1980, making them the group with the highest average ratio in 2015 together with Nordic European countries. Central Europeans had the highest level in 1980 but the lowest dynamics thereafter. Japan featured the smallest welfare state until about 1990 but reported one of the strongest increases since then.

**Figure 1: Development of social expenditures in percent of GDP by country groups**

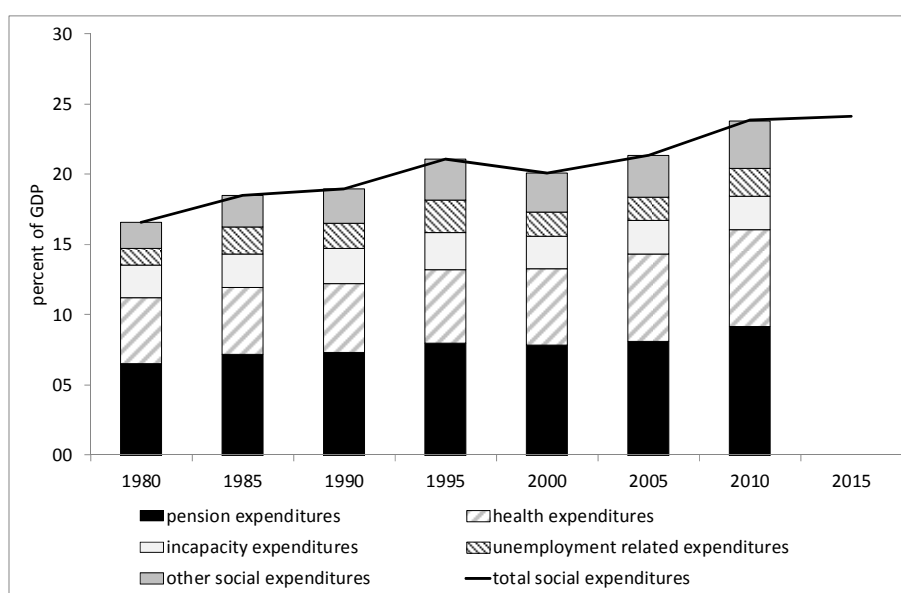


Sources: OECD Social Expenditures Database.

Anglo-Saxon countries: Australia, Canada, Ireland, United Kingdom and United States. Nordic European countries: Denmark, Finland, Norway, Sweden. Central European countries: Austria, Belgium, Germany, Netherlands, Switzerland. Southern European countries: France, Greece, Italy, Portugal, Spain.

Figure 2 gives a first insight on possible driver of social expenditure growth as it shows social expenditure ratios and its components. The two major sub-categories are pension expenditures (old-age and survivors) and health expenditures. Together with expenditures related to incapacity they explain about 2/3 of the overall average increase since 1980. Unemployment related expenditures are only a small share of overall social expenditures and contributed only marginally to the increase in social expenditures. Thus, old-age related expenditures (pension and health) seem to play an important role for overall social expenditures expansion.

**Figure 2: Structure of social expenditures growth (averages over all 21 countries)**



Sources: OECD Social Expenditures Database, own calculations.

### b. Drivers of social expenditure

Following the literature, we now test income, the business cycle, unemployment, population ageing and political ideology for their relevance for social expenditure growth (e.g. Kittel and Obinger 2003, Kwon and Pontusson 2010 or Herwartz and Theilen 2017).

From a neutral welfare perspective, one could expect social expenditure to be proportionally related to income. Another view would be to see social expenditures as a superior good, with people demanding more services the richer they get as other “needs” are more and more satisfied.<sup>3</sup> In addition, no relationship between the two or even the opposite relationship (inferior good) might point to vocal special interests drive up social expenditure.

In a descriptive analysis, we find a correlation between income and social expenditure in 1980

(Figure 3a). This confirms the superior good hypothesis until then, although the relationship is weak.

But this relation becomes much more tenuous in the following 35 years and by 2015, the relationship

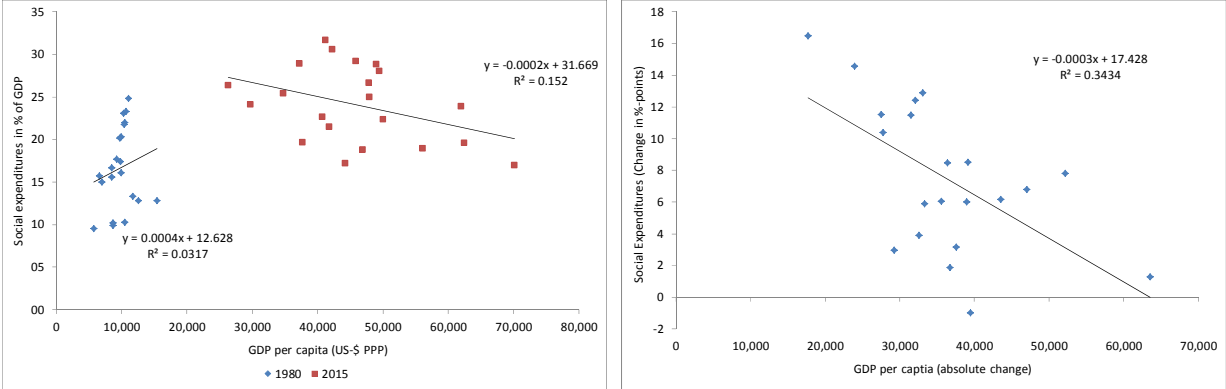
<sup>3</sup> The growth of expenditure ratios with rising per-capita GDP is often referred to as “Wagner’s law” (Wagner 1883). Reasons might be that social expenditures are a superior good, rising complexity increasing demand for public intervention (Legrenzi and Milas 2002) or political economy arguments such as the voting power of public sector workers/bureaucracies/special interests (Buchanan and Tullock 1962 and many others).

seems to have disappeared or have even slightly reversed. This is because the change in expenditure ratios between 1980 and 2015 is inversely correlated with per capita income changes (Figure 3b). It appears that other factors than per capita-income seem to have driven up social expenditure in recent decades.

Next we look at the relation between social expenditure and the business cycle on the one hand and its trend developments over time on the other. Figure 4 illustrates that social expenditure has been ratcheting up over subsequent business cycles. The downward sloping line suggests that social expenditure has gone up by about 1/3 % of GDP with each percent of growth below trend and vice versa. This is the desirable effect of automatic stabilizers whereby spending goes up in bad times that is also well documented elsewhere in the literature (Dolls et al. 2012, Darby and Melitz 2007). A stabilizer of 1/3 via social spending is indicative of the large stabilizing effect of welfare states.

**Figure 3: GDP per Capita and Social Expenditures in percent of GDP**

- a. Level of income vs expenditure ratio in 1980 and 2015
- b. Change in expenditure vs change in income 1980-2015

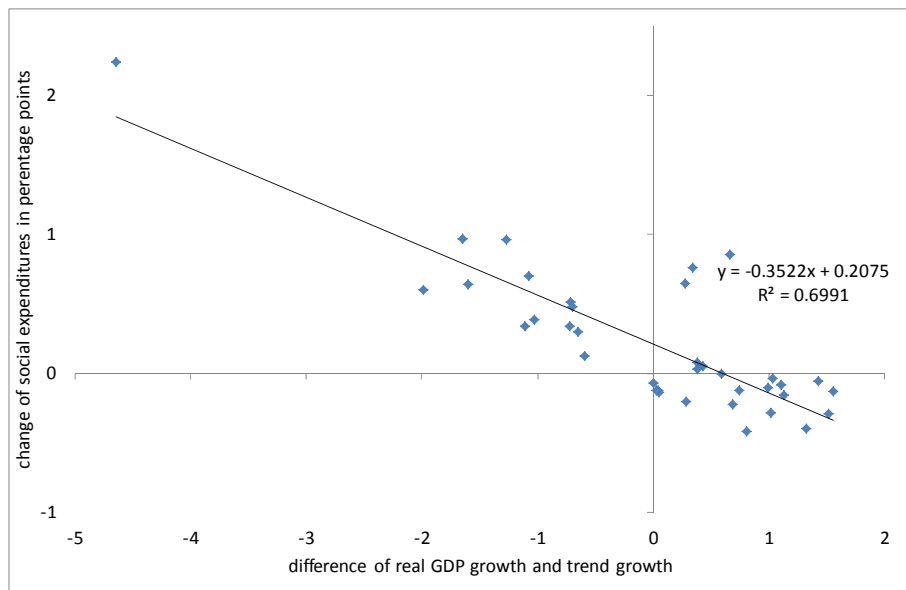


Sources: OECD Social Expenditures Database, OECD Stat., own calculations.

The intercept with the y-axis is even more interesting and important from the perspective of this study. It reflects the trend change in social expenditure over time when the economy grows in line with potential. The coefficient of 0.21 suggests an annual increase in social expenditure by about 0.2 pp. of GDP independent of the cycle. This figure is broadly equivalent to the increase of 2 pp. of GDP per decade in Table 1.



**Figure 4: Trend change and cyclical effects on social expenditure, averages (1980-2016).**



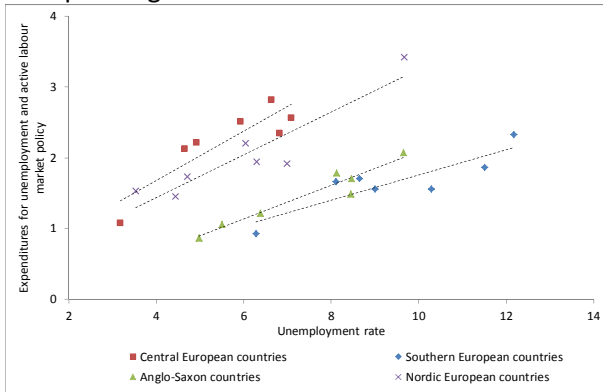
Sources: OECD Social Expenditures Database, IMF Economic outlook, own calculations.

Closely related to the business cycle are expenditures for unemployment. Such spending can be seen as safeguarding livelihoods and supporting the re-integration in the labour market. Figure 5a shows the relationship between unemployment rates and public expenditure on unemployment benefits as well as active labour market policies. Central European and Nordic countries spend more on the unemployed in particular when comparing it to the level of unemployment in these two country groups. Moreover, the slope of the expenditure curve is steepest, meaning that governments respond more strongly to rising unemployment. Southern Europe featured relatively high unemployment but spend relatively little on the vulnerable group.

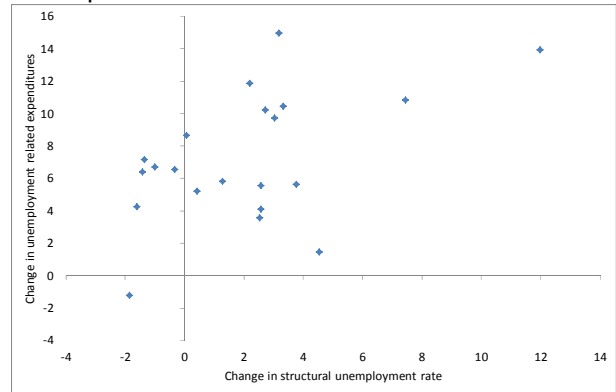
However, given the strong correlation between unemployment and the business cycle, any structural increase in social expenditures might come from a rising structural unemployment. Figure 5b shows the relationship between the change in structural unemployment and social expenditures. The relationship is however inconclusive for our sample and period and seems to be driven by outliers. Either a positive or a negative correlation could be concluded for different country sub-samples.

**Figure 5: Unemployment and social spending (1980-2010)**

a. Unemployment and unemployment related spending



b. Structural unemployment and social expenditures

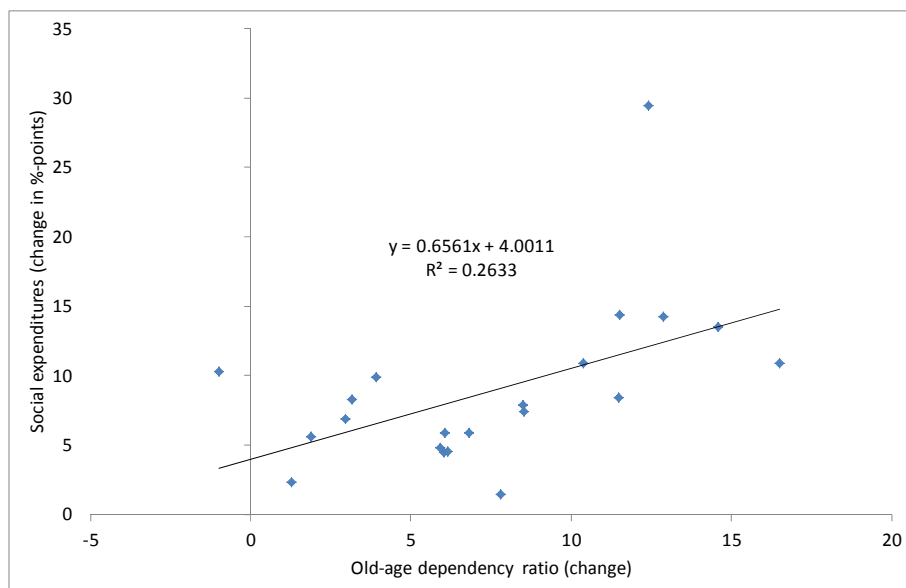


Correlation of unemployment rate and unemployment related expenditures (since 1980, every five years.)

Sources: OECD Social Expenditures Database, European Commission, national sources.

Next, we look at population ageing, which is arguably a key determinant for rising social expenditures. Figure 6 presents the change in social expenditure and population ageing between 1980 and 2015. It shows a relatively clear positive correlation and suggests that every additional percentage point of old age dependency, coincided with social expenditure increasing by 0.65 percentage point of GDP over the 1980-2015 period. This has important implications for the future as dependency ratios are expected to increase even more rapidly.

**Figure 6: Ageing and social expenditure, changes of the period 1980-2015.**



Sources: OECD Social Expenditures Database, United Nations statistics, own calculations.

The descriptive analysis provides a first impression on the drivers of social expenditures. The relevance needs to be examined by a more in-depth empirical analysis. We base the econometric analysis on a panel dataset of 21 countries for the period 1980-2016. Due to some missing variables, the full number of observations will not always be reached. We use country fixed effects models to take into account heterogeneous country characteristics and we perform common tests of statistical properties.

We test for the determinants of social expenditure, starting with the role of the business cycle (automatic stabilizers) and add further relevant explaining variables. The standard panel relationship is shown by the equation below, where  $dSoexp$  is the change in social expenditure ratio in percentage points for year  $t$  and country  $i$ ,  $\beta_0$  captures the path of social expenditure,  $Trend$  is Trend growth (based on HP-filter with Lamda 100),  $\beta_m$  and  $X_m$  account for additional explaining variables with lag  $j$ ,  $\epsilon_i$  are the country fixed effect and  $\mu_{i,t}$  is the idiosyncratic noise term:

$$dSoexp_{i,t} = \beta_0 + \beta_1(\Delta GDP_{i,t} - Trend_{i,t}) + \beta_m X_{m,t-j} + \epsilon_i + \mu_{i,t}$$

The influence of the cycle (and thereby the stabilizing effect of social spending) would be confirmed when the coefficient  $\beta_1$  has a negative sign and is statistical significant. A significant positive coefficient  $\beta_0$  would confirm an upward trend of social expenditures over the business cycle.<sup>4</sup>

Further explaining variables that enter the equation are GDP per capita (GDPPC – used in dlog), the structural unemployment rate (StrUNEMPL), estimated as HP-Trend (Lambda=100) from unemployment rate. Note, that cyclical unemployment is already proxied by the cyclical position of the economy. Further, the old age dependency ratio (OADR) shall account for demographic effects that might drive social expenditure ratios. In addition, we test for the relevance of dominant political ideology (POL) of the respective government. We use an ideology index based on Budge et al. (1993)

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<sup>4</sup> The within-transformation would normally imply that the constant  $\beta_0$  is cancelled out. However, if the equation is solved with the constraint  $\sum_1^i \epsilon_i = 0$  the resulting transformation brings back the constant. It is now interpreted as average value of the fixed effects.

and updated by Potrafke (2009).<sup>5</sup> The index ranges from 1 to 5, with higher values indicating more left-wing governments, and values are standardized (mean zero, variance one).

We further include the government balance (NETLEND) in the previous period and government debt (DEBT), to control for financing constraints which might affect social expenditure growth. For example government deficits might be followed by falling social expenditure ratios (positive coefficient). This would suggest a corrective effect of high deficits on social expenditure dynamics. The equivalent argumentation might be true for higher public debt ratios.

Table 2 shows estimation results for social expenditures (SOEXP). As regards the constant, the coefficient  $\beta_0$  is positive and statistically significant for all specifications. The results of the baseline estimation regarding the business cycle (equation 1) confirms that social expenditure ratios increased on average by about 0.2 pp provided GDP increased in line with trend growth. In the long-term and assuming a symmetric behavior of social expenditures over the business cycle, one could interpret the constant also as average trend increase of social expenditures per year.

**Table 2: Social expenditure, determinants (1980-2016).**

#	1	2	3
dependent variable	SOEXP (difference)	SOEXP (difference)	SOEXP (difference)
constant	0.201 ***	0.179 ***	0.642 ***
( $\Delta$ GDP-trend)	-0.262 ***	-0.256 ***	-0.257 ***
GDPpC (t-1) (dlog)		-0.018	-1.502 *
StrUNEMPL (t-1) (diff.)		0.194 ***	0.330 ***
OADR (diff.) (t-3)			0.296 **
POL (t-1)			0.053 **
NETLEND (t-1)			0.044 ***
DEBT (t-1)			-0.005 ***
adjusted R2	0.37	0.44	0.44
observations	736	673	671
estimator	OLS-fe	OLS-fe	OLS-fe

\*, \*\*, \*\*\* indicate statistical significance levels of 10, 5 and 1%

<sup>5</sup> An up-to-date data set was provided to the authors by Niklas Potrafke.

The negative coefficient for the deviation from trend growth indicates that – as expected – social expenditures increased on average more in bad economic times (decreasing capacity utilization – GDP growth below trend growth) than in good times. In all specifications, a 1pp upward deviation of GDP growth from trend results in about ¼ pp of GDP decline in the social spending ratio and vice versa. This could be seen as a proxy for the very significant automatic stabilizing effect arising from social spending in industrialized countries.<sup>6</sup>

Similar to our descriptive analysis the statistical relevance of GDP per capita in explaining social expenditure developments is negative but not robust. In contrast, the coefficient for structural unemployment is positive and significant for all specifications – a result that is in line with economic theory. We also find evidence that ageing drives social expenditures with a time lag (equation 3). In this specification, a one percentage point increase in old-age dependency ratio will be followed by an increase of 0.3 % in social expenditure ratio. Political ideology does indeed influence social expenditures –more left-wing governments seem to increase -on average- social expenditures more than right-wing governments (equation 3).

As regards financing constraints for the expansion of social expenditures, estimation results are mixed. They show a positive coefficient for net lending which implies that higher deficits are followed by less buoyant expenditure dynamics. However, the coefficient is very small relative to other variables. This implies that it would require very high deficits to fully countervail the upward trend in the social expenditure ratio. Moreover, high debt levels also seem to have only a marginal effect on social expenditure growth.

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<sup>6</sup> The inclusion of period fixed effects reduces the coefficient for automatic stabilization while increasing the R-square. However, period fixed effects capture common deviations from the average. Thus, e.g. 2009 shows up to be strongly different than the average of years. As a result, some volatility of stabilization goes in period fixed effects and reduces the coefficient for automatic stabilization to an average stabilization over all years. This is however not intended.

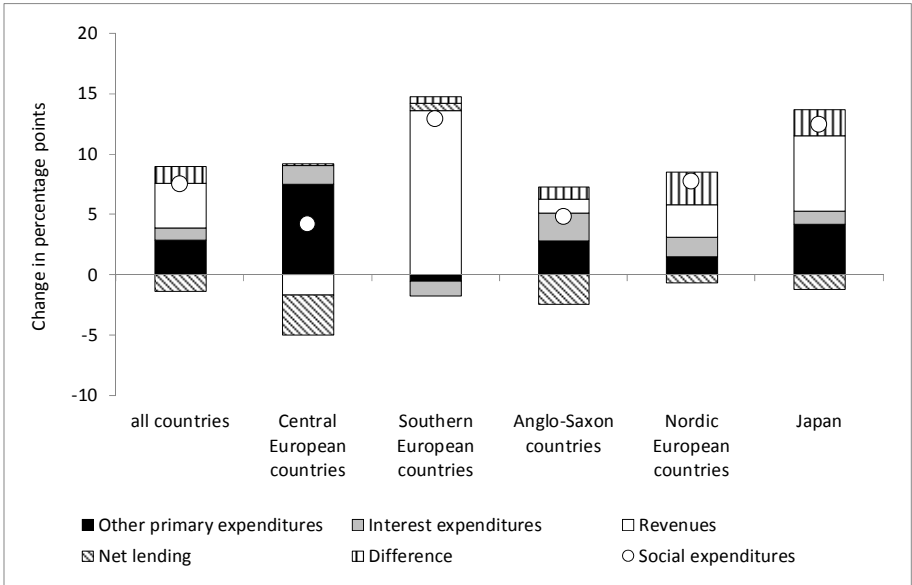
**3. The financing of expanding social expenditure ratios**

**a) Structure of social expenditures financing**

We now look at the question of how the rise in social expenditure over past decades has been financed. Has the rise in social spending gone hand in hand with increasing revenues, rising deficits and debt, or less spending on other categories (crowding out)?

Figure 7 provides a first impression on financing sources of social expenditure growth. We relate this analysis to the identity, that the change in government revenues equals the change in government expenditures ( $\Delta\text{revenues} + \Delta\text{net lending} = \Delta\text{social expenditures} + \Delta\text{other primary expenditures} + \Delta\text{interest expenditures}$ ). Comparing the relevant ratios in 2015 and 1980, it yields a growth decomposition of financing source of social expenditure growth. Figure 7 shows that the increase in social expenditure seem to be financed to a significant extent through a reduction (crowding out) of other spending except in Southern Europe. In the latter group a higher revenue ratio covered almost the whole expenditure increase, but higher revenue also “helped” in most of the other groups. Lower interest expenditure also helped “finance” social spending in most groups.

**Figure 7: Social expenditure growth and composition of its financing (1980-2015)**



Note: Negative values of financing sources exacerbated the effect of social expenditure increases; positive values helped financing higher social spending. The figures relate to the following relationship:  $\Delta\text{revenues} + \Delta\text{net lending} = \Delta\text{social expenditures} + \Delta\text{other primary expenditures} + \Delta\text{interest expenditures}$ .

Figure 7, however, shows only an incomplete picture as only two years are compared. To incorporate the full information of the data set we estimate the above identity in a panel estimation. We use differences of logarithms. Table 3 shows the results for the full sample and subsamples related to our country groups. Crowding out - the decline in other primary expenditures - was an important way of financing increasing social expenditures in most country groups, with Nordics and Southern European countries showing the largest coefficients. Only for Central European countries the coefficient is not significant. Results also confirm that higher revenues have significantly financed social expenditure expansion in all country groups. Moreover, coefficients for deficit financing are significant and negative, showing that rising social expenditures are correlated with deficits (negative net lending) in particular for Southern European countries. Lower interest expenditures are not significant in Anglo-Saxon and Nordic European countries.

**Table 3: Financing of social expenditures, (1980-2016)**

#	4	5	6	7	8
sub-sample	all	Central European countries	Southern European countries	Anglo-Saxon countries	Nordic European countries
dependent variable	SOEXP (dlog of level)	SOEXP (dlog of level)	SOEXP (dlog of level)	SOEXP (dlog of level)	SOEXP (dlog of level)
Constant	0.035 ***	0.032 ***	0.032 ***	0.047 ***	0.040 ***
(-1) dlog(other prim. exp.)	-0.118 ***	-0.004	-0.134 ***	-0.072 **	-0.201 ***
(-1) dlog(interest exp.)	-0.072 ***	-0.126 ***	-0.102 ***	-0.029	-0.033
dlog(revenues)	0.372 ***	0.229 **	0.475 ***	0.280 ***	0.195 ***
dlog(net lending)	-0.002 ***	-0.001 ***	-0.003 *	-0.002 ***	-0.001 **
adjusted R2	0.46	0.24	0.60	0.16	0.22
Observations	693	150	174	197	136
Estimator	OLS-fe	OLS-fe	OLS-fe	OLS-fe	OLS-fe

\*, \*\*, \*\*\* indicate statistical significance levels of 10, 5 and 1%

The increasing share of social spending in total spending becomes obvious in the data (Table 4). It tends to be slightly lower in countries with smaller welfare states. It is, however, not clear whether this revealed crowding out affected productive or unproductive spending (such as education vs. unnecessary bureaucracy).

**Table 4: Social expenditure as percentage of total expenditure**

	1980	1990	2000	2010	2015
Central European Countries	43.1	46.8	46.8	52.1	54.4
Southern European Countries	40.6	39.9	47.4	51.7	53.6
Anglo-Saxon Countries	35.8	40.5	46.0	43.5	51.2
Nordic European Countries	33.3	44.9	47.7	50.3	52.2
Japan	32.2	37.2	44.9	58.2	61.7

Sources: var. OECD, Tanzi and Schuknecht (2000), European Commission, IMF Economic outlook.

### **b) Short-term crowding out by social expenditures**

The 8pp increase in social spending over the 1980-2015 period went hand in hand with an average 5pp of GDP decline in the non-social part of government expenditure. And results of Table 3 show that increasing social expenditures were financed by declining other primary expenditures. This warrants further analysis. We therefore look at public investment ratios, core public administration spending, defense spending and education expenditure. The presumption could be that public investment, education and core public administration is productive spending.<sup>7</sup>

The correlation of social expenditure with public investment is displayed in Figure 8, panel a. There tends to be a negative correlation between public investment and social expenditure across all country groups. Most countries reported public investment between 3 and 5 % of GDP in 1980, declining to 2-3 % in 2015. The average decline was about 1 ½ % of GDP with Japan featuring the strongest decline. Nevertheless, one has to keep in mind that the 1970s and 1980s were the period when road, telecom, energy and other major infrastructure networks were still being built. This process has largely come to an end and much infrastructure is now being provided privately. Therefore, it cannot be said (unlike the claims of some international organizations) that all the decline is indicative of a public investment gap.

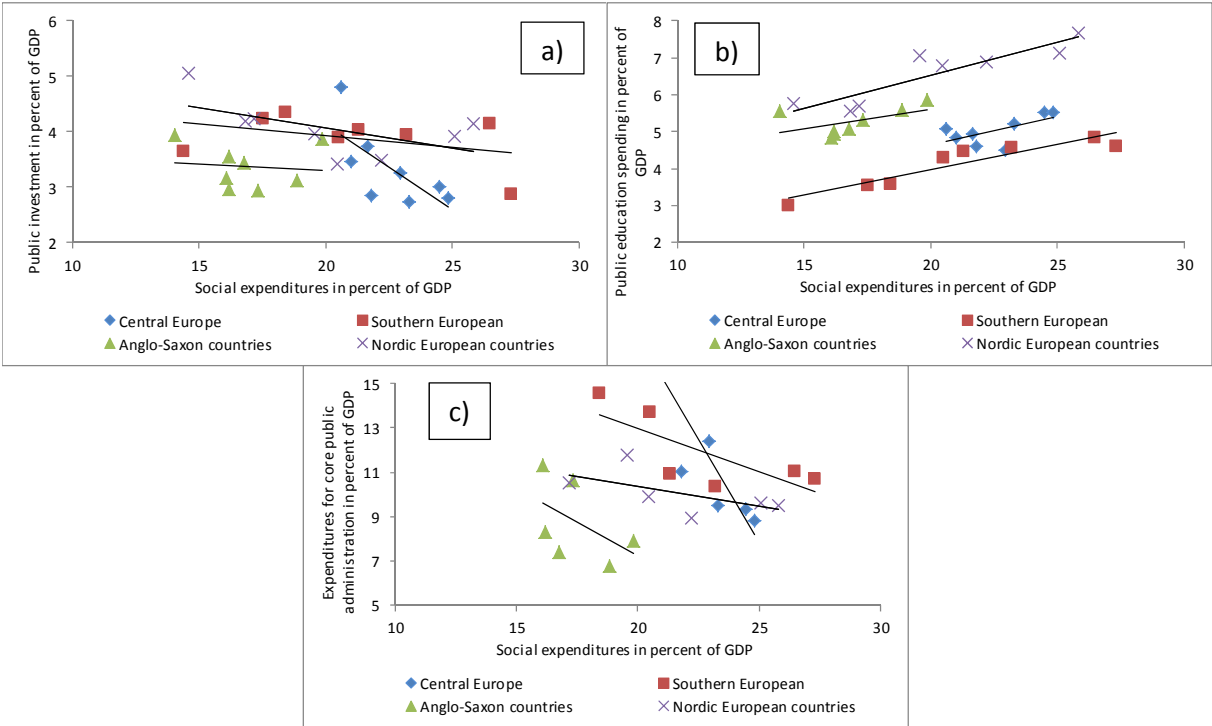
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<sup>7</sup> For example, education achievements are hardly correlated with public spending across advanced countries as the efficiency of education expenditure differs significantly across countries. Therefore, enhancing efficiency may be the better strategy than more spending in many cases (Afonso, Schuknecht, Tanzi, 2005). However, this may not always be the case as public investment spending may be on white elephants, education spending does not guarantee good education and the core administration may reflect a bloated bureaucracy. Therefore, the interpretation of the findings needs to be very cautious.



The biggest decline happened in the category core administration expenditure (Figure 8, panel c). This includes general public affairs, public order and recreation and culture. Unfortunately, data is only available since about 1990. Nevertheless, it is remarkable, that such spending went down on average by about 3 ½ % of GDP. All country groups show a negative correlation between social and core administration expenditure.

**Figure 8: Relation between social spending and other government expenditures, 1980-2015**



Correlation of social expenditure and respective expenditures (since 1980, every five years, if available.)  
Sources: OECD (1985), var. OECD, Tanzi and Schuknecht (2000), Wordlbank, SIPRI.

It is also worth discussing education spending. Panel b) of Figure 8 shows that education spending has on average gone up in recent decades even though only slightly and much more slowly than social spending (on average from 4.8 % of GDP in 1980 to 5.4 % in 2015). Moreover, the increase was not evenly balanced across countries and country groups. The level of spending at 8 % of GDP is now highest in the Nordic countries. Southern European countries have experienced some catching up but remain below average. Anglo Saxon countries’ education spending ratio has increased least since 1980. This illustrates that crowding out defined as a decline in the ratio is not shown in the historical

data. Nevertheless, we do not know whether the very modest increase is in line with the requirements of economies in a globalized world where advanced economies require higher spending to finance higher skill levels and where secondary and tertiary school attendance has increased significantly over the past generation. In that case, we could call this relative crowding out. It could be defined as “underfunding” due to “competition” from social expenditure.

To test whether there is evidence of crowding out of more productive public expenditures by social expenditures we estimate how the change in social expenditure ratios affects other primary expenditures. We look at the public investment (INV), core public administration (CORE) and education (EDU).<sup>8</sup> We tested for up to four lags of social expenditures, as rising social expenditures might crowd out other expenditure gradually and with a significant time lag. In addition, public expenditure, notably on civil servants (CORE, EDU), have a certain inertia and might not immediately be scaled back or increased. In the case of a significant negative coefficient for the social expenditure variable, we have to assume crowding out. In addition, we control for deficits and debt, and tertiary school enrolment in the case of education spending (TERT).

**Table 5: Crowding out effects of social expenditure, (1980-2016).**

#	9	10	11	12	13	14
dependent variable	INV (difference)	INV (difference)	CORE (difference)	CORE (difference)	EDU (difference)	EDU (difference)
constant	-0.004	0.111 ***	-0.182 ***	0.210 **	0.034 **	0.043
(ΔGDP-trend)	0.003	0.004	-0.103 ***	-0.100 ***	-0.054 ***	-0.054 ***
SOEXP (t-1) (diff.)	-0.005	0.011	0.011	0.003	0.022	0.030 *
SOEXP (t-2) (diff.)	-0.071 ***	-0.040 **	0.039	0.050	-0.017	-0.012
SOEXP (t-3) (diff.)	-0.030 *	-0.009	0.020	0.031	-0.011	-0.002
SOEXP (t-4) (diff.)	-0.029 *	-0.003	0.018	0.040	-0.021	-0.007
NETLEND (t-1)		0.026 ***		0.008		0.006
DEBT (t-1)		-0.001		-0.005 ***		0.000
TERT (dlog)						0.650 **
adjusted R2	0.03	0.10	0.17	0.19	0.08	0.12
observations	641	638	425	425	469	435
estimator	OLS-fe	OLS-fe	OLS-fe	OLS-fe	OLS-fe	OLS-fe

\*, \*\*, \*\*\* indicate statistical significance levels of 10, 5 and 1%

<sup>8</sup> Core public administration without spending on economic affairs (mainly subsidies), see data Annex.

Results in Table 5 show indeed evidence that rising social expenditures might on average have crowded out public investments expenditures – accelerating social expenditure growth is followed by reduced public investment expenditure growth. In particular, the coefficient for two-years lagged social expenditure ratios remains robustly significant for all specifications. We also find a significant short term effect from the fiscal balance on public investment with higher deficits followed by a scaling back of investment (equation 10). This confirms the claim that investment are crowded out not only by social expenditure but also indirectly by higher deficits.

The results for core public administration spending (equations 11 and 12) show no relation to more dynamic social spending. And there is no relation between such spending and the deficit. By contrast, a higher debt ratio is linked to lower core administration spending. Finally, the social expenditure ratio and the education expenditure ratio (equations 13 and 14) are not significantly correlated. By contrast there is again an indirect effect via the significant relation between a higher deficit and lower education spending ratios.

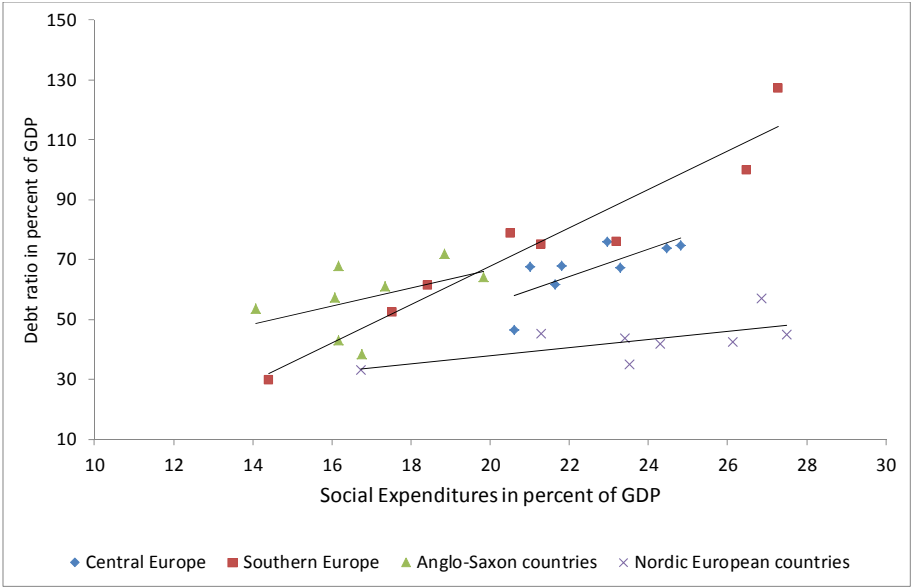
#### **4. The Risk of Social Dominance**

##### **a) Social spending sustainability**

We established above, that social expenditure have been following an upward trend over recent decades. This has coincided with a crowding out of other primary expenditures. Looking more deeply into the question whether this pattern is sustainable, we take three approaches. We firstly look in a descriptive analysis at the link between social spending and debt and deficits. Secondly, we extrapolate the findings on past social spending's trends into the future. Thirdly, we analyze social expenditure growth, fiscal sustainability and crowding out combined in a standard error-correction model.

Unsurprisingly and as already mentioned above, the rise in social expenditure is strongly correlated with rising public debt ratios in all country groups (Figure 9). Southern European countries have been displaying the strongest dynamics on both. They now feature both the highest debt and the highest social expenditure ratios (with the exception of Japan). Anglo Saxon countries accumulated significant debt even though their social spending ratios increased much less strongly. The Nordic countries feature very high social spending ratios but with much less debt and less adverse debt dynamics. Central Europe is relatively moderate on both the level of social expenditure and debt.

**Figure 9: Government debt and social expenditures in percent of GDP (1980-2015).**

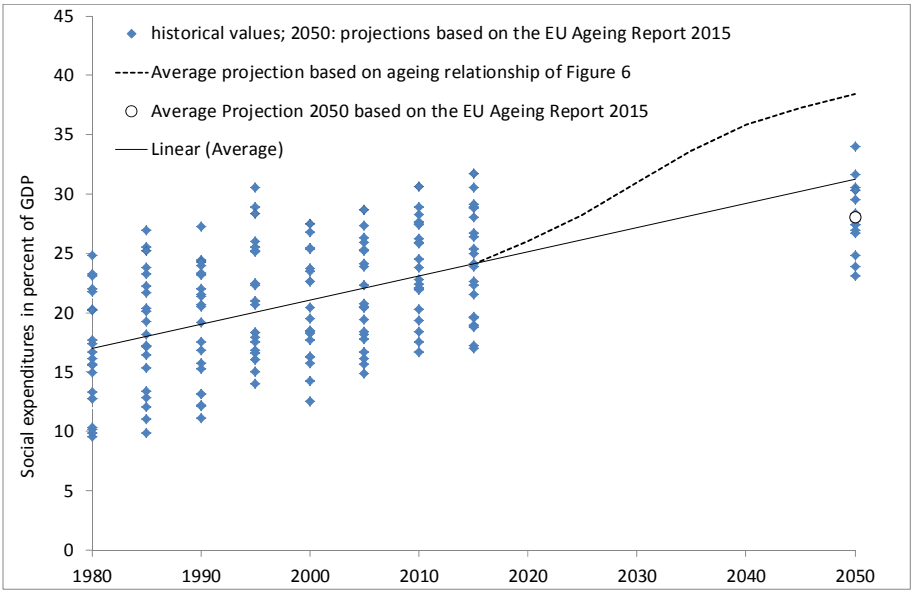


Sources: var. OECD, Tanzi and Schuknecht (2000), IMF.

Population ageing is a major driver of social expenditures and fiscal sustainability, as argued above. Today, old-age dependency ratios range from near 20 to little over 40 % (Japan!) in the sample countries. But this figure is expected to rise to above 50 % in many countries in the next 20 years. When looking at the future dynamics of social expenditure, we apply three approaches the results of which can be seen in Figure 10. For the period 1980-2015, the figure represents actual 5-year data for our sample countries, a linear and fitted trend line. This illustrates past trends. First, we extrapolate the simple trend. This yields an average spending ratio of over 30 % of GDP by 2050

(compared to about 24 % today. Second we extrapolate today’s average with the estimated effect of population ageing. Recall that the long-term coefficient in Figure 6 was about 0.65. Given that the strongest increase in the old-age dependency ratio is still ahead of us, this method yields the strongest increase to an average of almost 40 % of GDP for the sample countries. Third, we assumed that social expenditure would remain constant except for the increase estimated in the European surveillance process of ageing costs. This is the most optimistic scenario. Still average social spending would increase strongly to an average of about 28 % of GDP. All three methods suggest significant ageing related challenges ahead. For many countries, social spending and fiscal sustainability are very much at risk if such patterns materialize.

**Figure 10: Social expenditure in the future**



Note: Projections based on the EU Ageing Report 2015 include 15 European countries of our data set. To forecast social expenditures in 2050 projected changes of expenditures for pension, health expenditures and long-term care between 2013 and 2050 are added to social expenditure share in 2013.

**b) Social dominance risks in a comprehensive model**

Finally, we test sustainability and crowding out in an error-correction model (Afonso 2005, Koester and Priesmeier 2013, Burret et al. 2015). It allows to test and to account for long-term relationships between social expenditures and other variables as well as possible short-term correcting dynamics.

Following the error correction approach, cointegrated non-stationary variables can constitute a long-term relation. Thereby, we estimate the long-term equation in log-levels. The deviations from this long-term relation (residuals of the long-term equation) become a further explaining variable in our short-term equation. We use four long-term relationships: social expenditures with GDP (equation 15), government revenues (17) and old-age-dependency ratio (18) as well as total government expenditures (totexp) and government revenues (16).

Table 6 shows the estimation results, with the long-term equations in the upper part and the respective short-term equations in the lower part. All four long-term relations are cointegrated based on standard test procedures and coefficients become significant. Regarding the short-term equations, coefficients remain quite similar compared to the baseline estimation (equation 3). Moreover, all error terms but for equation 18 are significant and negative which indicates an error correction behavior.

The results confirm our earlier findings as regards short term relationships. As regards long term relationships, the elasticity of social expenditures with respect to GDP is higher than one and higher than the coefficient for total expenditures (15 and 16). One percent increase of GDP is related to an increase of social expenditures on average by about 1.2 %. A similar result appears for government revenues – one percent more revenues are associated – in the long run – with 1.1 percent higher social expenditures (17). These results are in line with the observation of rising social expenditure ratios over time with prospect of non-sustainability should such patterns continue.

Furthermore, the relative size of coefficients indirectly supports our hypothesis that social expenditures crowd out other government expenditures. As the elasticity of social expenditures regarding GDP is larger than for total expenditures (equation 15 vs. 16), social expenditures will slightly stronger increase than total expenditures as response to each one percent more of GDP. The share of social expenditure in total expenditures increases. Finally and unsurprisingly, social expenditure are correlated with population-ageing (equation 18).

The insignificant coefficient for the long-term residual relating to the old-age dependency ratio suggests that there is no correcting behavior in social expenditure. These findings in combination with accelerating population-ageing in the future, plus high government debt levels, point to fiscal sustainability risks on average and for many countries.

**Table 6: Social expenditures in an error-correction model, (1980-2016).**

<b>Long-term relationship</b>					
#	15	16	17	18	
dependent variable	SOEXP (log of level)	TOTEXP (log of level)	SOEXP (log of level)	SOEXP (log of level)	
constant	-3.795 ***	-1.133 ***	-1.967 ***	0.908 ***	
GDP (log of level)	1.163 ***	1.024 ***			
REV (log of level)			1.100 ***		
OADR (log)				3.521 ***	
adjusted R2	0.99	0.99	0.99	0.93	
observations	761	714	727	761	
estimator	OLS-fe	OLS-fe	OLS-fe	OLS-fe	
coint. relationship	yes	yes/weak	yes	yes	
<b>short-term relationship</b>					
dependent variable	SOEXP (difference)	TOTEXP (difference)	SOEXP (difference)	SOEXP (difference)	
constant	0.161 ***	-0.052	0.175 ***	0.179 ***	
(ΔGDP-trend)	-0.247 ***	-0.513 ***	-0.261 ***	-0.256 ***	
StrUNEMPL (t-1) (diff.)	0.369 ***	0.954 ***	0.329 ***	0.195 ***	
Long-term relationship (residuals t-1)	-1.437 ***	-8.224 ***	-1.538 ***	-0.016	
adjusted R2	0.41	0.31	0.45	0.38	
observations	717	669	688	714	
estimator	OLS-fe	OLS-fe	OLS-fe	OLS-fe	

\*, \*\*, \*\*\* indicate statistical significance levels of 10, 5 and 1%

## 5. Conclusion

In this study we analyzed the risk of “social dominance” where social expenditure dominate fiscal policy, as rising social expenditure crowd out more productive spending, undermine the growth potential and endanger fiscal sustainability.

We find evidence in favour of this claim. In particular, aging-related expenditure which already account for about 2/3 of social expenditures seem to drive social expenditure ratios up. Moreover,

there are indications of social spending crowding out of other primary expenditures, in particular public investment. We also find a strong automatic stabilizer effect from the inertia of social spending over the cycle. Our analysis of past expenditure trends also points to significant sustainability risks. Social dominance may then turn into fiscal dominance. In fact, if past trends are of any guidance in an environment of accelerating population aging, social expenditure ratios might well average one third of GDP and reach 35-40% of GDP in some countries by 2050.

As regards policy implications, there are three angles from which the risk of social dominance could be addressed. First, fiscal rules and constraints as regards deficit and debt could harden the overall budget constraint and, thereby, enhance fiscal sustainability and contain social expenditure dynamics (Holm-Hadulla et al. 2012).

Second, ring fencing measures as regards productive spending could contain crowding out.

Privatising investment spending and financing (such as one roads, telecom, energy) could help prevent underfinancing of basic infrastructure. Ear marking of particular revenue could help ensure adequate financing in productive areas. Ear marking social contributions as exclusive form of financing for social expenditure could protect other forms of spending from crowding out.

Third, measures to contain social spending need to take account of the fact that population aging itself can hardly be stopped. Nevertheless, a number of measures can help reduce the risk of social dominance, although most of them are associated with high political costs. Improvements in labour markets and qualified immigration can mitigate pressures via a broader social contribution base. Balanced social expenditure budgets with automatic rate adjustments could help contain social spending and deficits even though it may undermine the stabilizing role of such spending over the cycle. Increases in retirement age, co-payments, and many other forms of measures have been identified as helping to contain social expenditure increases, thus preventing crowding out of other priority spending and safeguarding fiscal sustainability.



## **Bibliography:**

Afonso, A. (2005), Fiscal Sustainability: The Unpleasant European Case, *FinanzArchiv/Public Finance Analysis* 61, 19–44.

Afonso, A., Schuknecht, L. and V. J. Tanzi (2005), Public sector efficiency: An international comparison, *Public Choice* 123 (3-4) 321-347.

Buchanan, J.M. and G. Tullock (1962), *The Calculus of Consent*, Ann Arbor Paperbacks.

Budge, I., Keman, H. and J. Woldendorp (1993), Political data 1945-1990. Party government in 20 democracies, *European Journal of Political Research* 24 (1), 1-119.

Burret, H., Feld, L. and E. Köhler (2015), Fiscal Sustainability of the German Laender: Time Series Evidence, *Freiburger Diskussionspapiere zur Ordnungsökonomik* No. 15/11.

Darby, J. and J. Melitz (2007), Labour Market Adjustment, Social Spending and the Automatic Stabilizers in the OECD, *CEPR Discussion Paper* 6230.

Dolls, M., Fuest, C. and A. Peichl (2012), Automatic stabilizers and economic crisis: US vs. Europe, *Journal of Public Economics* 96, 279-294.

European Commission (2015), *The 2015 Ageing Report: Economic and budgetary projections for the 28 EU Member States (2013-2060)*, European Commission, Brussels.

Herwartz, H. and B. Theilen, (2017), Ideology and redistribution through public spending, *European Journal of Political Economy* 46, 74-90.

Holm-Hadulla, F., Hauptmeier, S. and P. Rother (2012), The impact of expenditure rules on budgetary discipline over the cycle, *Applied Economics* 44/25.

Kittel, B. and H. Obinger (2003), Political parties, institutions, and the dynamics of social expenditure in times of austerity, *Journal of European Public Policy* 10 (1), 20-45.

Koester, G. B. and Ch. Priesmeier (2013), Does Wagner's Law Ruin the Sustainability of German Public Finances?, *FinanzArchiv/Public Finance Analysis* 69 (2), 256-288.

Kwon, H. Y. and J. Pontusson (2010), Globalization, labour power and partisan politics revisited, *Socio-Economic Review* 8, 251–281.

Legrenzi, G and C. Milas (2002), The Role of Omitted Variabels in Identifying a Long-Run Relationship for the Italian Government Growth, *International Tax and Public Finance* 9, 435-450.

OECD (1985), Social Expenditures 1960-1990: Problems of Growth and Control, *OECD Social Policy Studies*, Paris.

OECD (var. years), Social Expenditures Database.

Potrafke, Niklas (2009), Did Globalization restrict partisan politics? Empirical evaluation of social expenditures in a panel of OECD countries, *Public Choice* 140, 105-124.

Rodrik, Dani (1996), Understanding Economic Policy Reform, *Journal of Economic Literature* 34, 9-41.

Tanzi, V. and L. Schuknecht (2000), *Public spending in the 20th century: A global perspective*, Cambridge University Press, Cambridge.

Wagner, A. (1883), *Finanzwissenschaft*, Third edition, Winter, Leipzig. Partially translated in: Musgrave, R. and A. Peacock (Eds.), *Classics in the Theory of Public Finance*, Palgrave Macmillan (1958), Series: International Economic Association.

## Annex:

### Variables and data sources

Name	Unit	Sources	Range
Government expenditure	% des BIP	Tanzi/Schuknecht, var. OECD, IMF-WEO, EU-COM	1960-2016
Social expenditures	% des BIP	var. OECD	1960-2016
Pension expenditures	% des BIP	var. OECD, own estimations	1960-2013
Old Age expenditures	% des BIP	var. OECD	1980-2013
Expenditures for survivors	% des BIP	var. OECD	1980-2013
Health expenditures	% des BIP	var. OECD	1960-2015
Incapacity expenditures	% des BIP	var. OECD	1980-2013
Education expenditures	% des BIP	Unesco Database, var. OECD, WDI (2004), own estimations	1960-2015
Unemployment expenditures	% des BIP	var. OECD, Tanzi/Schuknecht, own estimations	1960-2013
Expenditures for active labour market policy	% des BIP	var. OECD	1980-2013
COFOG Core public administration	% des BIP	var. OECD	1990-2015
COFOG Core public administration (without exp. for economic affairs)	% des BIP	var. OECD	1990-2016
Primary expenditures	% des BIP	EU-COM, OECD	1960-2016
Interest expenditures	% des BIP	EU-COM, OECD	1960-2016
Government total revenue	% des BIP	IMF-WEO, OECD	1960-2016
Net lending	% des BIP	IMF-WEO, EU-COM	1960-2016
Gross debt	% des BIP	IMF-WEO, EU-COM	1970-2016
Public investment (gross fixed capital formation)	% des BIP	OECD, EU-COM	1960-2016
<b>Macro variables</b>			
GDP, current prices	national currency	OECD	1970-2016
GDP per Capita	US\$, PPP	OECD	1960-2016
GDP per Capita growth	%		1961-2016
real GDP growth	%	var. IMF	1961-2016
Trend growth (HP100)	%		1961-2017
Unemployment Rate	%	OECD, EU-COM, nat. source	1960-2016
Structural Unemployment Rate (HP 100)	%		
<b>Population variables</b>			
Old-Age-Dependency Ratio (65+/15-64)	%	UN Statistics	1960-2050
Tertiary school enrolment	%	Worldbank	1970-2015
<b>Political variable</b>			
Government ideology	1-5	Potrafke (2009), updated	1950-2016