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Globalisation and the Future of the Welfare State

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Globalisation and the Future of the Welfare State*

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1. Introduction

The last fifty years have been characterised by increases in international integration and growing public sectors, with (particularly in industrial economies) expanding welfare states. According to current conventional wisdom, however, large-scale public provision of social insurance and progressive systems of redistributive taxation are incompatible with economic globalisation (Alesina and Perotti 1997; Mishra 1999).

A number of stylised facts, however, call for a more careful examination of the above analysis. First, although labour income taxes as a proportion of government revenue have grown faster than capital taxation, the average effective tax rate on capital has increased in many OECD countries (OECD 1998; Baldwin and Krugman 2004; Garrett and Mitchell 2001). Second, despite the rhetorical calls for change (not limited to centre-right governments) and the wide cross-country variations in spending levels, social expenditure in OECD countries, with the exception of Norway, has increased up to the mid-1990s and whilst some areas of social protection have modestly declined, others have enjoyed stability or even slow growth (European Commission 2002). Reforms have generally been limited to a restructuring of

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expenditure, and even when reductions in the *generosity* (i.e. levels of *entitlements*) of welfare states has occurred, the *size* of social expenditure has not fallen.

In addition to these stylised facts, recent empirical studies have found a positive relationship between openness and the size of the welfare state (e.g. Rodrik 1998) and between social security expenditure and competitiveness (e.g. De Grauwe and Polan 2003; Görg, Molana and Montagna 2009).[1] These results run counter to those obtained by Alesina and Perotti (1997). Still, the conventional wisdom seems to endure and dominate the main stream debates on the link between globalisation and the welfare state.

Against this backdrop, our paper reconsiders the link between welfare state provision, globalisation and competitiveness empirically. Our empirical analysis is motivated by recent theoretical work that looks at the effects of redistribution policies in open economies models that capture the interconnectedness of welfare states, production structures and international economic integration when goods and factor markets are imperfectly competitive and countries possess specific characteristics – e.g. demographic structure, institutional features of labour markets, and government's preference structure.[2]

Specifically, we appeal to the theoretical work by Molana and Montagna (2006) who focus on the role of increasing returns. They show that aggregate scale economies in production, due to vertical linkages[3], can interact in a complementary way with welfare state provision to raise the level of economic activity, and result in virtuous self-reinforcing processes of higher social protection, efficiency and welfare. Consistent with the empirical findings by De Grauwe and Polan (2003) their theoretical results suggest that international trade and capital mobility do not inevitably lead to a race to the bottom in social standards via a reduction in the revenue raising capacity of governments; instead, the *interaction* between increasing returns and policy works to raise efficiency, productivity and output, enabling governments to sustain higher optimal levels of welfare state provision. Although in a highly stylised fashion, their theoretical framework embeds the welfare state in the economic system in the sense that it interacts with economic processes to shape the impact of globalisation on the economy. Hence, contrary to the conventional view, the efficiency gains stemming from increasing international openness strengthen the positive feed-back effects between redistribution policies and the exploitation of aggregate scale economies. The empirical evidence we present in this paper provides some support for this theoretical argument.

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[1] Rodrik (1998) argues that increasing globalisation yields a more risky environment and the welfare state is needed to compensate for this (the so-called "compensation hypothesis"). De Grauwe and Polan (2003) find that social spending increases competitiveness and show that reverse causality (i.e. that higher competitiveness leads to larger welfare states) is weak. In addition, Görg, Molana and Montagna (2009) find that inward FDI flows in OECD countries are positively affected by countries' expenditure on social welfare (measured by the public social expenditure to GDP ratio).

[2] Andersen and Sørensen (2011) have a different theoretical set up but also come to the conclusion that the conventional wisdom does not hold.

[3] Inter-industry connections are an important source of external returns to scale in manufacturing – see Bartelsman et al. (1994) for evidence.

After briefly reviewing the conventional wisdom on the link between globalisation and welfare states, we chart the development of welfare state expenditure for OECD countries in Section 3. In Section 4, we use this theoretical framework as a motivation for an empirical analysis where we regress a measure of countries' competitiveness on the extent of social expenditure and a proxy for vertical linkages (to capture aggregate scale economies). We find some evidence in line with the theory, suggesting that there is indeed a positive interaction between vertical linkages and social expenditure in raising competitiveness. In Section 5 we then look at an important aspect of globalisation, namely the activities of multinational companies, and investigate whether social expenditure, which arguably contributes to a stable and more attractive social and economic environment for the operations of businesses, hinders or attracts inward investors. Section 6 summarises our results.

2. The conventional wisdom

According to current conventional wisdom that dominates the debate on globalisation and welfare states, large-scale public provision of social insurance and progressive systems of redistributive taxation are incompatible with economic globalisation. Firstly, it is argued that in an environment characterised by deep trade integration, welfare state policies and the taxation necessary to finance them (by rising domestic firms' costs) hinder international competitiveness (the 'distortionary argument' of Alesina and Perotti 1997). Secondly, the credible threat of exit of increasingly mobile factors of production and firms allegedly constrains national policy autonomy by reducing governments' control over both the *volume* (via an increase in the actual and potential mobility of the tax base) and the *structure* (via a need to shift the burden of taxation on to relatively less mobile factors) of the tax revenue (European Commission 1996; OECD 1998; Sinn 1997). By changing the economic environment in which governments operate and exposing all economies to new but *common* pressures, globalisation is purported as inevitably leading to a *downward* convergence to *similar* policy outcomes – a *race to the bottom* in the provision of redistributive and welfare state programmes (Mishra 1998, 1999). At its most extreme, this analysis foresees a race-to-the-bottom resulting in the de-facto disappearance of nation-states as independent sovereign entities (Ohmae 1990).

The persuasive power of the received wisdom endures the lack of compelling evidence (as argued in the introduction) that economic integration has contributed systematically to the retrenchment of public sectors. Consequently, the majority of contributions to the debate on the effects of economic globalisation do not question the fundamental premises of the conventional wisdom, namely that: (i) the direction of the causal effects runs from globalisation to the welfare state, with the former generating new pressures that challenge the sustainability of the latter; (ii) the nature of these pressures is common to all countries, i.e. the standard underlying assumption is that globalisation occurs everywhere in a similar fashion and with qualitatively similar consequences (see Hay 2000a, 2000b and Pierson

2001); and (iii) the welfare state is disjoint from national economic systems and, in a typical 'Polanyan' fashion (Polany 1944), income redistribution and social insurance programmes are treated as means of reducing the risk and inequalities generated by the working of markets.

These premises are embedded even in those arguments that put forward more complex accounts of the relationship between globalisation and the welfare state, the two foremost examples being: (a) the *'compensation hypothesis'* (Rodrik 1997, 1998), which explains the continued expansion of the welfare state as a response to the rising demands for social insurance resulting from exposure to the increasing external risk and economic dislocations caused by growing international openness; and (b) the *'varieties of capitalism'* argument (Esping-Andersen 1990) which stresses that the impact of globalisation on welfare states are mediated through national institutions and structures – such as the nature of the socio-political representation system (e.g. type of electoral representation), the nature of the welfare state (e.g. its degree of universalism) and the characteristics of the labour market (e.g. the degree of wage setting centralisation) – and thus point to the possible emergence of a small number of different *regime-specific* outcomes.

We reconsider this conventional wisdom in this paper, based on recent theoretical developments. The theoretical underpinnings of the conventional wisdom discussed in the previous paragraphs have arguably not been sufficiently analysed and are mainly consistent with first-best scenarios only. Furthermore, the theoretical literature on fiscal policy effectiveness in open economies with market imperfections has chiefly focused on the role of government consumption within a tax-and-spend framework (Andersen 2002) and, when analysing the effects of welfare states, pensions (Pemberton 1999; Casarico 2001) and unemployment insurance (Geide-Stevenson 2003) have mostly been considered in isolation. The intuition of our theoretical framework is briefly summarised at the beginning of Section 4 in order to motivate our empirical analysis.

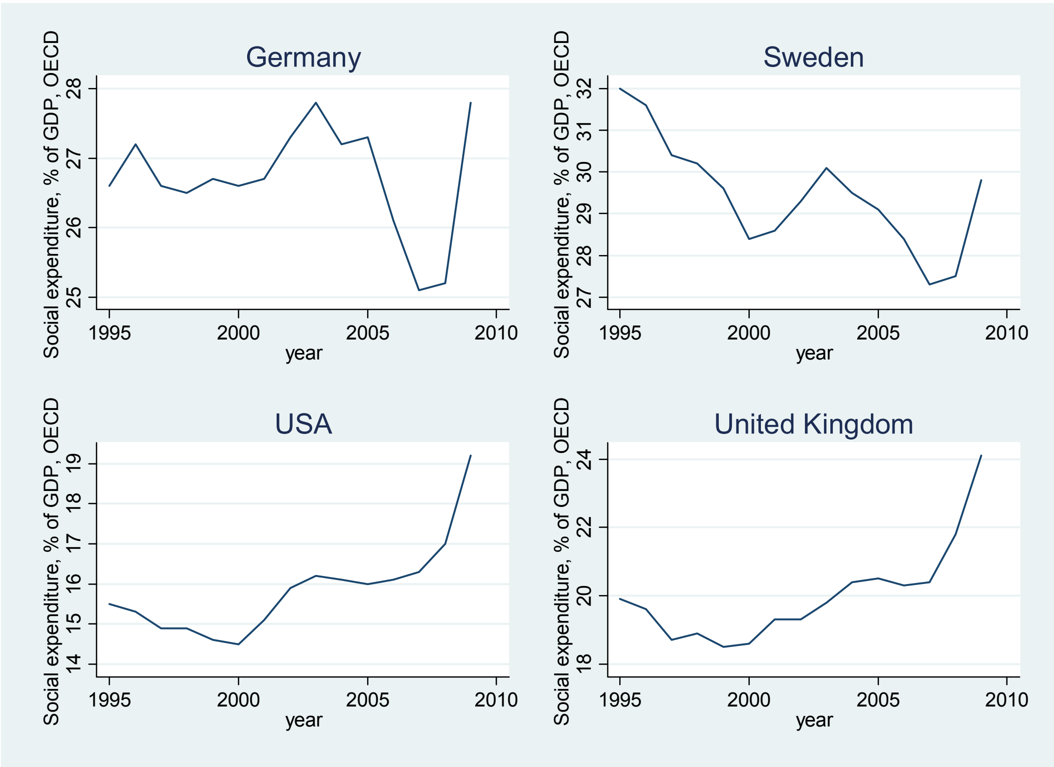
3. Development of Welfare State Provision

As pointed out above, the conventional wisdom generally holds that economic globalisation invariably leads to retrenchments of welfare state provision. In order to investigate the development of welfare state provision, we examine data that provide a measure of total public social expenditure by country as a percentage of GDP (as in Görg, Molana and Montagna 2009) for the period 1995 to 2009. This is available from the OECD Social Expenditure Database, which provides internationally comparable statistics on public and (mandatory and voluntary) private social expenditure. The social policy areas covered in the data relate to expenditure on old age, incapacity-related benefits, health, family, unemployment, active labour market programmes, housing, and other social policy.[4]

[4] Further information is available at http://www.oecd.org/els/soc/socialexpendituredatabasesocx.htm.

Figure 1 shows the development of welfare state provision for four countries, Germany, Sweden, UK and USA. We focus on these four countries here as they represent countries with different WS systems. Institutional characteristics of the welfare system starkly differ within Europe (and compared to the US). Although somewhat simplifying, it is useful to subscribe to the practice that identifies three types of social models within the European Union: the Anglo-Saxon (UK, USA), the Central European (Germany) and the Scandinavian (Sweden). These substantially differ in terms of institutions and legislation, particularly with respect to employment protection, unemployment benefits, minimum wages or the role of unions (see Esping-Andersen 1990; Amable 2003; Geishecker, Görg and Munch 2010).

Figure 1:
Welfare State Expenditure in four countries



Even when disregarding the years 2008 and 2009, which lead to increases in welfare expenditure in all four countries due to the financial crisis, the data show an upward trend in welfare state expenditure relative to GDP in both the UK and the US – the two countries with supposedly the most flexible and leanest welfare state systems. Germany also experienced a slightly upward trend up to 2006, but a slight drop in expenditure (from 27 to 25 percent) in 2007. However, expenditure is still at a comparatively high level, certainly compared to the UK and US. Sweden shows a decline in total expenditure (from 32 percent in 1995 to just over 27 percent in 2007), although it still represents the most generous welfare state provision compared to the other three countries.

Table 1 shows the same measure of welfare expenditure, but this time for all OECD countries for which we have data available. We show the level of expenditure in 1995 and contrast this with the level in 2007. Looking only at 2007, we find a wide variety of levels of welfare expenditure. As expected, the Scandinavian countries (Denmark, Sweden) have the highest levels of expenditure in 2007 while Mexico and Korea and, among Western industrialised countries, the US have the lowest levels. There is also a very mixed picture in terms of the development of expenditure over time, with countries like Finland or Sweden showing some evidence of reductions in total expenditures, while countries like Japan, Korea or Italy reporting strong increases. Hence, there is no compelling evidence in support of a "race-to-the-bottom" hypothesis in the empirical data.

Table 1:
Welfare State Expenditure as percentage of GDP in the OECD

COUNTRY	Expenditure 1995	Expenditure 2007
AUS	16.2	16.4
AUT	26.5	26.3
BEL	26.2	26.0
CAN	18.9	16.8
CZE	17.4	18.1
DNK	28.9	26.5
ESP	21.4	21.3
FIN	30.7	24.7
FRA	29.3	29.7
GBR	19.9	20.4
GER	26.6	25.1
GRC	17.5	21.6
IRL	18.1	16.7
ITA	19.8	24.7
JPN	14.1	18.7
KOR	3.2	7.6
LUX	20.8	20.3
MEX	4.3	6.9
NLD	23.8	21.1
POL	22.6	19.7
PRT	16.5	22.7
SVK	18.8	15.7
SWE	32.0	27.3
TUR	5.6	10.5
USA	15.5	16.3

Source: **OECD Social Expenditure Database.**

4. Reconsidering the link between Welfare State and Competitiveness

In this section we use the data on welfare state expenditure to reconsider the empirical link between welfare states and country competitiveness. The latter is an important indicator of a country's ability to perform and prosper in a globalised world. Our empirical analysis appeals to the theoretical ideas developed in Molana and Montagna (2006) who show that complementarities arising from the interaction between aggregate scale economies (vertical linkages) in production and welfare state expenditure can raise the aggregate level of economic activity. A premise of their analysis is the stylised fact that productivity growth goes hand in hand with the increase in the depth of the division of labour within the economy (as documented by a large growth literature (see, e.g., Ciccone and Matsuyama 1996). As economies industrialise, production activities become more specialised: the degree of fragmentation (or 'indirectness') of production processes increases and results in increasing interconnectedness between sectors in the economy. As shown by seminal work in growth, trade and economic geography (e.g. Matsuyama 1991; Ethier 1982; Krugman and Venables 1995), the existence of inter-industry connections are an important source of external returns to scale in manufacturing – a channel that is particularly important in advanced industrial economies as the degree of specialisation increases with industrialisation: as economies grow, the extent of specialisation increases, leading to higher aggregate and firm-level productivity.

Molana and Montagna (2006) show that the expansionary effect of welfare state policy (by increasing aggregate demand) in the presence of external economies can trigger a virtuous circle of higher demand, greater specialisation, and higher productivity. Furthermore, the interaction between aggregate increasing returns and the expansionary effects of welfare expenditure in their model, contributes to a reallocation of resources towards high-tech sectors (that rely more heavily on highly specialised intermediate inputs), resulting in virtuous cycles of higher social protection, aggregate productivity and welfare. Hence, welfare state expenditure can raise country competitiveness, in particular when vertical linkages and aggregate scale economies are important. This theoretical prediction has, to the best of our knowledge, not been put to the data yet.

In order to provide some first evidence related to these theoretical ideas, we conduct a simple empirical exercise. We regress country competitiveness, measured in terms of a country's aggregate TFP growth, on a measure of welfare state spending, and a variable that interacts welfare spending with a measure of vertical linkages. The interaction term implies that the effect of welfare state spending depends on the level of vertical linkages in the economy.

More specifically, the simple regression model is

$$\Delta TFP_{jt} = \beta_0 + \beta_1\, WELF_{jt} + \beta_2\, (WELF_{jt} * AGG_{jt}) + \beta_3\, AGG_{jt} + \beta_4\, d_j + \beta_5\, d_t + \varepsilon_{jt}$$

where $WELF_{jt}$ is a measure of welfare state expenditure in country j at time t, AGG_{jt} is a proxy for aggregate scale economies or vertical linkages respectively; d_j and d_t are country and time fixed effects, respectively; and ε_{jt} is the remaining error term, assumed to be white noise.

In this empirical model, the country dummies control for any country-specific unobserved time invariant effects that may drive productivity growth, such as endowments, location, etc. Our identifying assumption is that, controlling for such country specific effects, the coefficients β_1 and β_2 measure the strength of the correlation between welfare state expenditure and competitiveness in terms of TFP growth. The strength of the correlation may depend on the level of aggregate scale economies or vertical linkages, as suggested in the theory.[5]

TFP growth is measured using the Total Economy Database provided by *The Conference Board*, a think tank based in the US. The database provides comprehensive annual data for around 120 countries in the world. It was initially developed by the Groningen Growth and Development Centre and, since the late 2000s, is regularly updated by The Conference Board.[6]

We use two alternative measures of welfare spending. The first measure is the one used on Section 2, i.e., total public social expenditure as a percentage of GDP, obtained from the OECD. The second measure is government consumption as a percentage of GDP, obtained from the Penn World Tables. While the latter measure does, of course, go well beyond what is generally considered expenditure for the welfare state, we use this as a robustness check to see whether our results are sensitive to the definition of welfare spending.

To measure aggregate scale economies or vertical linkages, we employ three alternative proxies which cover different aspects of the mechanism envisaged in the theory. The first proxy is based on the recent measure of countries' "upstreamness" of production in global production chains developed by Antras et al. (2012). We calculate the variable implementing the Antras et al. approach using data from the WIOD database. The indicator is calculated in such a way that higher values indicate a higher level of upstreamness of an industry's or country's output. In other words, the higher the index, the more used is the output of an industry/country in other industries and/or countries. We postulate that a higher level of upstreamness of a country indicates higher levels of aggregate scale economy.

A second proxy is the ratio of total inputs to total production, which measures the importance of backward linkages for the economy. This variable is constructed using detailed information on input relationships from the World Input-Output database (available at http://www.wiod.org/). As provided in the WIOD data, we calculate input intensities at the level of the industry and then aggregate them to the country level, using industry output as a weight. We assume that a higher value of input intensity, i.e., a higher level of vertical linkages, is an indicator of higher aggregate scale economies.

The third concept we employ to measure such aggregate scale economies is based on the conjecture that differences in the firm-size distribution across countries may indicate different levels of aggregate scale economies. Empirical evidence suggests that the size and/or productivity distribution of firms in an industry follows a Pareto distribution (see, e.g., Del Gatto et al. 2007). Higher values of the shape parameter of the distribution (which, given

[5] We assume here that causality runs from welfare expenditure to competitiveness, as suggested in the theoretical model by Molana and Montagna (2006) and the empirical analysis by Alesina and Perotti (1997). It could be argued that reverse causality may also be possible, with competitiveness affecting welfare expenditure. With the data at hand we cannot satisfactorily look into this issue but note that it should be kept in mind in the interpretation of results.

[6] Further information on the database is available at http://www.conference-board.org/data/economydatabase/.

the properties of the Pareto, defines the key moment of the distribution) reflects a lower degree of heterogeneity among firms (i.e. a lower variance) and a lower average size. We argue that a less heterogeneous firm-size distribution may reflect weaker potential scale economies. This is because, to the extent that the size (and productivity) of firms is positively affected by the existence of aggregate scale economies, then a distribution of firms that is less skewed towards low size firms (i.e. one that is characterised by a smaller shape parameter) may reflect higher aggregate increasing returns. To capture this idea, we construct a measure of the shape of the firm-size distribution for a number of countries following the methodology employed by Kopasker et al. (2013). Thus, given our conjecture, the higher this index, the lower are aggregate scale economies.

Our data period ranges from 1995 to 2007. We do not consider 2008 and 2009 as these years are strongly affected by the financial crisis. The countries covered in the data are the ones listed in Table 1 above. Based on these data, we start off with a simple estimation regressing country competitiveness on the two alternative measures of social expenditure without including the interaction terms. Hence, we do not allow the effect of welfare spending on competitiveness to depend on the level of vertical linkages. As shown in Table 2, we do not find any statistically significant relationship between competitiveness and the proxies for the welfare state. Hence, there is no evidence from this very simple regression that welfare state expenditure adversely affects countries' competitiveness, as postulated by Alesina and Perotti (1997).

Table 2:
Simple Regression Results

	TFP growth	TFP growth
Social Expenditure	-0.048 (0.055)	
Government Consumption		0.127 (0.233)
Observations	351	351
R-squared	0.10	0.10

Notes: Regression includes constant term, country and time fixed effects. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

We then move on and include in our estimating equation a measure of aggregate scale economies, and the interaction of this variable with welfare state expenditure. The first measure we consider is the indicator of upstreamness. A higher level of this indicator suggests that a country's production structure is characterised by stronger vertical linkages (both within the country and with other countries). We find in Table 3 that the interaction term is statistically significant. Since the marginal effect of welfare expenditure on competitiveness thus differs according to the level of upstreamness we calculate the values of the marginal effect for different percentiles of the upstreamness variable in Table 4.

These results suggest that the marginal effect turns from strongly negative to positive the higher the level of upstreamness. Hence, the stronger the vertical linkages, the more positive the link between welfare state and competitiveness. Also, for a hypothetical country that does not exhibit vertical linkages (i.e., upstreamness = 0) the level of welfare state expenditure is

Table 3:
Regression Results – Upstreamness

	TFP growth	TFP growth
Social Expenditure	-1.044 (0.460)**	
Social Expenditure * Upstreamness	0.511 (0.220)**	
Government Consumption		-2.246 (1.302)*
Government Consumption * Upstreamness		1.137 (0.555)**
Upstreamness	-11.504 (5.679)	-10.448 (4.850)**
Observations R-squared	342 0.11	342 0.11

Notes: Regression includes constant term, country and time fixed effects. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 4:
Marginal effects based on coefficient estimates reported in Table 3

Percentile of upstreamness	Marginal effect (standard error)	Marginal effect (standard error)
5	-0.198 (0.103)*	-0.364 (0.403)
25	-0.051 (0.053)	-0.035 (0.260)
50	-0.014 (0.046)	0.047 (0.228)
75	0.052 (0.046)	0.193 (0.180)
90	0.142 (0.069)**	0.395 (0.147)***

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

negatively related to competitiveness[7]. In fact, using the estimates in column (1) we find that the effect of social expenditure on TFP growth turns positive at a value of upstreamness of 2.04 (= 1.044 / 0.511), in column (2) this value is at 1.98. In our sample, the median value of upstreamness is 2.02, the 75th percentile is 2.15 and the maximum is 2.47. Hence, there is a large number of countries with levels of upstreamness above the turning point in our sample. For those the overall effect of social expenditure on competitiveness is positive.

In order to check how robust this result is to our measure of aggregate scale economies, in Table 5 we present regressions of the same model with an alternative measure of vertical linkages. We now use the simple measure of input intensity, i.e., the importance of inputs

[7] This result corresponds to (and is consistent with the results of) the theoretical case analysed by Alesina and Perotti (1997) which differs from Molana and Montagna (2006) by the absence of vertical linkages.

from other industries for production. We obtain a similar picture as before, though we now only find statistically significant results when measuring welfare expenditure in terms of total government consumption. For the measure of social expenditure, the coefficients exhibit the expected signs, but these are statistically insignificant at conventional levels.

Table 5:
Regression Results – Input Share

	TFP growth	TFP growth
Social Expenditure	-0.358 (0.561)	
Social Expenditure * Input Share	0.630 (1.082)	
Government Consumption		-2.536 (1.489)*
Government Consumption * Input Share		5.009 (2.566)*
Input Share	-2.655 (24.606)***	-15.787 (14.958)
Observations R-squared	351 0.10	351 0.12

Notes: Regression includes constant term, country and time fixed effects. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 6 presents results obtained by using the shape parameter of the firm size distribution as our indicator of aggregate scale economies, as obtained by Kopasker et al. (2013). As pointed out above, our conjecture is that the more skewed is the distribution towards smaller size firms, the lower are aggregate scale economies, i.e. in this case a lower value of the index indicates higher aggregate scale economies. Unfortunately, this measure is only available for a shorter time period (2003–2007) and for a smaller number of countries (Europe including Turkey, see appendix 1), resulting in a much smaller sample size than previously used.

Results are again in line with our theoretical priors. Welfare expenditure has a negative effect for countries with low levels of aggregate scale economies. However, the larger the level of economies of scale, the more positive is this effect.

To sum up, our results do not support the conventional wisdom that the size of the welfare state is negatively related to country competitiveness. Instead, in line with theoretical arguments put forward by Molana and Montagna (2006), we find some evidence that the level of welfare expenditure is positively associated with country competitiveness in countries where aggregate economies of scale (i.e., vertical linkages) are high.

Table 6: Regression Results – Shape Parameter		
	TFP growth	TFP growth
Social Expenditure	0.014 (0.315)	
Social Expenditure * Shape Parameter	-0.023 (0.005)***	
Government Consumption		0.153 (0.577)
Government Consumption * Shape Parameter		-0.056 (0.017)***
Shape Parameter	0.504 (0.086)***	0.564 (0.129)***
Observations	98	98
R-squared	0.19	0.19

Notes: Regression includes constant term, country and time fixed effects. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

5. Multinational companies and the Welfare State

In this section we turn to a country's ability to attract and retain foreign direct investment (FDI). This is not only an important aspect of globalisation, but also a good indicator of a country's international competitiveness. While the "conventional wisdom" would point towards a negative relationship between social expenditure and inward FDI, Görg, Molana and Montagna (2009) argue and provide evidence that this may not necessarily be the case. Their argument is that FDI flows, while relatively liquid ex ante, are characterised by significant immobility ex post, thus entailing a long-lasting ownership stake in a host country. Hence, in addition to other factors, firms' perceptions about the host country's economic and social environment are important to their choice of location. Their evidence, based on country level data on inward FDI flows for 18 OECD countries for the period 1984 to 1998, strongly supports their conjecture that social welfare expenditure are valued by multinationals.

This section provides some further evidence on this link, based on firm level data. In particular, we look at firms' decisions to relocate production from the home to the host country and investigate what role social expenditure in both the home and host country play for this decision.[8]

[8] Welfare spending in many countries (such as the UK), in particular in sectors such as health and security, is increasingly being allocated in the form of private sector contracts to service firms. This may raise the concern that foreign firms (say, a foreign hospital provider) move to a location not because of the volume of public spending that influences the economic environment, but because the spending is available for private sector contractors, i.e., it may benefit directly the foreign firm. As we only consider firms in manufacturing industries we do not consider this to be problematic for our analysis.

A “relocation” in our empirical analysis is defined as a firm reducing their operations at home by more than 10 per cent of their size (measured in number of employees) and at the same time opening up a new foreign affiliate or acquire an existing firm abroad; similar to Pennings and Sleuwaegen (2000) and Dewit, Görg and Temouri (2014). The establishment of the foreign affiliate is based on the date of incorporation of the foreign affiliate. A firm owns a foreign affiliate if it holds at least 10 percent of the voting stocks. Since a firm may have more than one foreign affiliate and therefore qualifies potentially in carrying out multiple relocations, we construct the dataset in bilateral form.

We estimate the propensity to relocate for firm *i*, $Pr(D)_{it}$, conditional on the levels of social expenditure in the home and the host country, and other control variables:

$$Pr(D)_{it} = \beta_1\, SOC_{st} + \beta_2\, SOC_{ht} + \beta_3\, X_{it} + \varepsilon_{it}$$

where SOC_{st} is the share of social expenditure in GDP (as in Sections 2 and 3) in firm *i*’s home country *s* at time *t* and SOC_{ht} is the equivalent in the host country. X_{it} is a vector of control variables at the country or firm level, listed in Appendix 2. The model also includes full sets of industry, year and country dummies.

The empirical model is estimated using firm level data on the relocation decisions of firms in manufacturing industries from 29 OECD home countries. The dataset is collected from ORBIS, which is a comprehensive and rich firm-level dataset provided by Bureau van Dijk.[9,10] Bureau van Dijk collects financial, economic and other firm-level information from various sources, including official bodies such as Companies House in the UK and similar commercial and official registries in other countries. Our sample includes an unbalanced panel of firms in 29 OECD countries for the period 1997–2007. We have information on the characteristics of the firms, such as location, output, employment, labour intensity, productivity, industry classification on an annual basis, and we can crucially observe whether they have reduced their operations at home and at the same time set up new affiliates abroad. We also observe to what country the multinational relocates its production.

Table 7 presents the regression results for the whole manufacturing sector. Column (1) and (2) are different in the firm specific characteristic that is controlled for – size in column (1), productivity in column (2). The results show no statistically significant impact of the welfare state, either in the home or host country. Hence, our analysis does not support the conventional wisdom that welfare state expenditure may deter multinational companies.

[9] Bureau van Dijk is a leading electronic publisher of annual account information on private and public firms around the world. For further details regarding the data, including access issues, see www. bvdep.com.

[10] ORBIS reports firm accounts in either consolidated or unconsolidated form. We include only unconsolidated accounts as they represent the domestic activities of firms and exclude any information from affiliates at home or abroad. In contrast, consolidated accounts aggregate the activities of all firms belonging to a group worldwide, regardless of location and industrial affiliation.

However, it also does not support the earlier result by Görg, Molana and Montagna (2009) that a well-functioning welfare state may actually attract inward FDI.

Table 7:
Relocation and social expenditure: Total manufacturing

VARIABLES	(1) Relocation_dummy	(2) Relocation_dummy
lag_Home_socx	-0.0164*	-0.0151
	(0.00959)	(0.00975)
lag_Host_socx	0.000109	0.000127
	(0.000295)	(0.000267)
lag_Size	-0.00186*	
	(0.000953)	
lag_TFP		-3.95e-06
		(1.31e-05)
lag_Home_EPL	-0.0209	-0.0202
	(0.0148)	(0.0133)
lag_Host_EPL	0.00149	0.00152
	(0.00159)	(0.00158)
lag_Intangible_to_total_assets	0.0393**	0.0328*
	(0.0170)	(0.0169)
lag_Avg_Wage	4.60e-06	1.29e-05
	(3.29e-06)	(8.47e-06)
lag_log_TAX	-0.0669	-0.0540
	(0.0692)	(0.0602)
Predicted probability		.0265673
Pseudo R2		0.0824
Log pseudolikelihood		-1631.4717
Observations	12,842	11,926

Notes: Coefficients are shown as marginal effects; all explanatory variables are lagged one period; all specifications include a full set of year, country and industry dummies; standard errors at the country-level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

In the results reported in Tables 8 and 9 we dig a little deeper into our data and distinguish manufacturing industries in high and low tech industries, based on an OECD classification. Interestingly, we find that firms in the two sectors behave quite differently with respect to how they respond to welfare expenditure. In the high tech sector (Table 7), the relocation decision of firms is positively associated with welfare expenditure in the host country, supporting the earlier evidence by Görg, Molana and Montagna (2009). The results also point to another interesting relationship, namely that high welfare expenditure in a home country is negatively associated with a firm's decision to leave that country. Hence, it seems that firms in the high-tech sector value the welfare state in both the home and the host country. The results are also economically important. The overall probability of a firm relocating is at 1.6 percent in the sample used in column (1). The coefficient on host country social expenditure indicates that this probability is raised to 1.65 (= 0.016 + 0.005) percent if social expenditure, evaluated at the mean, increases by 1 percentage point, all other things equal.

Table 8: Relocation and social expenditure: High tech manufacturing		
VARIABLES	(1) Relocation_dummy	(2) Relocation_dummy
lag_Home_socx	-0.0153**	-0.0194*
	(0.00702)	(0.0102)
lag_Host_socx	0.000581**	0.000795***
	(0.000228)	(0.000250)
lag_Size	0.000197	
	(0.00142)	
lag_TFP		-1.14e-05
		(2.76e-05)
lag_Home_EPL	0.000320	0.00113
	(0.0123)	(0.0158)
lag_Host_EPL	0.00147*	0.00216
	(0.000887)	(0.00145)
lag_Intangible_to_total_assets	0.0343	0.0487**
	(0.0234)	(0.0226)
lag_Avg_Wage	-0.000252***	-0.000349**
	(8.55e-05)	(0.000146)
lag_log_TAX	0.00568	0.00506
	(0.0672)	(0.0940)
Predicted probability	.0161824	.0224142
Pseudo R2	0.1380	0.1444
Log pseudolikelihood	-832.78164	-780.48124
Observations	6,087	5,783

Notes: Coefficients are shown as marginal effects; all explanatory variables are lagged one period; all specifications include a full set of year, country and industry dummies; standard errors at the country-level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Relocation and social expenditure: Low tech manufacturing		
VARIABLES	(1) Relocation_dummy	(2) Relocation_dummy
lag_Home_socx	-0.00477	-0.00375
	(0.00995)	(0.0107)
lag_Host_socx	-0.000547	-0.000643
	(0.000549)	(0.000588)
lag_Size	-0.00422***	
	(0.00108)	
lag_TFP		-7.43e-06
		(2.46e-05)
lag_Home_EPL	-0.0407***	-0.0406***
	(0.0149)	(0.0123)
lag_Host_EPL	0.00154	0.00203
	(0.00194)	(0.00198)
lag_Intangible_to_total_assets	-0.00810	-0.0350
	(0.0241)	(0.0302)
lag_Avg_Wage	1.01e-05***	1.99e-05
	(2.13e-06)	(1.91e-05)
lag_log_TAX	-0.0278	-0.0293
	(0.0768)	(0.0617)
Predicted probability	.0259187	.0248768
Pseudo R2	0.0790	0.0802
Log pseudolikelihood	-908.19063	-792.09166
Observations	6,641	6,035

Notes: Coefficients are shown as marginal effects; all explanatory variables are lagged one period; all specifications include a full set of year, country and industry dummies; standard errors at the country-level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

We do not find this result in the low tech sector, however. Here, welfare expenditure in either the home or the home country is not statistically significantly associated with the relocation decision of firms. This may be because production in these sectors is generally quite labour intensive and, hence, labour costs may matter more for location and relocation decisions than the social and economic environment that may be influenced by welfare expenditure. Importantly, however, results for the low tech sector also fail to support the conventional wisdom that would postulate a statistically negative relationship between welfare expenditure in the host country and inward FDI.

6. Conclusion

Taken together, the analysis in this paper does not support the conventional wisdom that the welfare state hinders country competitiveness, or that social expenditure (financed through corporate taxation) deters inward foreign direct investment.

Instead, we find that welfare expenditure is positively associated with country competetiveness if vertical linkages (leading to aggregate scale economies) are high. In such a case, as argued theoretically by Molana and Montagna (2006), there may be a virtuous cycle of higher social protection, aggregate productivity and welfare.

Also, updating and extending Görg, Molana and Montagna (2009) with an analysis using firm level data on the relocation decisions of multinational firms, we find that social expenditure may be attractive to inward FDI and may also act to anchor firms in the home country.

Overall, the theoretical and empirical analysis in this paper suggests that the relationship between globalization, international competitiveness and the welfare state is far more complex than what is implied by the conventional wisdom. Further research is warranted to examine exactly the channels through which WS policies affect microeconomic adjustments to globalisation and, through these, countries' competitiveness and aggregate performance.

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Appendix 1: List of countries in the reduced sample in Section 3

country_long	Freq.	Percent	Cum.
Austria	5	5.10	5.10
Belgium	5	5.10	10.20
Czech Republic	5	5.10	15.31
Denmark	1	1.02	16.33
Estonia	5	5.10	21.43
Finland	5	5.10	26.53
France	5	5.10	31.63
Germany	5	5.10	36.73
Greece	5	5.10	41.84
Hungary	5	5.10	46.94
Ireland	4	4.08	51.02
Italy	5	5.10	56.12
Netherlands	5	5.10	61.22
Poland	5	5.10	66.33
Portugal	5	5.10	71.43
Slovak Republic	5	5.10	76.53
Slovenia	5	5.10	81.63
Spain	5	5.10	86.73
Sweden	5	5.10	91.84
Turkey	3	3.06	94.90
United Kingdom	5	5.10	100.00
Total	98	100.00	

Appendix 2: List of control variables in Section 4

Firm size measured using the natural logarithm of employees (Source: Orbis)

Employment protection index in the home and host country (Source: World Economic Forum)

Average Wage calculated as a firm's total wage bill divided by number of employees (Source: Orbis)

Total factor productivity estimated using the approach described in Levinsohn and Petrin (2003)

Ratio of intangible assets over total assets (Source: Orbis)

Rates of tax on income, profits and corporate gains in home country (Source: World Economic Forum)

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