GLOBALISATION AND THE COMPOSITION OF GOVERNMENT SPENDING: AN ANALYSIS FOR OECD COUNTRIES

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Globalisation and the Composition of Government Spending: An analysis for OECD countries.

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Abstract

The 'compensation' and 'efficiency' hypotheses propose that globalisation affects both the total, and composition of public expenditures in quite different ways. Under the former economic insecurity leads to an expansion of the public sector and social expenditures, whereas under the efficiency hypothesis demands for lower taxes encourage a smaller public sector with greater emphasis on 'privately productive' spending. We test these hypotheses for a sample of OECD countries from 1980-1997. Using both the inward stock of FDI and openness as measures of globalisation we find no effect on the size of government, but that FDI significantly affects the composition of spending strongly supporting the compensation hypothesis.

Key words: globalisation, compensation hypothesis, efficiency hypothesis, size of public sector, composition of government expenditure.
JEL classification: F41, H11, H55.

1. Introduction

The increased integration of the world economy over the last few decades has led to growing interest in its effects on different aspects of national economies. One aspect that has drawn particular attention is the effect on government spending and taxation decisions. The literature describes these effects under two competing hypothesis. The 'efficiency hypothesis' highlights the effects of globalization on the supply side of the political market: competition between countries to attract FDI leads to a reduction in taxation, particularly capital taxes, and the size of the public sector, and a restructuring in the composition of government expenditure towards privately productive public inputs. The 'compensation hypothesis' in contrast, highlights the effects of globalization on the demand side of the political market: voters pressurise governments to provide more social insurance to mitigate the exposure to greater levels of external risk induced by globalisation, thereby increasing social welfare expenditures.

Empirical evidence on whether the efficiency or compensation hypothesis dominates is inconclusive (Schulze and Ursprung, 1999). Evidence in favour of the compensation hypothesis is broadly balanced by a similar number of studies supporting the efficiency hypothesis. In part it is likely that the differences in empirical outcomes between studies reflect inconsistencies in the choice of empirical methodology and the sample of countries, as well as the choice of fiscal variables and the indicators of globalisation. In this paper we take a number of steps to mitigate the effect of these choices on the results, to test robustness to alternatives, and to understand where sensitivities in the existing literature might be generated. In so doing we make some extensions to the methodology and data used to test the effects of globalisation on government expenditure.

The empirical methodology we adopt proceeds in two stages. First, we examine the effects of globalisation on the size of government before later considering the effect on the composition of those expenditures. For the size of government regressions we compare the results using three methods found in the current literature: OLS, two-way fixed effects and dynamic panel models. Our primary innovation comes from the methodology used to study the effects on expenditure composition. Here we employ a system of dynamic panel regressions with each fiscal category expressed relative to total government expenditure (rather than, say, GDP). This approach requires comprehensive coverage of expenditure data and, more importantly, recognition that the expenditure categories are interdependent through the government budget constraint. By expressing the fiscal categories relative to total expenditure we maximise the opportunity for finding significant compositional effects from

globalisation. This assumption is supported by the results from regressions explaining government size where no robust evidence of an effect from globalisation is found.

We also depart from existing studies with respect to the choice of measure of globalisation used. Within the existing literature globalisation has typically been captured by measures of openness to international trade, episodes of capital liberalisation, or FDI *flows*. Motivated by the evidence linking the presence of foreign multinationals with perceptions of economic insecurity (see Schmidt, 1999; Scheve and Slaughter, 2006) we use as our baseline measure the *stock* of inward FDI. Those authors have argued that in the US and UK greater FDI has been associated with increased job insecurity.

To the extent that these arguments apply more widely and impact on public expenditure choices, it might be expected that it is the stock rather than the flow of FDI that best captures this. Where inward flows of FDI are relatively large, for example, but existing stocks are low, this may have a limited impact on perceptions of insecurity. Conversely in a national economy where the capital stock is predominantly foreign-owned, but current foreign investment is low, insecurity may nevertheless be high. However, we test the robustness of our findings based on inward FDI stocks to a number of alternative globalisation measures, as well as considering whether the results are unique to foreign capital. Finally, to reduce the potential sensitivity to differences in the degree of fiscal decentralization and therefore the sample of countries, we also depart from much of the existing literature and use data on government spending at the consolidated *general* level.

Using data for 25 OECD countries over the period 1980-1997 we find evidence in favour of a slightly modified version of the compensation hypothesis. Firstly, we do not find robust evidence to support the compensation hypothesis claim of an effect of globalisation on *total* government expenditure.[1] This result is insensitive to the measure of globalisation adopted - the stock of inward FDI or openness to international trade. However, the econometric method used appears to be important. Our results show that allowing for country/time fixed effects and/or dynamics within panel regressions renders globalisation measures irrelevant in regressions seeking to explain government size.

Secondly, tests on the composition of government expenditure yield clearer outcomes. Here we find unambiguous support for the compensation hypothesis. Larger stocks of inward FDI have a positive

[1] Within the existing literature only Dreher (2006) has reached a similar conclusion.

effect on social welfare spending and a negative effect on spending more likely to be 'privately productive' (e.g. on education, health, transport and communication and housing). Increased welfare spending appears to be primarily financed by reduced productive expenditures, with the strongest (negative) effects observed for spending on transport and communication and housing.

The rest of the paper is organised as follows. In section 2 we review the predictions of the efficiency and compensation hypothesis and the empirical evidence. As this summary suggests, the existing literature yields inconclusive outcomes. In sections 3 and 4 we address the issues raised by this review by outlining the empirical methodology and introducing the data to be used. The empirical results are presented in two main parts. In the first part of Section 5 we present the effects of globalisation on the level of government expenditures; in the second we study whether FDI affects the composition of government expenditure. In section 6, we check the robustness of the results, considering other factors affecting government expenditure and other classifications of government spending. Finally, section 7 draws some conclusions.

2. Globalisation and Government Expenditure

At the simplest level the literature on the effects of globalisation of government expenditure can be separated into two competing hypothesis.[2] Under the efficiency hypothesis globalisation has two effects. First, as governments compete to attract mobile capital this drives spending towards privately productive public inputs such as education, training, R&D and infrastructures (Tanzi, 2000; Oates, 1995). Second, tax revenues (and therefore total expenditures) are reduced as the international mobility of capital and income taxpayers undercuts the fiscal autonomy of nation states (Tanzi, 2000).

Under the alternative, the compensation hypothesis, there is upward pressure on other elements of the government budget. Governments adopt social programs to compensate individuals for accepting high trade exposure (Ruggie, 1983). A number of different mechanisms have been proposed as likely to generate this effect. Rodrik (1998), for example, claims that countries that are more open to international trade are subject to larger and more frequent external shocks. Therefore, citizens demand their governments provide more social insurance to mitigate the exposure to this external risk. Garret (1998) expands this to include capital mobility, arguing that globalization increases social dislocations and economic insecurity and therefore individuals pressure governments to

[2] In this section we concentrate on the relationship between globalisation and government expenditure. There is a small literature that considers the tax effects of globalisation. See for example, Devereux and Griffith (1998), Figlio and Blonigen (2000) and Oates (1995).

shield them from market dislocations. Scheve and Slaughter (2006) take a different view. They find some evidence that more generous labour market policies are used to increase support for free trade.[3]

Recent empirical work has begun to bring the compensation and efficiency hypotheses together within the same model in order to test for the net effect of globalisation. In these models a desire to increase social welfare and productive expenditures is undermined by the potential loss of the tax base needed to finance them as other countries change their policies in competition to attract FDI. In Lejour (1995) individuals who expect to be net beneficiaries from social welfare schemes will be attracted to countries with generous social systems, while at the same time net contributors leave because of increasing taxes. This model has been extended by Keen and Marchand (1997). They show that a country that unilaterally increases its productive expenditures raises the marginal productivity of private capital, inducing a capital inflow and increasing the capital tax base.[4] This, in turn, imposes negative external effects on other countries as their tax base, rents and wages are reduced. The main conclusion is that in a non-cooperative equilibrium the level, but also the composition of government spending will be inefficient. In particular, governments will over-provide productive expenditures and under-provide utility-enhancing spending (Keen and Marchand, 1997).

Empirical testing of the effects of globalisation on government spending has proceeded by testing whether the total, or particular element(s) of, government spending are positively or negatively affected by one or more measures of globalisation. Perhaps most dominant within this are tests on total government expenditure and social welfare expenditure expressed as ratios to GDP. We summarise the results from these studies in Table 1 according to whether they support the compensation or efficiency hypothesis, or neither.

As Table 1 makes clear, although almost all studies seem capable of coming down on one side or the other of the debate, the overall conclusion must be that the evidence is ambiguous. Studies supporting the efficiency hypothesis are broadly balanced by a similar number of studies favouring the efficiency hypothesis. This occurs despite using similar measures of globalisation and samples of countries. For example, Cusack (1997), Rodrik (1997), Alesina and Wacziarg (1998), Figlio and

[3] A literature has also built-up considering how such competition effects might be mitigated. See for example Keen and Marchand (1997) and Dreher (2006).
[4] Nevertheless, if increasing public productive expenditures lead to a significant reduction in the labour supply, the subsequent negative effect on the marginal product of capital might lead to a capital outflow (Keen and Marchand,

Blonigen (2000), Garret and Mitchell (2001) and Kittel and Winner (2005) find in favour of the efficiency hypothesis. Trade openness, capital liberalization and/or FDI flows reduce the size of the public sector. Similarly for the composition of government expenditure, Kaufman and Segura-Ubiergo, (2001) and Garret and Mitchell (2001) find trade openness and capital liberalization reduce the share of GDP devoted to social welfare expenditure, while Alesina and Wacziarg (1998), Figlio and Blonigen (2000) and Kaufman and Segura-Ubiergo, (2001) find that these globalisation measures increase government expenditures devoted to education, transportation, public safety and health. Finally, an exception within this literature is Dreher (2006), who can find no conclusive evidence supporting either hypothesis.

For the same measures of globalisation others have managed to find the opposite outcomes. Hicks and Swank (1992), Huber et al. (1993), Garrett (1995), Quinn (1997), Rodrik (1998), Bernauer and Achini (2000), Garrett (2001), Swank (2001), Balle and Vaidya (2002), Adserá and Boix (2002) and Bretschger and Hettich (2002) find that globalisation has increased social welfare and/or aggregate government expenditure.

3. Empirical Methodology

The main purpose of this study is not to understand why existing empirical approaches yield contrasting outcomes, but the above demonstrates the importance of choosing an empirical methodology and data that are capable of providing robust evidence and/or which help to identify where any inconsistencies in the results are generated. In the next two sections we outline the empirical methodology and the data we adopt in this paper and provide some argument in favour of our choices.

The empirical methodology proceeds in two stages. Firstly we test for effects on the total size (level) of government expenditure. This begins using simple OLS, then fixed effects models and the time-series cross-section analogue of the error correction model (ECM) suggested by Beck and Katz (1996). Examples of all three methodologies can be found in the existing literature (see Table 1) and may provide an important source of non-robustness. The two-way fixed effects model is useful in establishing the potential sensitivity to omitted country-specific, time-invariant factors such as differences in preferences, institutional and historical factors as well as common shocks. Standard tests support the use of the two-way fixed effects model. The ECM is based on the idea that long-term trends in the independent variables are causally related to long-term trends in the dependent

1997).

variable, but that there are also short-term transitory effects which should be modelled. These dynamics are an attractive feature in the current context since, to the extent that expenditure patterns respond to voters preferences or political pressures which in turn reflect globalisation trends, these processes are likely to involve potentially slow adjustments (Borge and Rattsø, 1995).[5]

Building on Garrett (1995), Garret and Mitchell (2001), Adserá and Boix (2002), Dreher (2006) the dynamic model can be expressed as follows.

$$\Delta ln\left(G_{it}^{*}\right)=\varphi ln\left(G_{it-1}^{*}\right)+\sum_{k=1}^{K}\beta^{k}\, ln\left(X_{it-1}^{k}\right)+\sum_{k=1}^{K}\beta_{\Delta}^{k}\Delta ln\left(X_{it}^{k}\right)+\sum_{i=2}^{N}u_{i}+\sum_{t=2}^{T}u_{t}+\varepsilon_{fit} \qquad (1)$$

where Δ is the first difference operator, X^k is a matrix of K independent variables, including globalisation, u_i is a dummy for country $i = 1...N$, u_t is a dummy for year $t = 1...T$, and ε is the disturbance term. The long-term permanent effect of an independent variable can be computed by dividing the coefficient associated with its lagged level (β^k) by minus the parameter for the lagged dependent variable ($-\phi$). The regression coefficient associated with the first difference variable ($\beta_\Delta{}^k$) captures the short-term transitory effects. The speed of adjustment can be measured from the coefficient on the lagged dependent variable, as ($1+\phi$). Finally, we control for endogeneity using lagged values as instruments. In the Tables we report the results from a Hansen test of over identification to test the plausibility of these instruments.

Building on these government size regressions we then analyse the effect on the composition of government spending. To maximise the opportunity for finding significant compositional effects of globalisation, the expenditure variables are expressed relative to total expenditure rather than GDP as has been more typical. This assumption is driven by the results found here (Section 5) and in Dreher (2006) where there is no evidence of a robust effect from globalisation on the size of government.[6] The share regressions we estimate are analogous to the error correction model above and previously applied to total expenditures. Thus:

$$\Delta ln\left(\frac{G_{fit}^{*}}{G_{it}^{*}}\right)=\phi ln\left(\frac{G_{fit}^{*}}{G_{it}^{*}}\right)+\sum_{k=1}^{K}\beta^{k}\, ln\left(X_{it-1}^{k}\right)+\sum_{k=1}^{K}\beta_{\Delta}^{k}\Delta ln\left(X_{it}^{k}\right)+\sum_{i=2}^{N}u_{fi}+\sum_{t=2}^{T}u_{ft}+\varepsilon_{fit} \qquad (2)$$

[5] Beck and Katz (2006) argue that the inclusion of the lagged dependent variable also provides an appropriate check on the presence of a unit root. If the coefficient associated with the lagged variable were not significant, it might be indicating the presence of unit root. Results show that coefficients associated with lagged variables are highly significant. Furthermore, we have checked that lagged residuals were clearly insignificant in the prediction of residuals - an indication that, even in the presence of a unit roots, there would be co-integration between variables in the regression (Beck and Katz, 2006).

[6] Nevertheless we include the level of total government expenditure among our conditioning variables, to ensure that our results for expenditure categories represent changes in expenditure *shares* only.

where *f* is the expenditure function under test.

It is important in this context to recognise the interdependence between expenditure categories. For a fixed budget, adjustment in one expenditure item comes at the expense of a matched change in some other expenditure item(s). This in turn implies that the data used in the model must be drawn from across the government budget. Estimation is therefore by three-stage least squares seemingly unrelated regression (SURE). In the first stage, we instrument the endogenous right hand side variables as in the 'size' regression (equation (1)). In a second stage we perform the error correction model suggested by Beck and Katz (1996), recognising that the covariance matrix of the disturbance may not be diagonal. Finally, we perform a GLS-type estimation using the covariance matrix of the previous step.

4. Data Sources and Measures of Globalisation

To test the empirical model of government expenditure shares we use the Classification of Functions of the Government (COFOG, United Nations, 2000) published by the OECD (*National Accounts. Volume II: Detailed Tables*). This provides information on consolidated general government spending and is based on accrual accounting methods.[7] In addition to the comprehensive nature of this data the use of general government avoids the distortion of comparing countries with different degrees of fiscal decentralization (Aidt et al. 2006). These data are available for a panel of 25 OECD countries over the period 1980-1997. [8]

The COFOG system lists nine expenditure categories: social welfare, education, health, transport and communications, defence, public services, housing and economic services and recreation and cultural and religious services. Particularly relevant in testing the efficiency and compensation hypotheses is the grouping into productive and social welfare-related (or 'non-productive') expenditure. In testing for the robustness of our results we therefore examine alternative classifications of the data. These aggregations are described in Table 2, with further details in Section 6.

[7] The IMF: *Government Finance Statistics* also provides information of government spending using the COFOG classification. This source covers a longer period of time, but is generally focused on central government spending and is measured on a cash basis. The OECD dataset contains some missing years and we use the IMF data to infill these observations.

[8] These countries are Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Republic of Korea, Mexico, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.

As noted earlier, a second important choice for testing is the measure of globalisation to be used. We argued above, following Schmidt (1999) and Scheve and Slaughter (2004), that to capture the effects of globalisation on perceptions of insecurity that we have in mind, the *stock of inward FDI* represents the best baseline measure. The choice of FDI stock also captures the idea that governments may wish to both attract new FDI but also retain existing foreign multinational activity. Nevertheless, to understand the sensitivity to this choice we compare our findings for the inward stock of FDI with the more commonly used measure of openness to international trade (measured as the share of imports plus exports in GDP), and the outward stock of FDI.

In Table 3 we summarise the key variables by country over the sample period. These variables are the inward stock of FDI, openness, the share of total government expenditure in GDP and the share of government expenditure for social welfare (typically the main focus of the compensation hypothesis) and education and transport and communications (as examples used in the efficiency hypothesis). The country averages for the inward stock of FDI and openness reveal a positive correlation with total government expenditure, and with social welfare and transport and communications expenditures, and a negative correlation with education spending, although these correlations are not generally significant[9].

Finally, the *X* matrix described in equations (1) and (2) includes a common set of control variables, based on standard models of demand for government expenditure such as Peltzman (1980); see Borcherding et al (2004) for a review. These are per capita income, relative public/private sector prices and the size and structure of the population.[10] Following Peltzman (1980) we use permanent per capita income, measured as a three-year moving average, reducing the sample to the period 1981-1996.[11] Data for GDP per capita and the population are obtained from the OECD (*National Accounts* and *Labour Force Statistics* respectively). To control for cross-time changes in relative prices we use the ratio of the public sector deflator to the GDP deflator (Gemmell et al., 1999) obtained from OECD: *Economic Outlook*.[12]

5. Empirical Results

[9] The inward stock of FDI shows a correlation of 0.25, 0.25, -0.04 and 0.03 with total government expenditure, social welfare, education and transport and communications respectively, whereas those for openness are 0.41, 0.34, -0.21 and -0.07. The only significant correlation, at a 10% level, is between openness and total government expenditure.

[10] Gemmell et al. (1999) contend that the omission of the age structure of the population might lead to a bias on the estimation of the rest of the parameters.

[11] Peltzman argues that public consumption decisions are based on permanent rather than temporary income levels and that failing to measure permanent income as the causal factor leads to a downward bias in the estimation of the income-elasticity.

Globalisation and the Level of Total Government Expenditures

In Table 4 we report the effects of the inward stock of FDI on the size of the public sector, measured as the share of total government expenditures in GDP. Column 1 reports the results from an OLS regression, column 2 a two-way fixed effects model and column 3 the dynamic model set out in equation (2) above. We then repeat this exercise for an alternative measure of globalisation, openness to international trade (columns 4-6) and then finally nest the two globalisation measures together in the dynamic model (column 7).

Within the table we group the right hand side variables of the regression according to whether they capture long-run effects or short run effects as well as reporting the adjustment parameter. We also report the test of over-identification and the LM test of first-order autocorrelation. In all cases we accept the null that the instruments are valid, while we reject the null of no autocorrelation in column 6. In this case we have used the second lag as instruments.

Beginning with the control variables, these generally display expected relationships and are robust across estimation methods. For ease we concentrate on the dynamic model. The speed of adjustment, captured by the lagged dependent variable, confirms the relative rigidity of government expenditures (Borge and Rattsø, 1995) with around 15-20% of any deviations from the long-run corrected each year, depending on specification. We find the long-run income-elasticity of public sector size is not significantly different from zero. This finding is consistent with the Wagner's Law prediction that at later stages of development, such as the OECD countries in our sample, an upper limit for government size is reached (Peltzman, 1980). In the short run, the negative elasticity of per capita income corroborates the generally countercyclical behaviour of government expenditure (Bretschger and Hettich, 2002). Government expenditure is also shown to be price inelastic in the long-run, a result that is in line with the evidence surveyed by Borcherding et al. (2004). The share of the population over 65 appears to raise the size of the public sector, as hypothesised by a number of political economy models.

We turn next to the effect of globalisation on total government expenditures. In summary, the regressions in Table 4 demonstrate two things.

(i) Only when (highly significant) country/time fixed effects or short-run dynamics are omitted, is a significant impact of globalisation on government size observed. The choice of econometric method therefore is important.

[12] Due to lack of data availability we assume that the price across functions are equal ($P_f = P \; \forall f$).

(ii) Both globalisation measures perform similarly and when nested neither dominates.

Comparing across the first three regressions in the Table demonstrates the obvious sensitivity (of FDI) to econometric method. In column 1 the inward stock of FDI appears to affect total government expenditure positively. However, accounting for cross-country differences in preferences/institutions, historical factors and common shocks reduces the significance of this variable (it is significant at the 10% level only), while allowing for dynamics yields a coefficient that is effectively zero. This result is reinforced when using openness to international trade (columns 4-6) though now including country-specific fixed effects is sufficient to yield an insignificant globalisation effect on government spending. This would suggest that the OLS results in regression 4 were driven by the between-country, rather than within-country variation in the data. Since both our fixed-effects and dynamic models confirm significant parameters for both cross-country differences and lagged effects these methods are clearly preferable to the OLS approach. Neither openness, nor the inward stock of FDI seems to be robust a determinant of the size of the public sector.

These results support those of Dreher (2006) who also suggests that sensitivity to estimation method is important using a dynamic regression approach. However, methodological differences cannot provide a complete explanation for contradictory results in the current literature. Using dynamic panel approaches Garrett (1995), Garret and Mitchell (2001), Adserá and Boix (2002), Kaufman and Segura-Ubiergo, (2001) Kittel and Winner (2005) and Dreher (2006) still manage to reach contrasting conclusions. It would appear this heterogeneity in the effects of globalisation across countries may reflect the importance of choice of sample.

Globalisation and the Composition of Government Expenditure

For this sample of 25 OECD countries the previous section showed that globalization, measured as the inward stock of FDI or openness, does not affect the size of government expenditure once dynamics, endogeneity and country-specific preferences are controlled for. Building on those results, in this section we analyze whether globalisation increases the priority for more efficiency-related spending - increasing productive expenditures - or increases the priority for more social insurance - increasing social welfare expenditure, within a *fixed* budget.

Table 5 shows the impact of our preferred globalisation measure - the stock of inward FDI – on expenditure composition using the dynamic panel regression in equation (2). Results are reported

for eight expenditure categories: social security, education, health, transport & communications, defence, public services, housing, and economic services.[13] Again we split these into level and short-run effects as well as reporting the Hansen test of over-identification. In Table 6 we add openness to international trade to the regressions. From Table 6 onwards we choose not to report the results for the control variables to save space. These are available from the authors on request.

In summary our results provide:

(i) stronger support for the compensation hypothesis over the efficiency hypothesis

(ii) strong support that the stock of FDI is a more appropriate measure of globalisation rather than trade openness.

Again beginning with the control variables, most are in line with the existing economic literature. The lagged dependent variable suggests strong dynamics in all cases, ranging from relatively slow adjustment speeds (ϕ = -0.15) for education and health expenditure to faster adjustment for housing expenditures at ϕ = -0.42)[14]. Income increases generally did not alter long-run expenditure allocations over the 1980-97 period, except to raise the share of transport and communications, compensated by reductions in defence spending. Population growth was associated with reduced allocations to pure public goods such as defence, whereas it increased merit goods such as health, education and social welfare spending. Larger elderly population shares were associated with a shift away from expenditure on education and housing, corroborating the results of Poterba (1997) and Fernandez and Rogerson (2001), but help shift the expenditure mix towards defence, a finding in line with Gupta el al. (2001). We do not find any evidence that the share of the elderly increases the share devoted to health expenditures, confirming the result of Lindert (1996). Interestingly, we find that the share of elderly increase social security in the short run but not in the long run. This result is in line with Razin et al. (2002) who argue that the remaining age groups react to increases of the elderly population by demanding a reduction in social welfare expenditure per capita to avoid further rises in the tax burden. Finally, reductions in the size of government expenditure tended to raise the share of defence, education and health. This finding is consistent with Sanz and Velazquez (2003) who find that when overall public spending is constrained education and health expenditure tend to be the most protected from cut-backs.

[13] There are nine expenditure categories, including cultural & recreational spending. However, using the SURE estimation method, one category is obtained as a residual (since all shares sum to one). We select cultural/recreation expenditure for this since it is relatively small (2.1% of total spending on average in the OECD over 1980-97). Results for this category are not reported in Table 5.

[14] We do not have a good explanation for the faster speed of adjustment for housing and think it may have something to do with its relative size.

On the question of the efficiency versus compensation hypotheses we find strong evidence in favour of the latter. In Table 5 the stock of inward FDI significantly affects 7 of the 8 expenditure categories. It significantly increases social welfare, health and general public expenditures, whereas it significantly reduces expenditures on transport and communications, housing, education and economic services. That the greatest reductions are in housing, transport & communications and economic services expenditure (parameters: -0.20, -0.11, -0.10 respectively) suggests that the rises in social welfare expenditure are typically financed by reductions in the share of expenditures typically thought of as 'productive'.

When we nest the two globalisation measures in a single regression (Table 6), the results for the stock of inward FDI are in general robust to the inclusion of openness to international trade, while openness itself appears largely irrelevant. When openness is included six of the previous eight significant parameters on FDI remain significant (with a seventh close to significance at 10%). By contrast, only one parameter on openness is significant (housing expenditure). These results suggest strongly that in terms of their capacity to identify globalisation effects on public expenditure composition the stock of inward FDI is clearly preferred to a trade openness measure, and despite the inclusion of the two globalisation measures, the FDI variable continues to show clear support for the compensation hypothesis.

6. Robustness

In this section we test the robustness of the effect of the inward stock of FDI to other measures of globalisation, whether domestic and foreign capital really have differential impacts on government spending, and to changes in the classification of government expenditure.[15]

Outward Stock of FDI

Thus far we have argued that inward FDI most readily captures the effect on the economic insecurity of voters. A similar claim can be made about outward FDI. Scheve and Slaughter (2001) for example report that American workers see outward FDI as exporting jobs outside the country. This has been mirrored by increased political interest in this topic, in particular in the US.

[15] We also tested the robustness of the results to the inclusion of a measure of unemployment and to the exclusion of relative prices. In both cases the results were unchanged from this exercise. Results available from the authors.

In Table 7 we consider this by using the sum of inward and outward FDI stocks as the relevant globalisation variable. If outward FDI imparts different political pressures to inward FDI we would expect that this would be reflected in a change in the estimated globalisation effect relative to Table 5. In fact we find almost no evidence of this. The results show that most of the previously significant parameters remain significant, and if anything tend to increase in magnitude relative to Table 5. Only the health expenditure parameter becomes noticeably smaller and standard errors become larger for health and education spending. These results confirm the importance of the FDI stock for the shares of social welfare and productive government spending, and it may be that the threat of losing investment to overseas is as powerful an influence as the desire to attract foreign investment.

The Stock of Domestic Private Capital

The stock of inward FDI adds to the stock of private capital in a country. In the above analysis we have assumed that it is *foreign* capital in particular that is an important factor leading to an adjustment in the composition of public expenditure. It could be argued however, that it is *total* private sector investment or capital that influences government spending decisions. For example, larger private sector investment may stimulate complementary public investment, or it may enable governments to prioritise social spending where private and public investment are substitutes. To check for the robustness of this implied assumption we replace the stock of inward FDI with the aggregate private capital stock and the share of this stock that is foreign owned (Table 8).

If it is total private capital that is relevant we would expect to find a significant impact from this variable on spending shares with no impact from the foreign share.[16] In fact the evidence suggests the reverse. There is almost no significant impact of total private capital on expenditure shares (housing is a possible exception), whereas a higher proportion of foreign-owned capital is associated with significantly larger social security and public service spending, and lower spending on housing and economic services. Nevertheless, these results for the proportion of private capital that is foreign-owned are not as strong as those obtained previously for the level of foreign capital stock, suggesting that it is the level rather than the foreign share of total capital that best captures globalisation effects.

Alternative Classifications of Government Expenditure.

[16] Data for domestic private investment is taken from Kamps (2004), built on the OECD Analytical Database. The sample includes 22 OECD countries during the period 1960-2001. This source does not provide information for Luxembourg. We have assumed that the share of aggregate private capital in GDP in Belgium is the same as in Belgium and Luxembourg together. The approximation should be reasonably accurate, since the GDP of Belgium accounted on average for 95.3% of the GDP of both countries in the period 1980-1997.

Finally we test whether our results are sensitive to alternative classifications of government expenditure (see Table 2). We first consider the classification introduced by Saunders (1993). Here government expenditures are disaggregated into pure public goods (public services and defence), merit goods (health, education and housing), social transfers (social welfare) and economic services (economic services, transport and communications and recreational, cultural and religious affairs). Table 9 shows that the inward stock of FDI significantly increases pure public goods and social transfers at the cost of merit goods, confirming that FDI increases social welfare spending and reduces productive spending (education and transport and communications).

Secondly, we use the classification of government expenditure by economic type. This allows us to consider whether the switch towards social spending (induced by globalisation) is reflected in general spending on transfers, and whether this is mainly at the expense of public consumption or investment spending. Data for this classification of government expenditure comes from OECD: *Economic Outlook* and includes 24 countries.[17] Table 9 shows that in the long-run the inward stock of FDI significantly increases transfers and that this is largely at the cost of reducing consumption. In the short run, both investment and consumption spending appear to be reduced to permit increases in transfers. These results again support the prediction of the compensation hypothesis that social transfer spending in particular is encouraged by globalisation. They are also consistent with the arguments of Rodrik (1998). He argued that in advanced countries – such as those studied here - the government's risk-reducing role would be best achieved through the social welfare system.

7. Conclusions

The 'efficiency' and 'compensation' hypotheses propose quite different impacts of globalisation on the total level, and/or composition, of public spending in OECD countries. The efficiency hypothesis argues that competition between countries to attract FDI leads to a reduction in the size of the public sector (via tax constraints), and a restructuring in the composition of government expenditure towards privately productive public inputs. The compensation hypothesis by contrast, argues that globalization leads to pressures on governments to expand public expenditure, in particular to provide increasing expenditures on social protection.

This paper has tested the empirical validity of these two hypotheses and considered how alternative measures of globalisation affect the outcomes of those tests. We draw a number of conclusions.

[17] No data is available for Switzerland.

Firstly, we find that the stock of FDI is the preferred measure of globalisation. We find that there is little difference in the effects on expenditure decisions from inward and outward FDI and that this is different from the effect of the domestic capital stock, which has little significant impact. In contrast to the stock of FDI, the results for the more commonly used measures of openness to international trade are found not to be robust, displaying particular sensitivity to the methodology employed.

Our second conclusion is that we find support for neither the compensation nor the efficiency hypothesis on the *overall size* of government, but strong support for the compensation hypothesis on the mix of spending. Increases in globalisation, measured by the stock of inward FDI, is associated with a shift away from 'productive' expenditures such as education and transport and communications and towards social welfare and public services spending. This represents a slight modification to the compensation hypothesis typically investigated.

This process may also have implications for economic growth. Devarajan et al (1996) and Kneller et al (1999) have shown that the composition of government spending is relevant in the determination of an economy's long-term growth rate. Kneller et al. (1999), for example, find that growth in OECD countries has been enhanced where greater productive public spending is financed by taxes that are least distorting towards investment. However, if FDI encourages increasing an expenditure share devoted to non-productive uses, at the expense of productive expenditures, it may harm long-run economic growth. Whether this is sufficient to outweigh any positive direct growth effects from FDI is an empirical issue on which, to our knowledge, there is currently no evidence.

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Table 1. Summary of Empirical Studies of Globalization Effects on Government Spending.

Evidence supporting the efficiency hypothesis

Authors	Countries	Years	Econometric method	Government measure	Globalization measure	Results
Cusack (1997)	16 OECD countries	1955-1989	Time-Series-Cross-Section	Growth of government expenditures net of defence spending as a share of GDP	International financial integration	Negative
Rodrik (1997)	19 OECD countries	1966-1991	Time-Series-Cross-Section	Government consumption as a share of GDP	Trade openness and capital account liberalization	Negative
Alesina & Wacziarg (1998)	137 developed & developing countries	Averages for 1980-84 & 1985-89	Cross-section	Government consumption, defence, education and public investment as a share of GDP	Trade openness	No effect on total expenditure. Positive on education and public investment expenditures
Figlio & Blonigen (2000)	46 Counties of South Carolina	5-year intervals for 1980-95	Time-Series-Cross-Section	Per capita local government expenditures and revenues. Per pupil expenditures on education. Public safety and transportation expenditure as a share of total local spending	Foreign manufacturing employment	Negative on education and positive on transportation and public safety
Kaufman & Segura-Ubiergo (2001)	14 Latin American countries	1973-1997	Dynamic Time-Series-Cross-Section	Social security, education and health expenditure as a share of GDP, public expenditure and in per capita terms	Trade openness & capital liberalization index	Negative for social security spending. Positive for capital liberalization on education and health spending
Garret & Mitchell (2001)	18 OECD countries	1961-1983	Dynamic Time-Series-Cross-Section	Aggregate government expenditures, consumption and social security as a share of GDP	Trade openness, FDI inflows and outflows, imports from low wage countries, capital liberalization index and covered interest rate differentials	Trade openness reduces total public spending, public consumption and social security spending. Capital mobility and low wage imports do not affect government expenditure
Kittel & Winner (2005)	17 OECD countries	1961-1993	Dynamic Time-Series Cross-Section	Total government expenditure as a share of GDP	Trade openness, FDI and imports from low-wage countries	FDI reduces the public sector size, Other variables do not affect government spending

No concluding result

Authors	Countries	Years	Econometric method	Government measure	Globalization measure	Results
Dreher (2006)	30 OECD countries	5 year averages 1970-2000	Dynamic Time-Series-Cross Section	Total and social spending as a share of GDP	Index of globalisation, including economic, political and social integration	Globalisation does not influence total government and social welfare spending

Evidence supporting the compensation hypothesis

Authors	Countries	Years	Econometric method	Government measure	Globalization measure	Results
Hicks & Swank (1992)	18 OECD countries	1960-1982	Time-Series-Cross-Section	Social welfare as a share of GDP. Cost of Social Security	Trade openness	Positive on social welfare
Huber et al. (1993).	17 OECD countries	1956-1988	Time-Series-Cross-Section	Social welfare government current receipts as a share of GDP. Cost of social security	Trade openness	Positive on social welfare and total government revenues
Garret (1995)	15 OECD countries	1967-1990	Dynamic Time-Series-Cross-Section	Aggregate government expenditure as shares of GDP	Capital mobility index & trade openness	Globalisation interacted with partisan variables increases government expenditure
Quinn (1997)	38 developed & developing countries	Average for 1974-1989	Cross-section	Aggregate government (net of defence & education), social welfare expenditures as shares of GDP	Change of capital account liberalization index	Positive on the size of the public sector and social welfare spending
Rodrik (1998)	125 developed & developing countries	Averages for 1990-92 and 1985-89	Cross-section	Government consumption, aggregate expenditure and all functions of government spending as shares of GDP	Trade openness & terms-of trade volatility	Trade openness interacted with terms-of-trade increases government consumption, total expenditure and all components except other expenditures
Bernauer & Achini (2000)	23 OECD and 89 non-OECD countries	5 year averages from 1960-1994	Cross section for each period	Aggregate government expenditures, social welfare & health spending, tax revenue and non-military expenditure as shares of GNP	Trade openness, export concentration & capital mobility index	Trade openness increases government expenditure and tax revenue but not affect social welfare. Capital mobility and export concentration have no effect
Garret (2001)	113 developing & developed countries	Average 1985-1995	Cross-section	Government consumption as a share of GDP	Trade openness & capital mobility index	Trade openness increases government consumption; capital mobility: no effect
Swank (2001)	16 OECD countries	1964-1993	Time-Series-Cross-section	Aggregate government expenditure, social transfers and public consumption as shares of GDP	Trade openness, capital flows, FDI, borrowing on capital markets, capital mobility index and covered interest rate differentials	Trade openness and capital mobility interacted with political and institutional variables increases government expenditure
Balle & Vaidya (2002)	48 US states	Average for 1995-1997	Cross -Section	Aggregate government, social welfare & health expenditures as shares of Gross State Product	Trade openness	Positive on social welfare and health expenditures but not total expenditures
Adserá & Boix (2002)	65 developed & developing countries	1950-1990	Dynamic Time-Series-Cross-Sectio	Current receipts as a share of GDP (levels & 1st diffs.)	Trade openness, export concentration & terms-of trade volatility	Trade openness increases current receipts as share of GDP in democratic countries
Bretschger & Hettich (2002)	13 OECD countries	1980-1995	Time-Series-Cross-Section	Social welfare expenditures as a share of GDP	Trade openness and capital mobility index	Positive

Table 2: Classifications of Government Expenditure by Function

<table>
<tr><th>COFOG</th><th>Our study</th><th>Oxley & Martin (1991), Saunders (1993)</th><th>Kneller et al. (1999)</th><th>Kneller et al. (1999)</th></tr>
<tr><td>General Administrative Services</td><td rowspan="2">Public services</td><td rowspan="3">Pure goods</td><td rowspan="6">Productive</td><td rowspan="3">Productive entering in flows.</td></tr>
<tr><td>Public Order and Safety</td></tr>
<tr><td>Defence</td><td>Defence</td></tr>
<tr><td>Health</td><td>Health</td><td rowspan="3">Merit goods</td><td>Health</td></tr>
<tr><td>Education</td><td>Education</td><td rowspan="3">Productive entering in stock.</td></tr>
<tr><td>Housing</td><td>Housing</td></tr>
<tr><td>Transport and communications</td><td>Transport and communications</td><td rowspan="3">Economic services and others</td></tr>
<tr><td>Other Economic services</td><td>Economic services</td><td rowspan="3">Non-productive</td><td>Economic services</td></tr>
<tr><td>Recreational, cultural and religious affairs</td><td>Recreational, cultural and religious affairs</td><td>Recreational, cultural and religious affairs</td></tr>
<tr><td>Social Welfare</td><td>Social Welfare</td><td>Transfers</td><td>Social Welfare</td></tr>
<tr><td>Other non classified functions</td><td>-</td><td>Other non classified functions</td><td>Other non classified functions</td><td>Other non classified functions</td></tr>
</table>

Table 3. Stock of Foreign Direct Investment, Openness and Government Size. (Average values, 1980-1997)

	Inward Stock of FDI (% GDP)	**Openness (% GDP)**	**Government expenditure (% GDP)**	**Social Welfare (% Government expenditure)**	**Education (% Government expenditure)**	**Transport & Communications (% Government expenditure)**
Australia	20.16	35.14	32.66	26.03	15.65	10.74
Austria	5.77	75.03	44.85	51.69	10.55	4.47
Canada	19.78	57.47	37.06	27.63	17.13	7.13
Denmark	7.94	67.28	48.82	44.94	13.89	4.12
Finland	3.72	57.72	38.68	35.17	13.94	7.10
France	10.58	43.65	46.06	38.21	11.35	2.58
Germany	5.91	52.82	45.22	42.61	9.69	4.43
Greece	13.98	46.43	27.30	28.34	12.47	6.05
Iceland	1.95	68.88	32.02	21.74	14.51	10.09
Ireland	11.33	115.97	32.65	28.25	13.57	6.46
Italy	4.30	42.93	40.80	38.15	11.80	7.95
Japan	0.40	20.97	25.47	24.84	15.19	10.98
Korea	2.28	65.13	17.19	12.63	18.29	8.63
Mexico	10.52	38.93	13.61	21.97	25.59	7.17
Netherlands	20.42	106.58	44.44	43.62	11.62	4.07
New Zealand	21.89	57.71	34.79	31.75	12.55	9.95
Norway	11.81	73.72	44.32	35.54	14.00	7.60
Portugal	15.79	65.88	30.73	30.30	15.30	5.77
Spain	10.31	39.13	31.24	41.00	10.59	6.04
Sweden	6.69	64.61	54.68	49.33	11.91	3.14
Switzerland	13.34	70.33	35.30	32.29	14.03	8.22
Turkey	1.31	34.13	17.66	3.05	16.44	8.02
United Kingdom	15.72	52.71	39.17	37.12	13.11	3.80
United States	5.80	20.24	30.41	26.08	17.38	5.14
Belgium-Luxembourg	27.29	137.69	46.73	41.18	14.43	9.03
Simple Average	**10.76**	**60.44**	**35.67**	**32.30**	**14.20**	**6.75**

Table 4. FDI Inward Stock, Openness and the Size of the Public Sector

Size of Government	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Level Effects							
Stock of Inward FDI	0.020 (2.50)**	0.024 (1.70)*	-0.010 (0.42)				-0.004 (0.16)
Openness to International Trade				0.163 (9.44)***	0.034 (0.79)	0.029 (0.45)	0.022 (0.15)
Per capita income	0.078 (2.01)**	-0.489 (5.55)***	-0.105 (1.28)	0.136 (4.89)***	-0.417 (8.17)***	-0.076 (2.17)**	-0.145 (1.28)
Relative prices	-1.313 (13.13)***	-0.271 (2.49)**	0.157 (1.20)	-1.335 (14.36)***	-0.521 (5.81)***	0.091 (0.99)	0.203 (1.44)
Total Population	-0.020 (4.35)***	-0.292 (1.92)*	0.058 (0.46)	0.019 (4.18)***	-0.048 (0.48)	0.018 (0.18)	0.009 (0.04)
Share of elderly in total population	0.701 (17.98)***	0.752 (6.19)***	0.135 (1.66)*	0.628 (20.71)***	0.699 (9.39)***	0.136 (1.68)*	0.203 (1.86)*
Adjustment Parameter			-0.235 (3.90)***			-0.149 (3.29)***	-0.222 (2.78)***
Short run effects							
Stock of Inward FDI			-0.063 (0.66)				0.002 (0.02)
Openness to International Trade						-0.047 (0.36)	-0.268 (1.04)
Per capita income			-1.307 (2.09)**			-1.083 (2.33)*	-1.326 (1.22)
Relative prices			-0.421 (2.12)**			-0.098 (0.55)	-0.479 (1.87)*
Total Population			-0.409 (0.36)			0.571 (0.86)	-1.048 (0.83)
Share of elderly in total population			0.118 (0.41)			0.308 (1.47)	0.155 (0.52)
Hansen Test of overidentification			*$\chi^2(10)=5.649$ p-value 0.84*			*$\chi^2(9)=9.740$ p-value 0.37*	*$\chi^2(9)=6.836$ p-value 0.65*
Adjusted LM test of first order autocorrelation			*$\chi^2(1)=0.94$ p-value 0.33*			*$\chi^2(1)=8.69$ p-value 0.00*	*$\chi^2(1)=0.46$ p-value 0.50*
Observations	425	425	350	676	676	598	350
R-squared	0.81	0.96		0.82	0.95		

*Note Robust t statistics in parentheses. *Significant at 10% level; ** significant at 5%; *** significant at 1%.*
The dependent variable is measured as total government expenditure as a share of GDP (excluding interest payments). All right hand side variables are measured in logs. Also included in the regression are country and time specific fixed effects. Tests suggest that we can collectively accept the significance of both country and time effects.

Table 5. FDI and the Composition of Government Expenditures (1980-1997).

Component of Expenditure	**Social Security**	**Education**	**Health**	**Transport**	**Defence**	**Public Services**	**Housing**	**Econ. Services**	**Cultural Affairs**
Level Effects									
Stock of Inward FDI	0.041	-0.023	0.034	-0.110	0.008	0.059	-0.199	-0.106	0.136
	(1.99)**	(1.80)*	(1.95)*	(3.12)***	(0.36)	(2.28)**	(2.61)***	(2.11)**	(0.39)
Per capita income	-0.006	0.065	0.083	0.337	-0.252	0.056	0.445	0.249	-3.388
	(0.09)	(1.39)	(1.22)	(2.31)**	(2.75)***	(0.61)	(1.54)	(1.33)	(2.77)***
Relative prices	0.120	-0.269	-0.336	0.274	-0.062	0.061	0.027	0.245	-0.166
	(1.01)	(3.26)***	(2.95)**	(1.18)	(0.42)	(0.38)	(0.06)	(0.75)	(0.08)
Total Population	0.830	0.428	0.249	-0.267	-0.007	-0.105	-0.673	-0.809	-11.110
	(4.35)**	(3.98)***	(1.64)*	(0.89)	(0.04)	(0.50)	(1.02)	(1.86)*	(3.49)***
Share of elderly in total population	0.068	-0.164	-0.138	-0.179	0.250	-0.017	-1.369	-0.238	4.212
	(0.67)	(2.34)**	(1.40)	(0.91)	(1.88)*	(0.13)	(3.14)***	(0.85)	(2.38)**
Total government spending	-0.033	-0.096	-0.127	0.155	-0.142	0.069	0.632	0.106	2.537
	(0.57)	(2.47)**	(2.26)**	(1.41)	(1.98)**	(0.92)	(2.43)**	(0.69)	(1.54)
Adjustment Parameter	-0.290	-0.153	-0.242	-0.333	-0.318	-0.286	-0.422	-0.265	
	(7.83)***	(6.21)***	(7.16)***	(7.43)***	(7.88)***	(7.55)***	(8.93)***	(7.56)***	-
Short run effects									
Stock of Inward FDI	0.112	0.004	0.129	-0.426	0.307	0.013	-0.312	-0.448	0.334
	(1.34)	(0.07)	(1.75)*	(2.85)***	(3.25)***	(0.12)	(0.97)	(2.13)**	(0.23)
Per capita income	-0.080	-0.317	-0.281	0.095	0.360	1.105	-0.950	-2.259	9.452
	(0.21)	(1.20)	(0.77)	(0.13)	(0.76)	(2.18)**	(0.60)	(2.15)**	(1.41)
Relative prices	0.272	0.328	0.205	0.131	0.204	-0.510	0.017	0.194	-6.898
	(1.77)*	(3.06)***	(1.38)	(0.45)	(1.09)	(2.51)**	(0.03)	(0.47)	(2.60)***
Total Population	-0.150	-0.844	-1.539	1.138	-3.945	-0.653	-5.555	0.988	35.696
	(0.12)	(0.98)	(1.27)	(0.47)	(2.54)**	(0.39)	(1.04)	(0.28)	(1.63)
Share of elderly in total population	0.795	-0.254	-0.363	-1.074	-0.240	-0.138	-0.041	0.491	-5.633
	(1.95)*	(0.94)	(0.95)	(1.41)	(0.49)	(0.26)	(0.02)	(0.45)	(0.80)
Total government spending	0.117	-0.648	-0.553	-0.422	-0.145	0.715	2.681	-0.454	-1.419
	(0.50)	(4.14)***	(2.52)**	(0.96)	(0.51)	(2.35)**	(2.79)***	(0.72)	(0.36)
Hansen Test of overidentification $\chi^2(4)$	4.647 p-value 0.32	5.589 p-value 0.23	2.769 p-value 0.60	6.002 p-value 0.20	1.660 p-value 0.80	2.248 p-value 0.69	5.077 p-value 0.28	4.128 p-value 0.39	-
Observations	350	350	350	350	350	350	350	350	-

*Note Robust t statistics in parentheses. *Significant at 10% level; ** significant at 5%; *** significant at 1%.*
See notes to previous table

Table 6. FDI, Openness to International Trade and the Composition of Government Expenditure (1970-1997).

Component of Expenditure	**Social Security**	**Educatio n**	**Health**	**Transport**	**Defence**	**Public Services**	**Housing**	**Econ. Services**	**Cultural Affairs**
Level Effects									
Stock of Inward FDI	0.053	-0.023	0.017	-0.107	0.006	0.090	-0.301	-0.103	0.043
	(1.89)*	(1.63)	(0.88)	(2.66)***	(0.24)	(2.63)***	(3.16)***	(1.79)*	(0.09)
Openness to International Trade	-0.047	-0.029	0.022	-0.106	0.038	-0.073	0.972	-0.035	-0.115
	(0.69)	(0.68)	(0.37)	(0.88)	(0.50)	(0.78)	(3.35)***	(0.20)	(0.10)
Observations	350	350	350	350	350	350	350	350	350

*Note Robust t statistics in parentheses. *Significant at 10% level; ** significant at 5%; *** significant at 1%.*
The dependent variable is measured as total government expenditures as a share of GDP (excluding interest payments). All right hand side variables are measured in logs. Also included in the regression are country and time specific fixed effects, the measures of per capita income, relative prices, the total population, the share of the elderly in the total population and total government expenditures, all in levels and first differences . Tests suggest that we can collectively accept the significance of both country and time effects.

Table 7. Inward and Outward Stock of FDI and the Composition of Government Expenditure (1980-1997)

Component of Expenditure	**Social Security**	**Education**	**Health**	**Transport**	**Defence**	**Public Services**	**Housing**	**Econ. Services**	**Cultural Affairs**
Level Effects									
Inward & outward stock of FDI	0.054	-0.023	0.011	-0.075	0.028	0.075	-0.319	-0.146	0.206
	(1.87)*	(1.45)	(0.53)	(1.93)*	(1.06)	(2.17)**	(2.83)***	(2.26)**	(0.41)
Observations	375	375	375	375	375	375	375	375	375

*Note Robust t statistics in parentheses. *Significant at 10% level; ** significant at 5%; *** significant at 1%.*
See notes to previous table

Table 8. Inward stock of FDI, Domestic Capital and the Composition of Government Expenditures (1980-1997).

Component of Expenditure	**Social Security**	**Education**	**Health**	**Transport**	**Defence**	**Public Services**	**Housing**	**Econ. Services**	**Cultural Affairs**
Level Effects									
Share of foreign capital in total	0.034	0.003	0.023	-0.005	-0.019	0.100	-0.300	-0.164	0.092
private capital	(1.94)*	(0.24)	(1.30)	(0.13)	(0.84)	(3.02)***	(2.70)***	(2.37)**	(0.32)
Total private capital	-0.126	0.006	0.151	0.098	-0.137	0.003	-1.634	0.109	3.506
	(1.45)	(0.08)	(1.63)	(0.48)	(1.19)	(0.02)	(2.77)***	(0.31)	(2.46)**
Observations	330	330	330	330	330	330	330	330	330

*Note Robust t statistics in parentheses. *Significant at 10% level; ** significant at 5%; *** significant at 1%.*
See notes to previous table

Table 9. FDI and Classifications of Government Expenditure, (1980-1997)

Classifications of government	*Oxley & Martin (1991), Saunders (1993)*				*Kneller et al. (1999)*			
Component of Expenditure	**Social transfers**	**Merit goods**	**Pure public goods**	**Economic services**	**Social welfare**	**Productive stock**	**Productive flow**	**Other**
Level Effects								
Stock of Inward FDI	0.054	-0.033	0.051	-0.091	0.046	-0.052	0.048	-0.044
	(2.08)**	(2.28)**	(1.96)**	(1.49)	(1.94)*	(3.38)***	(2.19)**	(0.90)
Observations	325	325	325	325	350	350	350	350

*Note Robust t statistics in parentheses. *Significant at 10% level; ** significant at 5%; *** significant at 1%.*
See notes to previous table

Table 10. Inward FDI, and the Economic Nature Classification of Government Expenditure (1980-1997)

Component of Expenditure	**Transfers**	**Investment**	**Consumption**
Level Effects			
Log of FDI Inward Stock (levels)	0.061	-0.020	-0.042
	(2.62)***	(0.40)	(2.80)***
Observations	345	345	345

*Note Robust t statistics in parentheses. *Significant at 10% level; ** significant at 5%; *** significant at 1%.*
See notes to previous table

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