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ECONOMIC INTEGRATION AND PUBLIC POLICIES:
A REVIEW OF THE EMPIRICAL LITERATURE

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ECONOMIC INTEGRATION AND PUBLIC POLICIES: A REVIEW OF THE EMPIRICAL LITERATURE

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Abstract

This paper reviews the empirical literature on the impact of economic integration on the size and the composition of the public budget. From a theoretical perspective, a pessimistic view highlights that economic integration is a potential threat to the action of the public sector. An optimistic view, instead, emphasizes the beneficial effects of integration in stimulating efficiency-enhancing public policies. Despite some well-established theoretical results, the empirical evidence on the topic is rather controversial. Some studies support the hypothesis that taxes and public spending may increase to compensate losers from a more open economic environment. Other studies support the opposite idea that the public sector retrenches in reaction to increasing difficulties to tax and spend with mobile tax bases. Finally, a large set of studies is simply inconclusive.

JEL Classification: H5, H11, H20, F15

Keywords: Tax policies; Public spending; Government Size; Trade openness; Capital Openness; Economic Integration; Globalisation.

1. Economic integration: an introduction

1.1. *Are we in "globalisation times"?*

A large strand of literature deals with whether increased trade and capital integration are potentially able to affect the size and the composition of national tax and spending policies. A «pessimistic view» highlights that economic integration is a potential threat to the action of the public sector and a source of increasing inequality in the distribution of the economic power. An «optimistic view», instead, emphasizes the beneficial effects of integration in stimulating efficiency-enhancing public policies and in reducing inequalities. According to this latter view, critics of the present globalisation wave also disregard that globalisation has had substantial precedents dating back at the end of the XIX century or even earlier (De Benedictis and Helg, 2002),[1] and that worries about increasing economic integration *per se* would therefore be misplaced. On the other hand, advocates of the pessimistic view often reply that analogies with past globalisation processes are only partial for a number of reasons.

First, in the XIX century, exporting capitals towards economically weaker countries was exigency of nations rather of entrepreneurs, as the amount of capital owned by all sectors of the economies in the United States, France, the United Kingdom and later in Germany were extremely abundant (Tarle, 1966). In other words, the world economy was then much less characterised by the presence of private transnational corporations than the recent globalisation is (Panic, 1988; White, 2003). Second, restrictions to labour mobility were on average lower; while the asymmetry between the mobility of capital and that of labour is now to some extent striking. Third, trade shares, while comparable in quantitative terms in many countries, mostly reflected exchanges of non-competing products.[2] A significant part of present trade is instead made of similar and competing products and the possibility to "slice-up" the chain of the value added has caused intermediate inputs to cross borders several times during the manufacturing process (Irwin, 1996; Feenstra, 1998; 34). Finally, social welfare protection was not provided on a large scale. Many modern welfare systems in advanced countries have indeed developed after the II World War, the reason why the recent globalisation wave may demand more investigation than what the first one may have attracted (Rodrik, 1997).

In searching for the characteristics of the present wave of economic integration, the literature has developed a number of indicators. Even though there is no universal agreement on how to measure *economic* globalisation (Dreher and Gaston, 2008; Tiemstra, 2007), wide recourse has been made to quantitative indicators of trade openness (TO) and capital integration (CI). Alternatively, economic integration has been measured by the intensity of barriers to exchanges of goods and factors (e.g. tariffs, quotas, etc.), by restrictions to capital payments and receipts across countries, or by (covered or uncovered) interest rate differentials.

The first set of indicators (TO) would measure the commercial exposure of a given country. The second set of indicators would instead aim at measuring the country's exposure to international – and possibly speculative – investment flows, especially as a

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[1] In what follows, "globalisation" will be used as a synonym for economic integration, disregarding all other social, sociological and political dimensions of this term.

[2] Just to quote some examples, the ratio between exports and GDP in the UK was about 15 per cent in 1900 and 21 per cent in 1913 compared with 18.6 per cent in 2001. In the US, the same figure was 7.5 per cent in 1900, 6.1 in 1913 and about 8 per cent in 2001. Different figures are in fact available for other countries like Germany and France, where the trade share is higher in recent times than in the past.

consequence of the rapid liberalisation of financial markets since the '60 (Swank, 2002). The third qualitative indicator would record various kinds of impediments in transactions among countries; while the fourth measure represents the difference between interest rates in one country and those in an offshore market, controlling for forward exchange rates. The more integrated is the economic environment, the smaller would be the interest rate differential.

Despite the potential wide variety of indicators of economic integration, most of the literature, as we will see, has pointed to quantitative measures of trade and capital flows. To this purpose, table 1 reports the standard quantitative measure of TO given by the sum of exports and imports over Gross Domestic Product (GDP) for a large set of countries. Numbers refer to five-year averages from 1969 to 2006 (with the exception of the initial and end points).

Levels are rather differentiated across countries, but the trend is positive almost everywhere. This trend has been particularly fast for smaller countries, which also tend to be more open, the reason why in many empirical analysis trade openness is corrected by (or controlled for) country size. The growth of trade shares of China and India (two 'big' countries) is also considerable as well as that of Japan and the United States, which however remains relatively "closed" economies compared to Europe as a whole. According to these numbers, the "World" traded only 21 per cent of GDP at the beginning of the Seventies and 2.5 times as much (in real terms) in the most recent years.[3]

There is the impression, however, that focusing on trade integration would capture only part of the story of economic integration and that the degree of integration of capital markets and the associated mobility of capital for both real and financial purposes should also be considered. In order to describe this issue, the literature, among many, has pointed to measures based on foreign direct investments (FDI) and/or foreign portfolio investments (FPI). An example is reported in table 2, showing the sum of outward and inward FDI normalised over GDP, an often used indicator to proxy the intensity of capital mobility in any given country. Even though *levels* of FDI represent a small share of GDP, compared to trade, their *change* is extremely rapid since the Nineties for a large number of countries.

In Europe, for example, FDI represented less than 1 per cent of GDP in the Seventies, compared with the average 9.2 per cent of 2004-2006. On average, the flows of FDI in the World is six times as much in recent years than they were at the beginning of the Seventies, with Japan and the United States again relatively closed. Figure 1, built by isolating *cumulative outward* FDI in any year (in real USD), gives a visual impact of the increasing exposure to capital mobility over the period.[4]

Considering the period-cumulative real absolute value of FDI flows (table 3) also gives information on the potential impact of capital mobility on national economies. This is not to say that FDI should command a negative judgment, as they may reflect real investments across the world. Nevertheless, they should be considered as an element of pressure on national economies, as foreign and national investments have a certain degree of substitutability, with the former potentially causing a loss of tax base in the capital-exporting country.

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[3] Feenstra (1998) observed less neat trends from 1970 to 1990 when measuring trade openness as the average of imports and exports. Yet, measured openness is higher when trade is normalised over the value added of merchandise trade. In any case, the trend of TO shown in table 1 is unequivocal: if any, the last fifteen years have been times of acceleration of trade integration compared with the Seventies.

[4] It is worth noting the break occurred after 2001.

In particular, the third column of each panel gives the percentage of FDI (respectively, outwards and inwards) flowing in any given country in the last ten years compared with the total flows of FDI observed since 1970. For example, the United States record outward flows for about 2,474 billions of USD between 1970 and 2006, but more than 60 per cent of these flows occurred in the last ten years. A similar result can be observed in the United Kingdom. Among European countries, that liberalise capital markets later than both the US and the UK, the flows originated between 1996 and 2006 represent even a larger share of the total flows measured since 1970. It is also worth noting the relevance of inward FDI flows in China – more than 700 billions of USD, of which 550 billions since 1996 – which makes this state the third largest attractor of foreign investments, i.e. a net importer of capital (see the panel "Net outflows).[5]

A similar path can be observed for FPI, that – according to some authors – would proxy short-term and speculative flows (Singh, 2003). Table 4 describes the evolution over time and countries of the share of FPI over GDP, while Figure 2 reports the cumulative flows of FPI *assets* over the period. The growth in recent times is again impressive both in aggregate terms and for individual countries.

These basic indicators would at least indicate that the period after the II World War cannot be dealt with as a homogenous period from the point of view of countries' international exposure. There is indeed evidence that a growing portion of the economic activity is carried out across borders, but also that a significant part of this activity may be associated to capital flows rather than to trade flows, an often overlooked issue in the empirical literature (Grunberg, 1998).

To some extent, and compared with the recent past, we are therefore in 'globalisation times'. But are these times enough 'globalised' to undermine the use of public finance variables? On the theoretical side, the answer to this issue is rather uncertain, as it mostly depends on the contemporaneous consideration of a large number of variables and also on the institutional setting of the model (Schulze and Ursprung, 1999). Nevertheless, to pave the way to the review of the empirical literature proposed in this paper and to delimit the field of investigation, it is worth briefly dealing with and distinguish the impact of economic integration on the primary distribution of incomes (henceforth the *direct effect*) and on the ability of governments to pursue preferred public policies to achieve the target level of taxation and social welfare (henceforth the *indirect effect*).

This paper will be concerned with the empirical evidence on the second issue, yet a brief sketch of the implications of globalisation for the primary distribution of income will help capture the implications for national public policies.

1.2. *The direct effects of economic integration*

The analysis of the main channels through which economic integration may affect the primary distribution of resources may also help understand how it may indirectly affects public policies. A huge debate has indeed developed, especially in the last decade, on how trade and capital integration could have shaped the distribution of earnings, wages and, in particular, how wage differentials between high skilled and low-skilled workers have evolved in periods of increasing economic openness.

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[5] As in the case of trade, capital markets flourished already in the late XIX and early XX century, even though, according to some observers, "beginning in the late 1950s,…, private international financial activity increased at a phenomenal rate" (Helleiner, 1994).

With regard to *trade integration*, the standard argument is that more integration would increase the wage differentials between high skilled and low skilled workers. Growing volumes of trade would increase the demand for high skilled workers in developed countries and for low skilled workers in developing countries. As such, inequality in developed countries would increase, as low-skilled wages would be depressed, and inequality in developing countries should reduce – at least to some extent. This latter effect, however, would strongly depend on the technological content of the tradable sector. Moving high technology to developing countries would also stimulate the demand for more skilled labour; at the same time it reduces the demand for unskilled labour, with the result that inequality may increase also in developing countries.

In a highly influential book, Wood (1994) has shown that trade liberalisation accounted for between a third and a half of the increase in inequality in the OECD countries since the Seventies. Perhaps, the best synthesis of his position is that "…greater economic intimacy has had larger benefits, raising average living standards in the North, and accelerating development in the South. But it has hurt unskilled workers in the North, reducing their wages and pushing them out of jobs".[6]

As reported by Freeman (1995), in the 1980s and 1990s the demand for less-skilled workers fell both in the US and in Europe, taking the form of lower wages in the US – with a more flexible labour market – and greater unemployment in Europe – with less flexible labour markets. Wage inequality and skill differentials in earnings and employment have increased sharply in the US from mid-1970s to 1990s and have not been followed by an increase in real earnings. At the best, Freeman says, real earnings have grown sluggishly and fallen for men on average, while the economic position of low-skilled men would have fallen by staggering amounts (Singh and Dhumale, 2000).

In Europe, Atkinson (1997) also gave evidence of a wider dispersion of male earnings in the UK between 1979 and 1990. Even though the other countries are not exposed to a comparable increase in income inequality as in the US and in the UK, there are reasons to believe that the main consequence of trade integration has been unemployment, what Freeman (1995) calls the "flip side of the rise of earnings inequality in the US".

Both outcomes would reflect the mounting difficulties involving less skilled workers in the face of globalisation waves. The issue is however controversial and, as Slaughter and Swagel (1997) already noted ten years ago, the problem of how to assess the impact of trade on labour markets is still largely unresolved.

Much less attention has been paid, instead, on how *capital integration* may affect the primary distribution of income. According to some authors, the channels would be basically the same as that observed for trade integration. In particular, FDI inflows would increase the demand for skilled workers causing their relative wage to rise and inequality to deteriorate (among many: Feenstra and Hanson, 1996; Taylor and Driffield, 2005), while FDI outflows would depress the wages of less skilled workers in the exporting country.

The effects of the liberalisation of financial markets, for some "the ultimate arbiter of government policy" (Garrett and Mitchell, 2001; 151), would be even more pronounced. Portfolio investments in bonds, currencies, equities, derivatives and other financial instruments may move rapidly across the world to maximise arbitrage opportunities only for speculative reasons. Also, it is argued, financial deregulation and the enlargement of the financial sector would have contributed to the emergence of a new class of *rentiers*,

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[6] Labour economists mainly disagree with this conclusion. They argue that trade with developing countries has little relevance on the wage dispersion, while the main cause of increased inequality is the presence of skill-biased technical progress.

by this way favouring increased income inequality in the primary income distribution (Cornia, 1999). As usual, empirical evidence on this topic is mixed; Blonigen and Slaughter (2000), for example, show that multinational activity is not significantly correlated with skill upgrading in the US manufacturing sectors, while no evidence of a relationship between FDI and wage inequality emerges in developing countries (Rama, 2003. See also Basu and Guariglia, 2005).

One point that has been usually overlooked in the skilled-unskilled debate, however, is that globalisation may only increase the easiness with which domestic workers may be replaced by external workers, either by outsourcing productions or by investing abroad. In other words, by extending an argument by Rodrik (1997), trade and potential capital mobility flattens the demand curve for labour. This may have extremely important consequences for public policies, as a more elastic demand for labour, for example, makes more difficult for governments to increase the tax burden on corporations – without the fear of tax shifting – and for workers to achieve high levels of labour standards and benefits. In this context, the threat of *exit* provided by outsourcing or investment abroad may cost workers more in terms of both wages and jobs and cost governments more in terms of lost tax revenue.

Even though the theoretical results and the empirical evidence on this topic are certainly not conclusive, the main lesson is that globalisation is probably far from being a 'Paretian' structural break. Being instead a process in which there are 'winners' and 'losers', it is particularly important for national governments to understand how globalisation *flows* in their own economies, as its direct effects are potentially able to shape the level and the intensity of the corresponding public policies. This requires to analyse how globalisation impacts on national governments.

1.3. *The indirect effects of economic integration*

The indirect effects of economic integration on the ability of national governments to pursue their policies may fall either on the tax side or on the spending side or on both, giving rise to a series of hypotheses.

The theory of tax competition has highlighted that with mobility, governments might find harder to increase the tax burden on more mobile tax bases. In an extreme version of this theory, mobility would make tax bases to disappear, undermining the ability of any single country to raise enough tax revenue to finance public spending (the popular *race-to-the-bottom* or *capital flight* hypothesis), which has led many authors to define tax competition as 'harmful' (see, among many, Lee and McKenzie, 1989; Kurzer, 1993; Steinmo, 1994; Tanzi, 1995).[7]

In a milder version, a strong market integration may discipline governments in the use of fiscal resources – and would therefore limit power abuses – because exploited tax bases may sanction undesirable public policies by *exit* national borders (the *efficiency hypothesis*, EH), an outcome that might lead to interpret tax competition as 'beneficial'

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[7] It is just worth recalling Adam Smith's (1776) quotation that "the … proprietor of stock is properly a citizen of the world, and is not necessarily attached to any particular country. He would be apt to abandon the country in which he is exposed to a vexatious inquisition, in order to be assessed a burdensome tax, and would remove his stock to some country where he could, either carry on his business, or enjoy his fortune at his ease … not only the profits of stock, but the rent of land and the wages of labour, would necessarily be more or less diminished by its removal". Quotation in Smith (1776 [1976, 848-849]).

(if public spending is correspondingly disciplined) or 'harmful' (if public services would be only reduced without compensating and affordable actions implemented by the private sector).[8]

From both the extreme and the milder versions, the main lesson is that the optimal tax rate on mobile factors is likely to be lower in open economies than in closed ones. For example, Bucovetsky and Wilson (1991) have shown that if capital cannot be taxed with the residence principle, it is optimal for a small economy to tax labour only.[9] Other theoretical models have shown that capital taxation in small economies with full mobility is optimally zero and that any shortfall of revenue should be compensated by shifting the tax burden to less mobile tax bases (Gordon, 1986; Razin and Sadka, 1991). This latter argument also gives account of the fact that economic integration might induce changes not only in the size of taxes, but also in their composition, an argument also underlined by Tanzi (1995), using the "fiscal termites" metaphor.

It is worth noting that both versions of this theory would lead national governments to tax and spend in a "sound" way, where the "soundness" of public policies would be mostly driven by the most mobile part of economic resources. In particular, some observers argue that full mobility of tax bases could expropriate states from conducting autonomous fiscal policies, allowing those tax bases (especially capital) the option to be "beyond politics".[10]

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[8] This behaviour is also considered in many theories of competitive federalism, where it is thought that a proper competition among government levels may reduce the inefficiency associated to the use of public resources (e.g. Brennan and Buchanan, 1980). This would point towards the application of the "benefit principle" in taxation. The same argument has over time been used by advocates of globalisation. For example, as argued by Helleiner (1994; 116), in the '70s American liberals supported the removal of capital controls on the ground that international financial markets would discipline government policy and force states to adopt more sound fiscal and monetary programs. On the one hand, there was, at that time, the widespread opinion that abolishing capital controls would have forced public policies to take some distances from the Keynesian paradigm so far arguing in favour of autonomous interventionist welfare policies. The implicit belief was that governments were overtaxing and/or overspending, at least above the level preferred by advocates of liberalisation of financial markets. On the other hand, Garrett and Mitchell (2001; 151) argue that "if the policies and institutions of which the financial markets approve are not found in a country, money will hemorrhage unless and until they are. In turn, financial capital is usually thought to disapprove of all government policies that distort markets, and welfare state programs are among the most prominent villains".

[9] It is worth noting that the tax competition literature has always stressed the consequences of capital openness rather than those of trade openness for public finances. The reason is somewhat obvious but, in our view, it has also been the source of some misinterpretations in the empirical literature that will be discussed below. Mobility is more an issue for capital than for trade. Actual (and potential) capital mobility may introduce constraints on public finances because tax bases may quickly move and disappear. Trade openness, on the contrary, does not require production factors to move. In other words, while capital openness entails actual mobility of tax bases, trade openness does not necessarily do so. As argued by Grunberg (1998), trade taxes in the protectionist era "have always been a privileged revenue-raising device for developing countries…and even for industrial countries at early stage of development such as the United States in the XIX century". Ending protectionism in trade has therefore had costs in terms of forgone revenue not because tax bases have disappeared from countries but because of a deliberate choice of not taxing merchandise flows.

[10] This possibility, for example, was clearly recognised in the mid-Seventies in Great Britain at the time of the speculation against the pound. According to some authors, the efforts made to protect policy autonomy from speculative flows by the Labour government eventually led to "the end of Keynesian society in Britain". See Krieger (1986; 57-58). But also the difficulties faced by the

If governments are tied to budget balance, tensions on the tax side are likely to have repercussions on both the level and the composition of public spending. Those who oppose globalisation often agree with a particular version of this theory, the '*welfare retrenchment*' hypothesis, i.e. with the view that more economic integration might leave less space to expand or maintain national welfare policies. In other words, governments would *supply* less public spending in economically integrated environments. In this case, even a potentially beneficial tax competition might harm citizens to the extent that public spending is inefficiently compressed and alternatives on the private sector are not available or affordable. Overall, economic integration would generate pressures on both the tax and the spending side of the public budget that are likely to lead to a shrink of the total size of the public sector. In what follows, the behaviours of public finance variables consistent with these outcomes will be grouped under the heading of the "shrinking hypothesis" (SH).

On the other hand, a certain support has gained the hypothesis that globalisation would *increase* the size of public spending, in order to face fast economic changes (Grunberg, 1998), the increased risk that economic integration entails (Rodrik, 1998) and the increased income volatility or insecurity associated to liberalisation of trade and capital flows (Rodrik, 1998; Katsimi, 1998 and 1999). Unlike the previous ones, these theories emphasize the *demand* side of the 'globalisation market', i.e. the possibility that (potential) 'losers' in the globalisation process ask for compensating public intervention. For this reason, these possibilities are often grouped under the heading of "*compensation hypothesis*" (CH).[11]

Public finances would therefore be trapped in a "*fiscal squeeze*" (Grunberg, 1998). Public spending is required to increase to compensate *losers* (as prescribed by CH), while the ability to raise tax revenue (and to supply more public spending) weakens in order to satisfy *winners'* preferences (as prescribed by SH). The fiscal squeeze can therefore be mainly characterised by the interaction of two opposing forces: on the one hand, the efficiency (or discipline) effect that globalisation plays on the tax side; on the other hand, the compensation effect that it plays on the spending side. These two opposing forces may give rise to a general atmosphere of "*permanent austerity*", as suggested by Pierson (2001).

But even 'compensating spending' is not homogeneously characterised across the various actors in the globalisation process. Individuals, especially if their mobility is low, would be more oriented to demand additional transfers and social welfare expenditures to cushion the adverse impacts of economic integration (low wages, unemployment, income volatility, etc.). Firms, instead, would be more oriented to demand privately productive public goods like infrastructures, training programmes, and human capital formation to reduce incentives to exploit the exit option (e.g. Taylor-Gooby, 1997). These two typologies of demands, however, impinge on completely different sectors of public expenditures, and are affected by completely different veto points in advanced economies (e.g. Hallerberg and Basinger, 1998).

This would originate a "*spending squeeze*", characterised by the fact that additional spending demanded by the relatively more mobile actors in the globalisation process does

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French government at the beginning of the '80s (by Mitterrand), in fighting speculation against the franc, were one of the main reasons of the failure of pursuing "Keynesianism in one country". See again Helleiner (1994). The Euromarket in the '60s was defined by Wriston (1986) a "stateless financial market" used to roundtrip capital controls.

[11] These theories are mainly developed by looking at the expenditure side of the public budget, but consistent tax behaviours may be found also on the tax side in those cases where tax revenue increases in response to external pressures.

not always *compensate* the relatively more immobile factors and vice versa. If mobile factors command a premium in shaping the composition of public spending, the spending squeeze might justify the apparently paradoxical empirical observation that public spending often increases in many countries – according to the prescriptions of the compensation hypothesis – but not in the direction prescribed by the hypothesis itself.

This discussion suggests that the net effect of globalisation would be very controversial from a theoretical perspective. Generalising an argument by Genschel (2004), the contemporary presence of both upward and downward pressures might explain why many quantitative studies record a small net effect of globalisation. It is to the analysis of empirical studies that we now turn, with the aim of understanding whether a(n) (almost) conclusive answer can be drawn in favour of either CH or SH.

The focus will be on those empirical studies mainly using econometric methods that include at least one indicator of economic integration (either trade or capital integration or both) and a measure of government size as dependent variable (either on the tax or on the spending side of the public budget) in a context of international comparisons (cross-sectional time –series analysis). As a guide to the reader, it is worth anticipating that empirical studies are extremely differentiated and that uncertain results most commonly emerge not only across different studies, but also within the same study when using alternative specifications of both the dependent and the explanatory variables.

2. Economic integration and tax policies

Reviewing those studies that have investigated the relation between globalisation and tax policies is not an easy task, as they differ in many dimensions (the measure of the tax burden, the measure of economic integration, the number of countries involved, the number of years covered, the methodology of analysis). This makes hard to derive a unifying structure either in favour or against the shrinking hypothesis (SH) or the compensation hypothesis (CH). Notwithstanding these sources of heterogeneity, this paragraph will try to capture the main conclusions deriving from the empirical literature.

Table 5 includes the surveyed studies in chronological order describing, for each of them, the number of countries involved, the coverage period and, in particular, how trade and capital integration have been measured and how they may impact on the chosen measure of tax burden. The table also gives information on the main findings and the econometric method used. Finally, the last column attempts to classify the study according to which theory is supported most by each study.

The measure of trade integration, with very few exceptions, is taken to be trade openness (TO), approximated by the sum of imports and exports over GDP (henceforth EI). Cameron (1978) was indeed one of the first empirical contribution using this measure that has become very popular in applied studies, especially after the reappraisal of the topic by Rodrik (1998). Much less agreement is found on the side of capital integration (CI), as in this case both quantitative and qualitative measures are alternatively considered. However, wide recourse has been made to flows or stock of foreign direct investments (FDI) or qualitative indexes measuring the presence of restrictions to capital flows and payments. Less widespread is the use of foreign portfolio investments (FPI) to measure capital integration, nevertheless their potential relevance to approximate short-run speculative capital movements.

It is also worth noting that there is a wide range of measures of the tax burden, ranging from statutory tax rates to forward-looking or backward-looking effective tax rates (with

various possibilities of normalisation), to measures of tax burden based on tax ratios.[12] This also makes extremely difficult to set a unifying framework to discuss the support to either CH or SH. As a matter of further complication, studies differ widely with regard to the set of countries and years involved. While in almost all cases the analysis is based on a time-series cross-section context, countries included differ in number and, more important, by geographical areas. Some analyses are confined to OECD countries, others extend over a large number of countries, including transitional and less developed ones.

Furthermore, the number of years covered only rarely is updated to very recent times also for recent studies, mainly reflecting the temporal lag with which data are made available. As we will see, this may affect the results to the extent that the most recent years would be those in which economic integration has developed most (as already captured by the data discussed in the previous section).

Given these caveats, it is no surprise that the most unifying answer to the relation between economic integration and tax policies is that there is no conclusive answer. Indeed, there is a set of studies mostly supporting SH, other mostly supporting CH and still other pointing to the absence of any relation or to uncertain outcomes. While trying to shed some light on this issue, we will classify those studies showing the following characteristics as consistent with a taxation version of SH: a) a negative relation between economic integration and capital (or corporate) taxation; b) a positive relation between economic integration and either labour or consumption taxation; c) the contemporaneous presence of both a) and b); d) a negative relation of globalisation with the ratio between capital and labour (or consumption) taxes.[13]

Opposite results will be considered in favour of a taxation version of CH. The absence of any relation is also a possibility, in which case economic integration and tax policies are interpreted as unrelated variables.

Consider first a set of results mainly supporting the taxation version of CH. In a pioneering contribution, Cameron (1978), for 18 OECD countries, has shown that trade openness is a good 'predictor' of the *increase* of government tax revenues, establishing a positive association between economic integration and the size of the public sector. It is worth noting that this study neglects capital openness simply because, at that time, almost all countries analysed had capital controls in place. It is rather surprising that this point has not been fully appreciated by the following literature on the topic, still focusing mostly on trade openness as the main external determinant of government size, even in periods in which capital integration has become of mounting importance, as shown by the data discussed in the first paragraph.

Later, Huber *et al.* (1993), using 17 advanced democracies in the period 1956-1988, gave some support to CH, deriving a positive association between EI and current government receipts (in share of GDP). Garrett (1995), using data on 15 OECD countries for the period 1967-1990, basically confirmed this result, showing that the share of capital taxes on GDP is positively associated with trade integration. The introduction of an index of capital mobility plays instead no role in explaining tax levels. On the contrary, Quinn (1997), using data on 58/64 countries (including some non-advanced countries) for the period 1960-1989 and 1974-1989, found that financial liberalisation (expressed by a qualitative index on capital restrictions) has a positive impact on the

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[12] For a detailed treatment of this issue, see Gastaldi (2008).

[13] This latter would take into account the composition effect of taxes. A negative relation between globalisation and the ratio between capital and labour taxes would signal that either capital taxes decrease more or that they increase less than labour taxes, both outcomes basically compatible with the theory of tax competition.

share of corporate taxation on GDP, therefore giving econometric support to the taxation version of CH from the capital integration side.

These results could be criticised on the ground that the time span does not extend over the period in which economic integration has increased most (see above). Furthermore, Quinn's analysis merges a number of countries with wide different tax structures and institutions, making harder to find a unifying argument either in favour or against the basic hypotheses of the globalisation literature.[14] The same impression can be shared by looking at the results provided by other studies.

Hallerberg and Basinger (1998), for example, by limiting their investigation to OECD countries, find that changes in corporate and income tax rates are not directly related to the liberalisation of capital markets. But Garrett and Mitchell (2001) derive a positive relation between the effective tax rate on capital and the share of FDI inflows and outflows on GDP. In the same direction is the negative relation of FDI with the effective tax rate on labour, while the consumption tax rate is negatively related to trade integration. On the same ground, Swank (2002) using a set of 15 developed democracies in the period 1971-1993 (or 1965-1993 or 1979-1993), finds that the relationship between the liberalisation of capital controls and the effective tax rate on capital (as measured by Mendoza *et al.*, 1994) is positive and significant (actually confirming the positive relation with CI measures already found in Swank, 1998). By using alternative measures of capital mobility, however, the relation disappears. Furthermore, effective tax rates on labour do not have any relation with CI (any measure) or TO, while effective tax rates on consumption are only positively related with trade. Using total taxes over GDP (a standard measure of the tax burden), there is the contrasting result of a positive relation with TO and a negative association with CI measured by FDI inflows and outflows over GDP (but not with other proxies of CI).

Dreher (2006) also finds that the index of globalisation is positively related to tax rates on capital and bears no relationship with labour and consumption tax rates. In this case, the changed composition of the tax structure points to the direction of increasing the share of capital taxes on total taxes. This effect is justified by the author by an increased degree of political integration which might restrict competition and make exit less feasible. On the same line of reasoning, also Beauchamp and Montero (2005) show that the level of the corporate tax rate is positively related to a measure of tax competition, again a support to CH.

On the side of SH, there are also a number of studies. Bretschger and Hettich (2002), by using a set of 14 OECD countries for the period 1967-1996, analyse the impact of globalisation on corporate taxes and labour taxes. Empirical evidence is provided, in this case, that globalisation is negatively related to corporate taxation and positively associated to labour taxation, highlighting both a level and a composition effect. Rodrik (1997) also investigates the effects of trade integration on both the labour and the capital tax rate for 18 OECD countries in the period 1965-1991. The result is in line with the conventional wisdom that labour taxes are positively associated to openness and capital taxes are instead negatively associated to it. However, the result departs from the conventional wisdom by focusing on trade openness rather than on capital openness. When introducing an index of capital mobility, no significant relationship is found with either labour or capital tax rate.

Further support to SH is by Swank (1998) using data for 17 advanced countries in 1966-1993. Unlike in Quinn (1997) and in Garrett (1995), trade integration is negatively

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[14] On the issue of merging widely different countries, see also the critics by Akai and Sakata (2002).

associated to corporate taxation; however, also employers' social security contributions and payroll taxes are negatively related to trade, which points to a *level* rather than to a composition effect of globalisation.

Significant support to SH is also found in Heinemann (1999), using a cluster analysis, Swank and Steinmo (2002) – yet with some results depending on the empirical specification of the model – and Schwartz (2007). It is worth noting that in this latter case, the aim of the analysis is to remedy the shortcoming of many studies in which "the most interesting period is exempted from the regression". This argument goes in the direction discussed above, when noting that many studies may not in fact be able to find a relation between economic integration and tax levels simply because they drop those years in which economic integration has developed faster.

On this ground, a more convincing support to SH is in Winner (2005), where for 23 OECD countries in 1965-2000, not only average effective tax rates on capital are negatively related to a measure of capital mobility, but also average effective tax rates on labour and consumption show the expected (positive) sign. It must be said, however, that a group of studies including those years show very uncertain results on this side (Krogstrup, 2003; Stewart and Webb, 2003; Devereux *et al.*, 2004; Adam and Kammas, 2007).

Finally, uncertain relations between globalisation and tax policies are found in Slemrod (2004), Haufler *et al.* (2006) and Bullmann (2008), whose details can be appreciated in table 5.

The main and to some extent uncomfortable lesson that can be drawn from this review is that there is no conclusive evidence that increased economic integration unequivocally affects either tax levels or changes neither in the direction of supporting SH nor in that of supporting CH. The complexity of table 5 testifies that results are in most cases uncertain, variable-dependent and method-dependent. However, the chronological order of table 5 help highlight that the frequency of CH in the last two columns is lower when moving to more recent studies, where the datasets used extend to years potentially more characterised by the mobility induced by economic integration. To some extent, it might be too early to make the data speaking about the impact of economic integration.

It could however be a common fallacy of most contributions on this topic to argue that globalisation has not produced any effect on tax revenue because either total tax revenue or capital taxes have not decreased. Some issues merit consideration and further discussion that the existing empirical literature does not provide. First, the statement that globalisation does not harm national tax policies implies that the observed tax policies are as they would have been in the absence of globalisation. This assumption, at the best, lacks a counterfactual scenario, but conclusions of almost all empirical studies subsume it.

Second, most of the empirical studies do not distinguish between capital taxes falling on immobile and mobile tax bases. This is fundamental if one wants to appreciate the differential effects of market integration on tax bases with different degrees of mobility (Gastaldi, 2008 provides an exception).

Third, most of the empirical evidence stops around the first half of the Nineties, a period in which capital liberalisation is likely not to have explained all its effects, as many countries have abolished capital controls in that period, especially in Europe.

Fourth, the absence of a *race-to-the-bottom* say nothing on the composition of taxes. If labour taxes increase more rapidly than capital taxes, the share of capital taxes on total tax revenue declines, even though the level of capital taxes does not. This may well be considered as an effect of globalisation, at least from a distributional perspective. Furthermore, the absence of a race to the bottom is still compatible with convergence of

tax rates on mobile capital, i.e. with a situation in which national governments cannot widely differentiate their (effective) tax rates from other countries.

Finally, only two studies (Cameron, 1978 and Hallerberg and Basinger, 1998) use *changes* of taxation rather than levels as dependent variable, an issue that should also command more attention by an empirical perspective (see, for example, Leamer, 1996).

This is to say that, from an empirical point of view, all patterns of capital taxation are potentially consistent with capital market integration and that the effects on the level and the composition of taxes should be assessed together in order to get the right perspective on the consequences for public finances. Only few studies actually provides consistent information using this methodology. A reduction of capital taxation is not a sufficient condition to argue that globalisation has had an (adverse) impact on the redistributive grounds. On the other hand, the absence of such a reduction is not a sufficient condition to make the opposite statement. Hagen *et al.* (1998), for example, have argued that if capital owners shift capital out of high-tax jurisdictions, governments may be forced to increased the effective tax burden in order to maintain the same revenue from an eroding tax base. Therefore, an increased capital taxation, at least in the short run, may signal an intense tax competition rather than the reverse, i.e. an increased difficulty of managing public policies. But none of the contributions reviewed is actually pushing the analysis beyond the direct or indirect test of the traditional hypotheses. To some extent, the empirical evidence might be under-structured to make a conclusive statement on the topic.

3. Economic integration and the size of public spending

Economic integration may have other two important dimensions of influence of the action of the public sector, as it may affect both the size and the composition of public spending.

As already noted in the first section of this paper, there is a strand of literature supporting the idea that globalisation entails additional public spending. In this case, emphasis is placed on the *demand* side, i.e. on the possibility that those harmed by globalisation ask for more public spending in order to cushion the adverse consequences of economic integration, which is the core of the *compensation hypothesis*. On the other hand, globalisation processes also highlight difficulties of national governments to *supply* additional public spending, possibly in response to the tensions on the tax side of the public budget or on the ground that part of public spending is often not perceived as "sound" from the point of view of market forces.

Unfortunately, also in this case, the empirical evidence is extremely mixed and not always strictly comparable. Studies differ widely on how to measure government spending, period and country coverage again extend over different periods, control variables are often not theoretically derived. Furthermore, studies differ also in whether they embrace political models or apolitical views of public spending, more than what can be observed when taxation is taken as a measure of government intervention.

In what follows, we will focus on those studies considering aggregate measures of public spending (mainly total spending or government consumption) leaving to the next paragraph the analysis of those studies considering narrower categories of public expenditures and the corresponding composition effects. It is worth recalling that support to the compensation hypothesis (CH) may arise from a positive relation of public spending with either trade or capital integration indicators (or both). In what follows, an

attempt will be made to distinguish the origin of this support. Details of studies are available in Table 6.

Among the studies mainly supporting CH, perhaps the most influential is by Rodrik (1998). For a large sample of OECD countries, he calculates an interaction term as the product between volatility of terms-of-trade and trade openness to approximate the risk of trade integration. The main result is the positive association between government consumption and trade integration, supporting the idea that the public sector is larger where countries are more integrated, even though some of these results are not in line with Rodrik (1997). There, in a cross-sectional context, it is shown that government consumption has a much more uncertain relation with measures of trade integration, if not a negative relation supporting the shrinking hypothesis (SH).

Alesina and Wacziarg (1998) indirectly challenged this result, by arguing that the positive association between trade and government spending is mediated by country size. They show that this relation survives only without controlling for country size, while the positive association turns to be a 'no relation' when adequately controlled for. Nevertheless, with and without controlling for country size, the positive association is robust when variables are introduced in logs. On this precise issue, more recently Ram (2009) shows that the Alesina and Wacziarg view cannot be shared when data are considered for a longer period of time, again resuming the issue of the period coverage as one of the key elements of the analysis. Estimates by Ram (2009) are indeed consistent with a direct (positive) link between trade openness and government size. It is rather surprising, however, that in this debate capital integration plays no role.

In Garrett (2001), a positive relation between central government spending and trade integration emerges, but the author shows that results are not robust when TO and CI are introduced in *changes* rather than in *levels*, another often overlooked source of heterogeneity of results (as already noted for those studies using tax measures of government size). A more controversial result is obtained when using general government consumption, which is associated to trade positively in levels and negatively in changes. This would mean that more integrated countries would have higher public sectors, but also that public sectors grow more slowly (or shrink) when economic integration increases, which is also consistent with SH.

Stronger results in favour of CH are obtained by Quinn (1997), using government consumption, Garen and Trask (2005), using both government consumption and expenditures, and Epifani and Garcia (2007), using both general government consumption and central government expenditures. Note, however, that in the two latter cases there is no associated measure of capital mobility, while in Quinn (1997) support to CH is reinforced by the positive relation between government size and a measure of capital account regulation. Using the ratio between primary expenditures and GDP, also Krogstrup (2003) is able to support CH, but only when capital mobility is measured by the index of capital restrictions (Quinn, 1997) and by the stock of FDI over GDP. The result is not robust, instead, when CI is approximated by the covered interest parity differentials (CIPD). Conversely, in Iversen (2002) and Sanz and Velazquez (2003) government expenditures are (weakly, in the first case) positively related to a measure of capital mobility (an index of capital market liberalisation and the sum of inward and outward stock of FDI, respectively) but unrelated to trade integration in both cases.

More recently, Bertola and Lo Prete (2008) give also support to CH, but the statistical significance is weaker when considering only OECD countries, which again raise the issue of whether a positive association with TO be mostly driven, in some cases, by less developed and developing countries.

Advocates of the *compensation hypothesis* use the argument on the number of countries to criticise that the support to SH is not robust when this number is extended. On the other hand, critics of the compensation hypothesis argue that the positive relation emerging when a large number of countries is considered is affected by relatively poor countries whose economic conditions and institutional structures are deeply different from those of OECD countries, making the pooling of data quite a debatable practice. On the same vein, Islam (2004) shows that a long-run relationship between openness and public spending holds only for a limited number of countries (within OECD countries) and that in most cases, government size has not changed to mitigate the increased risk of greater openness.

This relatively wide support for CH is counterbalanced by a group of studies whose conclusions work in the direction of SH. Garrett (1995), using a restricted dataset on 15 OECD countries, finds a negative impact of CI (measured by government restrictions on cross-border financial flows) on the level of public spending, but no relation with trade. More importantly, he investigates whether there is scope for ideologically determined national redistribution policies by introducing political variables. The main result is that globalisation associated with left-labour power predict a higher level of public spending at higher globalisation levels.

This result suggests that the effects of globalisation may depend on the institutional and political context, as also argued by Cusack (1997) who also addresses the issue of whether redistribution policies with ideological contents may survive globalisation pressures. Using data on 16 OECD countries he finds a significant negative impact of CI on public spending, a result also emerged in Rodrik (1997), where the analysis is restricted to a sample of OECD countries.[15]

The support for SH is stronger in Garrett and Mitchell (2001), where the signs of both TO and CI agree with SH (with the exception of CI when government size is measured by government consumption). Changes in government consumption are also negatively related to trade integration in Skidmore *et al.* (2004) and in Hansson and Olofsdotter (2008), but in this latter case, CI is unrelated to government size. This finding is challenged in Liberati (2007), where the main aim is to verify whether CI is becoming the most relevant factor in shaping public spending. A negative relationship between CI and the size of public spending (central and general government expenditures) is strongly supported by data on the main OECD countries, especially in the last decade, while TO is mostly unrelated with government size. Basically on the same line is the contribution by Burgoon (2001), at least for government consumption. In this case, however, SH is supported by both trade and capital integration.

On the ground of critics to the common methodology, there are two other interesting contributions: the first, by Garen and Trask (2005), using data on 116 countries, show that when *non-budgetary* measures are introduced to measure the size of government intervention, less open economies tend to have a higher share of the economy controlled by the public sector, pointing to the insufficiency of public spending on GDP as a measure of government size. The second, by Molana *et al.* (2004), instead, show that the compensation hypothesis by Rodrik (1998) is affected by a causality issue. Using a causality test, they do not find any causal relationship between openness and public spending for most of the 23 OECD countries used in their paper for the period 1948-1998.

Finally, a large set of studies, whose details can be appreciated in table 6, show either a *controversial or no relation* in both dimensions of economic integration (trade and

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[15] This relation disappears, however, when the variables are interacted.

capital): Swank (1988), measuring the impact of TO on changes of non-military domestic spending; Iversen and Cusack (2000), using levels and changes of non-military domestic spending over EI and an index of capital market liberalization; Burgoon (2001), when using total government spending in relation to EI, FDI and FPI; Brady *et al*. (2004), finding no relation between government expenditures and 13 measures of globalisation; Dreher (2006), measuring the relation between total government spending and an index of globalisation including 23 variables; Kittel and Winner (2005), using total government spending over EI and FDI; Hays *et al*. (2005), using only trade integration measures and government consumption; Rickard (2007), focusing on changes in central government spending and the interaction between change of imports and the skill ratio; Gemmell *et al*. (2008), using general government expenditures, EI and the stock of inward FDI.

4. Economic integration and the composition of public spending

Economic integration may not only affect *levels* but also the *composition* of public spending. Indeed, in the attempt to make location more attractive, governments may not only entail in tax competition (see above) but also in spending competition. As a result, public spending would be increasingly oriented towards privately productive public goods like infrastructure, training programmes, human capital (to satisfy mobile production factors), and less towards transfers and social welfare expenditures (Taylor-Gooby, 1997), a sort of benefit principle by which economic actors weight the costs of taxation and the corresponding benefits on the expenditure side.

   This does not always agree with the basic tenet of the compensation hypothesis. If greater openness entails more demand for public spending, it would be more intuitive to think about additional demand for more transfers or for a more powerful social safety net, especially in those schemes focusing on the additional risk of economic integration (e.g. Rodrik, 1998).

   This is the reason why, in some empirical studies, the focus has been on social welfare expenditures rather than on total public expenditures. This would lead to two *sub-compensation hypotheses*: the first originating from the additional demand of *social* spending by part of *individuals* following greater openness to compensate additional risks; the second from the additional demand of *productive* spending by part of *firms* in order to reduce incentives to exploit the exit option. These two additional demands, however, relates to completely different sectors of the economy, an issue that has been overlooked by most of the empirical literature using a crude ratio between public spending and GDP, as already described in table 6.

   Not surprisingly, the available empirical literature on the impact of economic integration on the composition of public spending is even less conclusive, as can be appreciated in table 7. Among those studies supporting CH, Hicks and Swank (1992) find a positive a significant influence of openness on social security benefits (both monetary and in-kind) for 18 advanced democracies between 1960 and 1982. On the same side is also Huber *et al*. (1993), in which, however, introducing in-kind benefits makes the positive relationship with openness to disappear. Furthermore, the positive association resists only for social security transfers and not for total social security benefits. Also in the popular contribution by Rodrik (1998), TO has a positive impact on most public spending items (even though in a limited time span), again in partial contradiction with the negative relation between welfare spending and TO found in Rodrik (1997). In this latter case, however, the negative relation turns positive when EI is interacted with terms

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of trade, an issue that leaves rather uncertain whether to classify this study either in favour of CH or in favour of SH. Also in Bretschger and Hettich (2002) and Gizelis (2005) social expenditures are positively related to TO, but it is worth noting that all the results from the mentioned studies are obtained by focusing on TO without including any measure of CI.

One of the first comprehensive investigation on this side is by Swank (2002) concluding that CI (variously measured) bears positive or no relationship with total social welfare spending and government spending on health programs (with the exception of one case where *liberal welfare states* are considered). When using cash payments for old-age, disability, injury, sickness, unemployment and social assistance, and the fraction of average production worker's gross income replaced by unemployment compensation, support to CH mostly disappears (two out of five cases for cash payments). In particular, a positive relationship would emerge in those countries characterised by *high corporatism*, *high consensus democracy* and *low dispersion of authority* (as in the Nordic countries).

The main lesson that can be drawn from the thorough analysis of Swank (2002) is to legitimate the opinion of those who think that globalisation may well have differential effects depending on the institutional structure of any given country. In terms of modelling strategies, therefore, this would require to investigate not only *levels*, but also *changes* with the degree of flexibility introduced that changes may also have differential impacts depending on the *initial level* of extension of welfare states or, more generally, of public sectors. On the other hand, this view, according to some authors, would neglect the possibility that political institutions are *endogenous* to the economic integration process, with this latter pushing towards fragmenting veto points (like trade unions, as in Dreher and Gaston, 2008), creating 'disciplining' supranational entities and giving more power to sub-national entities (fiscal federalism).

Quinn (1997) also concludes that both TO and CI leads to increasing welfare and social security payments, a result shared by Alesina and Wacziarg (1998), recovering a positive association between EI and public investments. While the first correlation is perfectly consistent with CH, the second one would support the idea that the composition of public spending might shift towards more 'productive' items, which may also be consistent with SH.

A positive association of social security expenditures with both trade and capital integration can also be found in Achini and Brem (1998), but this result is conditioned to the use of variables in levels rather than in changes. To this purpose, the authors point to how the choice of the variables may confirm and reject both hypotheses. In Gemmell *et al.* (2008), the positive relation emerges with social security, health and public services (and with defence in the short-run, not entirely consistent with CH), while in Adam and Kammas (2007) support to CH arises using welfare spending and transfers expenditures. Note that this positive association disappears when controlling for terms of trade (an opposite outcome has been already observed in Rodrik, 1997).

Scattered evidence in favour of CH is also traceable in other contributions. Burgoon (2001), deriving a positive relation between capital integration and training and relocation benefits; Kaufman and Segura-Ubiergo (2001), positively linking capital integration and changes in health and education expenditures; Korpi and Palme (2003), on the trade side using cuts in sickness, work accident and unemployment insurance as dependent variables; Dion (2004) for education and health spending in 49 middle-income countries; Avelino *et al.* (2005) positively linking education and social security with TO; Burgoon (2006) using net welfare support; and Bertola and Lo Prete (2008) using social spending.

On the opposite side, support to SH is given by a smaller number of studies. Garrett (1995) derived a negative relation between budget deficits and both TO and CI. The argument runs that when economic integration is higher, budget deficits are lower, implicitly signalling that disciplining effect of openness that is perfectly consistent with SH.

In more recent contributions, Burgoon (2001), Garrett and Mitchell (2001) and Epifani and Garcia (2007) are able to show a negative relation between TO and different typologies of public spending items (respectively: social security transfers, social expenditures, retirement cash and services; social security transfers; central government transfers for social security and welfare). In both the first and third case, no measure of CI is included, while in the second case CI is unrelated to social spending. Gemmell *et al.* (2008), instead, show that a negative relation may emerge between CI and a set of redistributive items, as education, transports and communications and housing (and in the short-run with economic services).

Sanz and Velazquez (2004) also support SH by using σ-convergence rather than econometric evidence. They are able to show that there has been an alignment of the structure of government spending among OECD countries, though this process has slowed down since 1980 (p. 71). In this case, economic integration would not necessarily affect *levels*, rather it introduces a constraint on the possibility of making differentiated public policies, which is a result again consistent with the logic of SH and already observed in the case of taxation.

Apart from the previous studies, from which some evidence either supporting CH or SH is discernible, there is an impressive number of studies where no relation or very uncertain results on the composition of public spending mainly emerge. No support for either CH or EH can be found from: Pampel and Williamson (1988), using social welfare spending over GDP in relation to trade integration; Heinemann (1999) (using social security spending, net investments, the ratio of public debt to GDP and the ratio of primary surplus over GDP); Kaufman and Segura-Ubiergo (2001), using changes of welfare, social security and health and education spending; Iversen (2002), using government transfers and unemployment replacement rates; Sanz and Velazquez (2003), experimenting various categories of expenditures; Korpi and Palme (2003), where the support for CH disappears when only European countries are considered and no relation with CI emerges; Dion (2004), where the use of the variables in levels and changes gives rise to a set of very mixed results for education, health and social security spending, in relation to CI; Brady *et al.* (2004), where the outcome depends on the measure of globalisation used; Skidmore *et al.* (2004), who do not find any relation with TO; Hansson and Olofsdotter (2008), for both transfers and investments and especially with respect to CI; Mares (2005), when using an aggregate social policy protection index as a dependent variable; Hicks and Zorn (2005), focusing mainly on social spending; Dreher (2006) and Dreher *et al.* (2008), the first using social spending over GDP, the second experimenting a wide range of expenditure categories for differentiated set of countries; Avelino *et al.* (2005), especially with respect to health expenditures; Burgoon (2006), finding no association between a measure of net welfare support and trade integration; Shelton (2007), where the results are in most cases method-dependent; and Jiang (2007), who combines no relation with TO with uncertain relations on the CI side for 23 transitional economies. Finally, Iversen and Cusack (2000) impute the absence of evidence in favour of SH to the dislocation of economic activities, challenging that globalisation is producing any effect on public finance variables. On the same line of reasoning, Hays *et al.* (2005) have shown that the negative relation emerges when imports are interacted with deindustrialization.

5. Conclusions

Has economic integration deeply affected the ability of governments to tax and spend? According to the available empirical literature the most likely answer is: We don't know. As observed by the extensive survey of studies measuring the impact of various measures of economic integration on different measures of government size, there are many cases reporting results consistent with some version of the compensation hypothesis (either on the tax or on the spending side of the public budget). At the same time, there is a significant number of studies that gives main support to the hypothesis that the public budget could shrink under the pressure of trade integration and capital mobility. Not surprisingly, there is also a remarkable number of studies who contend that globalisation and public policies variables have any relation. On the basis of the empirical evidence, it is therefore difficult to take a clear-cut position on whether and how economic integration has affected the action of the public sector.

The driving factors of this uncertainty are many. First, studies differ widely in their country and period coverage and often neglect to consider the most recent years, those that are to some extent more promising, at least from a quantitative perspective. Second, and more important, most of the surveyed studies give econometric evidence that is not clearly theoretically based. This gives a broad range of opportunities to introduce *ad hoc* control variables that may significantly influence results on both sides. Third, a certain number of studies derive the relation between openness and government variables as a by-product of a more articulated model. A further difference is that some empirical models are politically based, while others are completely apolitical. Fourth, some uncertainty prevails on whether variables should be introduced in levels or in changes. This gives a further element of differentiation among empirical studies. Levels are neatly prevalent in empirical studies, while estimates in changes are often offered to test the robustness of the level estimation. The frequent lack of a theoretical model increases the uncertainty on what fits best. Fifth, there is no widespread agreement on whether economic integration should be measured by trade integration only or also by capital integration indicators. Using one measure or both in the same econometric relation may significantly alter results, a further reason why empirical evidence should be based on a theoretical model where the role of the different measures of economic integration is clearly specified.

Overall, much work has to be done on the empirical side. Since "we don't know" much space is left to "know something more" about the dramatically important relationship between economic integration and public finance variables.

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Table 1 – Real imports + exports (in USD) over real GDP (in USD)
% values, period averages

Country	70/73	74/78	79/83	84/88	89/93	94/98	99/03	04/06
Austria	32.0	48.3	53.3	52.3	68.1	76.2	78.1	109.4
Belgium							168.8	235.4
Belgium-Luxembourg	82.2	114.9	132.4	112.4	139.8	159.9		
Denmark	34.3	51.8	52.6	49.0	63.4	69.1	64.0	83.3
Finland	37.3	56.0	62.6	53.5	59.9	73.4	65.5	82.9
France	26.0	40.3	44.4	38.2	47.6	52.6	49.8	59.7
Germany	27.8	42.8	46.4	43.1	55.4	58.2	57.4	80.6
Greece	18.3	29.5	29.7	27.6	37.6	40.8	37.7	47.9
Ireland	54.1	76.5	93.3	92.4	113.5	135.8	131.1	128.2
Italy	22.7	33.7	38.5	34.7	43.4	46.9	45.4	60.7
Luxembourg							112.14	160.37
Netherlands	74.2	113.7	109.9	92.0	107.8	127.1	123.1	176.6
Norway	39.5	57.3	57.1	47.2	54.0	52.7	53.5	76.2
Portugal	27.1	33.1	37.3	39.7	59.1	65.5	61.8	80.9
Spain	13.3	21.5	26.6	26.4	39.1	47.3	47.1	62.8
Sweden	43.5	64.4	64.4	57.8	65.6	74.4	63.7	81.4
Switzerland	30.2	48.2	56.4	55.9	68.7	72.9	69.4	89.1
United Kingdom	22.8	33.0	39.7	34.5	41.2	44.8	42.5	50.1
Australia	25.5	35.4	36.8	31.0	36.0	37.7	33.2	44.4
Canada	44.3	55.1	54.8	53.6	57.0	66.2	65.5	72.5
Japan	8.8	14.6	16.1	14.7	15.5	17.3	16.6	19.8
New Zealand	37.1	46.5	54.6	47.4	56.2	61.2	52.2	66.4
United States	8.9	13.8	15.5	14.3	15.7	18.3	19.0	21.2
China	20.3	29.0	34.5	31.4	33.5	35.8	40.9	61.5
India	14.1	21.3	24.1	18.1	17.7	19.8	20.4	32.6
Europe	32.5	48.9	52.7	46.3	55.9	63.3	62.4	83.8
World	21.3	33.4	37.0	30.8	34.8	40.2	40.1	52.3

Source: Authors' calculations on WTO data

Table 2 – Real outwards FDI + inward FDI (in USD) over real GDP (in USD)
% values, period averages

Country	70/73	74/78	79/83	84/88	89/93	94/98	99/03	04/06
Austria	0.6	0.4	0.5	0.5	1.7	3.1	5.1	5.1
Belgium							8.1	33.0
Denmark	0.8	0.6	0.3	0.8	2.9	5.8	16.7	11.1
Finland	0.4	0.4	0.4	2.1	2.8	10.3	12.7	3.7
France	0.6	1.0	1.1	1.4	3.4	4.5	10.8	9.9
Germany	0.9	0.9	0.7	1.0	1.7	3.6	6.3	3.5
Greece					1.3	1.3	1.0	1.5	3.1
Ireland	0.5	1.5	1.3	1.4	3.6	6.8	26.9	26.2
Italy	0.6	0.4	0.4	0.9	1.2	1.4	2.4	4.7
Luxembourg							15.4	76.6
Netherlands	4.5	4.6	4.7	4.0	8.5	14.1	24.7	18.4
Norway	0.8	1.8	1.1	1.9	2.0	4.8	5.6	8.2
Portugal	0.8	0.5	0.4	0.9	3.4	3.7	9.1	7.3
Spain	0.4	0.6	1.0	1.6	3.9	4.4	11.6	11.4
Sweden	0.8	1.0	1.3	3.7	6.1	11.8	18.0	13.3
Switzerland			0.7	3.5	5.1	9.4	14.7	21.1
United Kingdom	1.9	2.5	2.9	4.0	4.6	7.4	12.5	11.6
Croatia					0.6	3.1	7.9	9.3
Czech Republic					2.1	4.2	9.8	11.2
Estonia						7.3	10.0	27.5
Latvia						6.4	3.8	8.4
Lithuania						3.1	3.7	8.0
Poland		0.1	0.1	0.0	0.6	3.3	3.7	6.7
Romania					0.2	2.4	3.3	14.5
Slovenia					0.9	1.4	3.3	4.7
Ukraine						1.6	2.3	9.7
Australia	2.1	1.9	2.3	4.2	3.6	3.8	4.3	10.5
Canada	3.4	3.4	2.8	2.7	2.3	5.2	8.0	7.8
Japan	0.2	0.2	0.2	0.7	1.0	0.6	0.8	0.9
New Zealand	1.8	1.9	1.8	6.4	9.2	7.8	4.8	7.3
United States	0.8	0.9	1.0	1.3	1.4	2.4	3.3	2.5
China			0.5	1.1	2.5	5.3	3.7	3.5
India	0.1	0.1	0.1	0.1	0.1	0.7	1.1	2.0
Europe	1.0	1.2	1.2	1.8	3.2	5.3	11.0	9.2
World	0.8	0.9	1.0	1.4	2.0	3.3	5.4	4.8

Source: Authors' calculations on IFS data

Table 3 – Cumulative FDI flows
Billions of real USD

	Outward FDI				Inward FDI				Net outflows		
Country	1970-2006	1996-2006	% in last 10 years	Country	1970-2006	1996-2006	% in last 10 years	Country	1970-2006	1996-2006	
United States	2,474.3	1,501.7	60.7	United States	2,461.8	1623.7	66.0	Japan	666.0	275.1	
United Kingdom	1,580.6	1,056.9	66.9	United Kingdom	1,134.1	779.0	68.7	United Kingdom	446.5	277.9	
France	1,105.2	867.8	78.5	China	700.5	546.6	78.0	France	443.0	389.9	
Germany	880.9	550.8	62.5	France	662.1	477.9	72.2	Netherlands	341.4	213.4	
Netherlands	769.2	524.0	68.1	Germany	581.7	485.4	83.4	Germany	299.2	65.4	
Japan	749.2	339.4	45.3	Canada	460.1	278.5	60.5	Switzerland	277.6	211.3	
Canada	474.0	326.8	69.0	Netherlands	427.8	310.6	72.6	Sweden	72.4	15.5	
Spain	442.7	407.1	92.0	Spain	383.8	244.6	63.7	Italy	59.0	47.8	
Switzerland	410.7	316.2	77.0	Sweden	280.7	154.7	55.1	Spain	58.9	162.6	
Sweden	314.9	208.9	66.3	Australia	242.5	193.4	79.8	Finland	44.0	27.9	
Italy	273.9	192.2	70.2	Italy	214.9	144.4	67.2	Norway	29.6	29.7	
Australia	169.5	114.3	67.4	Belgium	180.2	165.8	92.0	Canada	14.0	48.3	
Belgium	161.0	161.0	100.0	Switzerland	178.6	178.6	100.0	United States	12.5	-122.1	
Denmark	128.5	103.2	80.3	Denmark	133.1	104.8	78.7	Austria	0.5	2.7	
Finland	107.4	81.8	76.2	Ireland	132.7	108.8	82.0	Slovenia	-2.7	-2.2	
Norway	98.8	74.5	75.4	Poland	89.0	79.4	89.2	Denmark	-4.1	-5.6	
Ireland	89.4	83.8	93.7	Japan	83.2	64.4	77.3	Latvia	-5.2	-4.9	
China	73.0	51.9	71.2	Austria	69.2	44.8	64.8	Lithuania	-6.1	-6.0	
Austria	65.7	51.4	78.2	Norway	65.2	48.7	74.7	Estonia	-6.2	-5.7	
Portugal	47.8	44.4	92.7	Hungary	63.9	42.3	66.2	Croatia	-13.2	-12.8	
Luxembourg	25.5	25.5	100.0	Portugal	63.4	53.9	85.1	Portugal	-15.2	1.7	
New Zealand	23.1	9.0	38.9	Finland	63.0	42.7	67.8	Belgium	-17.6	-17.6	
India	18.6	18.3	98.2	India	62.9	55.5	88.2	Luxembourg	-18.1	-18.1	
Greece	10.8	10.6	97.8	New Zealand	60.7	26.7	44.0	Ukraine	-18.8	-18.3	
Hungary	9.7	9.5	97.8	Czech Republic	59.4	53.8	90.5	Greece	-23.6	-3.2	
Poland	8.6	8.1	95.0	Luxembourg	43.5	43.5	100.0	Romania	-32.3	-31.3	
Czech Republic	3.6	3.3	91.7	Greece	34.4	13.8	40.0	New Zealand	-37.6	-17.7	
Estonia	2.6	2.6	99.8	Romania	32.6	31.5	96.7	India	-44.3	-37.2	
Slovenia	2.6	2.5	98.9	Ukraine	19.3	18.8	97.6	Hungary	-54.2	-32.8	
Croatia	1.9	1.9	98.2	Croatia	15.1	14.7	97.3	Czech Republic	-55.8	-50.5	
Lithuania	0.9	0.9	99.9	Estonia	8.7	8.3	94.8	Poland	-80.4	-71.2	
Latvia	0.6	0.5	77.7	Lithuania	7.0	6.8	98.4	Ireland	-90.8	-82.0	
Ukraine	0.5	0.5	95.9	Latvia	5.8	5.4	92.5	Australia	-111.2	-40.4	
Romania	0.3	0.2	85.5	Slovenia	5.3	4.8	89.7	China	-627.5	-494.7	

Source: Authors' calculations on IFS data

Table 4 – Real outwards FPI + inward FPI (in USD) over real GDP (in USD)
% values, period averages

Country	70/73	74/78	79/83	84/88	89/93	94/98	99/03	04/06
Austria	0.7	2.2	2.1	3.4	5.7	10.8	22.9	30.2
Belgium							7.9	15.2
Belgium-Luxembourg								
Denmark		0.5	0.3	2.5	7.4	8.7	13.4	21.2
Finland		1.2	0.8	4.0	9.1	6.4	20.2	25.9
France		0.7	1.0	1.8	5.9	6.9	17.8	30.0
Germany	0.8	0.5	0.8	3.0	6.1	8.7	12.5	17.2
Greece				0.0	0.0	0.0	12.1	28.0
Ireland		2.2	2.0	5.3	6.1	35.1	187.9	298.9
Italy	0.4	0.1	0.1	0.8	5.6	12.1	11.2	13.7
Luxembourg							564.1	1577.3
Netherlands	1.9	1.3	2.0	5.1	5.2	14.5	37.9	40.6
Norway		4.5	1.7	4.0	3.0	6.2	15.8	43.0
Portugal		0.0	0.2	1.3	3.8	11.3	17.4	23.2
Spain		0.1	0.0	0.7	6.4	6.1	15.9	31.4
Sweden	0.3	0.7	0.4	0.5	4.4	7.4	10.1	11.8
Switzerland			8.2	9.3	10.3	11.6	16.2	16.7
United Kingdom	0.7	0.7	2.0	6.7	9.7	9.7	14.3	28.8
Croatia					0.0	1.5	4.0	5.0
Czech Republic					4.9	2.6	4.7	7.3
Estonia						4.2	6.5	18.8
Latvia						3.6	3.7	3.0
Lithuania						0.8	3.1	6.9
Poland		0.0	0.0	0.0	0.0	0.9	1.7	5.5
Romania					0.0	0.6	1.2	1.8
Slovenia					0.0	1.7	1.4	8.4
Ukraine						2.2	2.1	5.4
Australia	1.4	1.2	1.6	4.2	5.3	5.5	8.6	18.3
Canada	1.0	3.4	2.9	4.2	7.2	4.5	4.7	7.5
Japan	.	0.5	1.2	3.6	3.6	3.6	4.0	6.1
New Zealand	0.0	0.0	0.0	0.0	2.1	3.4	5.4	6.2
United States	0.7	1.0	0.6	1.6	2.1	4.5	5.2	9.3
China			0.2	0.8	0.3	0.5	1.2	1.1
India	.	0.0	0.0	0.0	0.0	0.4	0.5	.

Source: Authors' calculations on IFS data

Table 5 – Empirical studies on economic integration and the size of taxation

#	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
1	Cameron (1978)	18 countries	1960-1975	Increase of govt revenues as a % of GDP	Exports plus Imports divided by GDP		Positive			OLS (?)	CH	
2	Huber, Ragin and Stephens (1993)	17 advanced democracies	1956-1988	Current government receipts as a % of GDP	Exports plus imports over GDP		Positive		Significant in two out of four regressions (significant using OLS and GLS adjusting for time-specific errors)	OLS/GLS	CH	
3	Garrett (1995)	15 OECD countries	1967-1990	Capital taxes over GDP	Exports plus imports over GDP	Measure of govt restrictions on cross-border financial flows (AREAER by IMF – multiplied by minus one – higher number higher mobility)	Positive	No relation	Negative relation with trade interacted with left-labour power	Cross-sectional heteroskedastic and time-wise autoregressive panel regression	CH	No relation
4	Quinn (1997)	58-64 countries	1960-1989; 1974-1989	CG Corporate tax revenue over GDP	Trade balance over GDP	0-14 index of financial openness: a) inward and outward capital account transactions on a 0-4 scale; b) inward and outward current account transactions on a 0-8 scale; c) international legal agreements on a 0-2 scale	No relation	Positive		OLS with heteroskedastic-consistent covariance matrix (White, 1984)	No relation	CH
				CG Corporate tax revenue over total taxes			No relation	No relation (neither in levels nor in changes)			No relation	No relation
				CG Corporate/ CG individual tax ratio			Positive	Positive			CH	CH
5	Rodrik (1997)	18 OECD countries	1965-1992	Effective tax rates on capital	Exports plus Imports divided by GDP(-1)	Dummy for restrictions on capital mobility (AREAER by IMF)	Negative. Relation disappears when dummy for restrictions on capital mobility and its interaction with trade is included.	Positive (a negative sign in the regression but a high AREAER means higher restrictions)		FE	SH	CH
				Effective tax rates on labour			Positive	Positive			SH	SH
6	Hallerberg and Basinger (1998)	OECD countries	1986-1990	Changes in top marginal tax rates for corporate and personal income taxes	Imports plus exports over GDP	Number of capital controls (AREAER)	No relation (neither for corporate nor for income tax rates)	No relation (neither for corporate nor for income tax rates)		Cross-sectional methods	No relation	No relation
7	Swank (1998)	17 advanced countries	1966-1993	Corporate profit taxation as a % of operating income	Real imports plus real exports over real GDP	1) Total capital inflow and outflow as a % of GDP; 2) National restrictions on the cross-border movement of capital (0-4 scale); 3) National and international agreement restrictions on payments and receipts of capital (0-14 scale)	Negative	Positive relation with capital measures 1) and 3)		OLS with panel-corrected standard errors	SH	CH
				Employer social security and payroll taxation as a % of operating income			Negative	Positive relation with capital measure 3)			SH	CH

Table 5 *(continued)*

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
8	Heinemann (1999)	21 OECD countries	1970-1997	Taxes on corporate income over total taxation	Exports plus imports over GDP	Legal restrictions on international capital transactions	Some support to the hypothesis that taxes shift away from mobile to immobile tax bases.			Cluster analysis	SH	
				Taxes on goods and services over total taxation							SH	
				Total tax revenues over GDP			Support to the hypothesis that globalization restricts the size of public sector				SH	
9	Garrett and Mitchell (2001)-(1999)	16 OECD countries	1961-1992 with gaps	Effective tax rate on capital	1) Exports + Imports over GDP; 2) Share of imports from low-wage countries over total imports	3) FDI inflows and outflows over GDP; 4) International financial openness index	No relation	Positive relation with 3)		GLS with panel corrected standard errors	No relation	CH
				Effective tax rate on labour			No relation	Negative relation with 3) and 4)			No relation	CH
				Effective tax rate on consumption			Negative relation with 1) and 2) (10%)				CH	
10	Bretschger and Hettich (2002)	14 OECD countries	1967-1996	Effective average corporate tax rates	Exports plus Imports divided by GDP	1) Restrictions on payments and receipts of capital (index ranging 0-14); 2) Investment abroad as a share of GDP	Negative	Negative	The negative relation with capital disappears when using FE instead of PCSE or when using a partial adjustment model (10%)	PCSE, FE	SH	SH
				Ratio between labour effective tax rate and corporate effective rax rate			Positive	Positive	The positive relation with capital disappears when using FE instead of PCSE		SH	SH
11	Swank (2002)	15 developed democracies	1965-1993 (1979-1993 in some cases)	Effective tax rates on labour	Real imports plus real exports as a % of real GDP	1) Average (lagged 1 to 3 years) of total capital inflows and outflows as a % of GDP; 2) Average (lagged 1 to 3 years) of FDI inflows and outflows as a % of GDP; 3) Average (lagged 1 to 3 years) of borrowing on international capital markets as a % of GDP; 4) Index (scale 0-4) of the absence of national restrictions on the cross-border payments and receipts of capital; 5) Absolute value of covered interest rate parities	No relation	No relation		OLS with panel-corrected standard errors	No relation	No relation
				Effective tax rates on consumption			Positive	No relation			SH	No relation
				Effective tax rates on capital			No relation	Positive with measure 4)			No relation	CH
				Total taxes (as a % of GDP)			Positive	Negative with measure 2)			CH	SH
12	Swank and Steinmo (2002)	14 developed democracies	1981-1995	Statutory corporate tax rate	Exports plus imports over GDP	0-14 index of financial openness: a) inward and outward capital account transactions on a 0-4 scale; b) inward and outward current account transactions on a 0-8 scale; c) international legal agreements on a 0-2 scale	Negative (disappears with FE)	Negative		OLS panel-corrected for heteroskedasticity and correlation; FE	SH	SH
				Effective tax rate on capital			No relation	No relation			No relation	No relation
				Effective tax rate on labour			Negative	Negative			No relation	CH
				Effective tax rate on consumption			Positive (disappears with FE)	No relation			SH	No relation

Table 5 *(continued)*

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
13	Krogstrup (2003)	14 European countries	1970-2001	Implicit capital tax rate	Change of exports+ imports over GDP (lagged one period)	1) Index of capital restrictions (Quinn, 1997); 2) FDI sotcks over GDP; 3) covered interest parity differentials	Positive (10%) when using 1) and 2). Negative when using 3).	Negative with 3)	Using an interaction with country size: negative relation with 1) and 3) (10%). The interaction term is positively related to 1) and negatively related to 2). Using an interaction term with agglomeration: negative relation with 1) only. Positive relation with the interaction term with 1).	FGLS with FE	Uncertain	SH
				Corporate tax revenues over GDP			Negative using any capital indexes.	Positive relation with 1). Negative relation with 3).	Using an interaction with country size: negative relation with 2) and 3).		SH	Uncertain
				Implicit capital tax rate over implicit labour tax rate			Negative when using 3) (10%). No relation when using 1) and 2).	Negative relation with 3)			Uncertain	SH
				Corporate tax revenues over total tax revenue			Negative when using 3). No relation when using 1) and 2).	Positive with 1). Negative with both 2) (10%) and 3).			Uncertain	Uncertain
14	Stewart and Webb (2003)	19 OECD countries	1950-1999; 1965-1999 (with some exceptions)	A) Corporate taxation over GDP (CIT/GDP; B) Corporate taxation over total taxes (CIT/GTR); C) Corporate+social security+payroll over GDP (ALL/GDP; D) Corporate+social security+payroll over total taxes (ALL/GTR)	Convergence of CIT/GDP; CIT/GTR; ALL/GDP; ALL/GTR		Only modest evidence that corporate tax burdens move together in the long run across countries			Bivariate and multivariate cointegration analysis	No relation	No relation
15	Devereux, Lockwood and Redoano (2004)	21 OECD countries	1982-1999	Statutory corporate tax rate	No measure	a) Sum of inward and outward FDI over GDP, lagged one year; b) average global tax rate (statutory or effective)		No relation with a). Positive relation with b).	Tax rates tend to move together where the home country and the other countries have no capital controls. This relation disappears in countries with capital controls.	Weighted OLS corrected by heteroskedasticity and correlation	Uncertain	Uncertain
				Effective tax wedge (cost of capital minus the real interest rate)								
16	Slemrod (2004)		1980-1995	Statutory corporate tax rate	1) Exports plus imports over GDP, 2) Sachs-Werner measure of openness		Negative with 2) in one out of two regressions			Pooled cross-sectional, FE	SH	
				Average corporate tax rate			Positive with 1) in one out of two regressions				CH	
17	Beauchamp and Montero (2005)	13 advanced industrial economies	1981-2004 (?)	Corporate tax rate	No measure	Average global tax rate lagged 5 years (proxy of tax competition)		Positive		OLS (?)		CH

Table 5 *(continued)*

#	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
18	Dreher (2005)	30 OECD countries (unbalanced panel)	1970-2000 (variable)	Average effective tax rate on labour			No relation	No relation	It holds with both OLS and GMM		No relation	No relation
				Average effective tax rate on consumption	Index of globalization using 23 variables or sub-index of economic integration. On the trade side a) trade in % of GDP; b) hidden import barriers; c) mean tariff rate; d) taxes on international trade	Index of globalization using 23 variables or sub-index of economic integration. On the capital side a) FDI in % of GDP; b) FPI in % of GDP; c) income payments to foreign nationals in % of GDP; d) capital account restrictions.	No relation	No relation	It holds with both OLS and GMM	OLS and GMM	No relation	No relation
				Average effective tax rate on capital			Positive	Positive	Positive relation with economic integration with both OLS (10%) and GMM. Positive relation with the measure of ETR developed by Volkerink and de Haan (2001).		CH	CH
				Adjusted statutory tax rates on capital (Devereux and Griffith, 2003)			Negative	Negative	The relation disappears when introducing a lagged dependent variable		SH	SH
19	Winner (2005)	23 OECD countries	1965-200	Average effective tax rate on capital				Negative and robust to GMM	Sensitivity analysis: a) using trade openness gives negative relation at 10%; b) using the Quinn-index of capital mobility gives no relation			SH
				Average effective tax rate on labour				Positive. Disappears using GMM	Sensitivity analysis: a) using trade openness gives positive relation; b) using the Quinn-index of capital mobility gives no relation			SH
				Average effective tax rate on extended labour (labour+consumption)	No measure	Absolute difference between saving and investment over GDP		Positive. Disappears using GMM	Sensitivity analysis: a) using trade openness gives positive relation; b) using the Quinn-index of capital mobility gives positive relation	FGLS, GMM		SH
				Capital to labour tax ratio				Negative Disappears using GMM	Sensitivity analysis: a) using trade openness gives negative relation; b) using the Quinn-index of capital mobility gives negative relation at 10%			SH
				Capital to extended labour tax ratio				Negative. At 10% using GMM	Sensitivity analysis: a) using trade openness gives negative relation at 10%; b) using the Quinn-index of capital mobility gives negative relation at 10%			SH

Table 5 *(continued)*

No.	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
20	Haufler, Klemm, Schjelderup (2006)	23 OECD countries	1980-2001	Ratio of statutory corporate tax rate and effective wage tax rate (average OECD worker) - Tax Mix	1) Exports plus imports over GDP; 2) Share of value added in the service sector to value added in manufacturing	3) Index of capital market restrictions (Quinn, 1997); 4) Outward FDI stock over GDP	No relation with 1). Positive with 2)	Positive with 3) when using FE. Negative when removing FE. No relation with 4)		FE	Uncertain	Uncertain
21	Adam and Kammas (2007)	17 OECD countries	1970-1997	Effective corporate (C) income tax ratio	Exports plus imports over GDP, corrected by country size		Negative		No relation in corporatist countries. Negative relation (10%) in non-corporatist countries.	OLS with panel-corrected standard errors	SH	
				Effective labour (L1) income tax ratio			Positive		Positive relation in both corporatist and non-corporatist countries		SH	
				Effective social security contributions (SSC) ratio			Positive		Positive relation in corporatist countries. No relation in non-corporatist countries		SH	
				Effetive labour income tax ratio excluding SSC (L2)			No relation		No relation in both corporatist and non-corporatist countries		No relation	
				Ratio C/L1			Negative (10%)				SH	
				Ratio C/L2			No relation				No relation	
				Ratio C/SSC			Negative				SH	
				Ratio SSC/L2			Positive				No relation	
22	Schwarz (2007)	20 OECD countries	1979-2000	Corporate to labour tax ratio (EATR) (King-Fullerton, 1984 and Devereux and Griffith, 2003)	No measure	Index of capital account restrictions (Quinn, 1997)		Negative in 3 of 4 regressions		OLS (?)		SH
				Macro-corporate tax ratio (Mendoza et al., 1994; Volkerink and de Haan, 2001)				Negative in 1 of 5 regressions				Uncertain
				Microeconomic tax ratio (uses data on company accounts)				No relation				No relation
23	Bullmann (2008)	18 OECD countries (as in Cameron)	1960-1975 (replicate Cameron); 1960-2006	General govt receipts as a share of GDP (in differences)	Exports plus Imports divided by GDP	FDI net outflows as a share of GDP	Positive with levels. Negative with changes.	Negative (10%)	Levels of govt receipts are negatively related to trade when controlling for time and entity effects	Pooled OLS, FE	Uncertain	SH
24	Gastaldi (2008)	18 OECD countries	1970-2005 (with gaps)	Effective tax rates on mobile capital (convergence)	Real exports plus imports divided by real GDP	a) Outward FDI flows over GDP; b) outward FPI flows over GDP (assets)	No relation	Negative with a) in all specifications but one limiting the time period to before 1990. No relation with b)		FGLS and PCSE	No relation	SH
				Effective tax rates on immobile capital (convergence)			No relation	No relation with either a) or b)		FGLS	No relation	No relation
				Effective tax rates on labour (convergence)			Negative at 10%	Positive with a). No relation with b)		FGLS	No relation	SH
				Effective tax rates on consumption (convergence)			No relation	No relation with either a) or b)		FGLS	No relation	No relation

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Table 6 – Empirical studies on economic integration and the size of public spending

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
1	Swank (1988)	18 affluent democracies	1960-1980	Changes in non-military domestic spending over GDP (in logs)	Exports plus imports over GDP		Negative in 1960-1973; Positive in 1973-1980			OLS	SH in 1960-1973; CH in 1973-1980	
2	Garrett (1995)	15 OECD countries	1967-1990	Govt spending in % of GDP	Exports plus imports over GDP	Measure of govt restrictions on cross-border financial flows (higher score, more capital mobility)	No relation	Negative (10%)	Positive relation of both trade and capital mobility interacted with left-labour power		No relation	SH
3	Quinn (1997)	58-64 countries	1960-1989; 1974-1989	Govt consumption (excluding defence and education) over GDP	Trade balance over GDP	0-4 measure of capital account regulation	Positive	Positive			CH	CH
4	Rodrik (1997)	22 countries	Cross-section/1966-1991	Govt consumption over GDP in OECD countries	1) Export plus imports over GDP; 2) Terms of trade (volatility)	Capital account restrictions (AREAER)	No relation with 1) and 2)	No relation	Using *panel data*: Negative relation with 1) (10%). Robust to the introduction of interaction 1) with AREAER. Positive sign on the interaction term.	Cross-section analysis and FE	No relation	No relation
		32 countries		Govt consumption over GDP in countries with 1985 per capita GDP > $4500			Negative (10%).	No relation	Positive relation with 1) and 2) interacted		SH	No relation
		109 countries	Cross-section	Govt consumption over GDP			Negative (10%).	No relation	Positive relation with 1) and 2) interacted		SH	No relation
5	Cusack (1997)	15/16 countries	1955-1989	Change of non-military government spending in % of GDP		Annual average of the absolute value of 1 minus the ratio of private investments to private savings		Negative		Pooled cross-sectional time-series		SH
6	Rodrik (1998)	103 or 125 countries	1985-1989; 1990-1992	Three- or five-year average of real govt consumption as a % of GDP	Exports Imports divided by GDP (average over the previous decade)		Positive		Results are robust to the inclusion of terms of trade. A measure of *external risk* (the product between openness and terms of trade) is positively related to govt consumption. Social security and welfare are positively associated to external risk		CH	
7	Alesina and Wacziarg (1998)	?	1985-1989	Govt consumption in % of GDP	Exports plus imports divided by GDP (1975-1984)		*Variables in logs*: Positive (with and without controlling for country size)		*Variables not in logs*: Positive relation without controlling for country size. No relation controlling for country size.		CH	
8	Iversen and Cusack (2000)	15 countries	1961-1993	Level of and change of government consumption (total govt consumption of goods and services net of military spending) as a % of GDP	Exports plus Imports divided by GDP	An index measuring the extent to which capital markets are liberalised (Quinn and Inclan, 1997)	No relation with levels (10%). No relation with changes	No relation with levels. Negative relation with changes			No relation	No relation

Table 6 (*continued*)

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
9	Garrett (2001)	87–116 countries	1985–1995	Central govt spending as a % of GDP	Exports plus Imports divided by GDP	Index of government restrictions on capital account transactions (IMF)	Positive (in levels)	No relation (in levels)	Estimation in changes gives no relation with trade and capital. Interaction between trade and capital not significant		CH	No relation
				General govt consumption in % of GDP			Positive (in levels)	No relation (in levels)	Estimation in changes gives a negative association of trade with govt consumption. No effects of capital restrictions. Interaction between trade and capital not significant		CH	No relation
10	Burgoon (2001)	18 OECD countries	1961–1994; 1980–1994	Total govt spending over GDP	1) Exports plus imports over GDP; 2) Low-wage imports (from non-OECD countries) over total imports	3) Inward and outward FDI over GDP; 4) Portfolio flows over GDP	Negative with 1). Positive with 2)	No relation			Uncertain	No relation
				Govt consumption (including health and education) over GDP			Negative with 1)	Negative with 3) at 10%			SH	SH
11	Garrett and Mitchell (2001)	16 OECD countries	1961–1993 with gaps	Total govt spending over GDP	1) Exports + Imports over GDP; 2) Share of imports from low-wage countries over total imports	3) FDI inflows and outflows over GDP; 4) International financial openness index	Negative with 1)	Negative with 4) (10%)		XTGLS with panel corrected standard errors	SH	SH
				Govt consumption over GDP			Negative with 1)	No relation			SH	No relation
12	Iversen (2002)	15 OECD countries	1961–1993	Total government spending	Exports plus imports over GDP	Capital market liberalization as in Quinn and Inclan (1997)	No relation	Positive relation (10%)		OLS	No relation	CH
13	Sanz and Velázquez (2003)	26 OECD countries	1970–1997	Govt expenditures in % of GDP	Exports plus Imports divided by GDP	Sum of inward and outward stock of FDI as a % of GDP	No relation	Positive		OLS	No relation	CH
14	Krogstrup (2003)	14 European countries	1970–2001	Primary expenditures over GDP	Change of exports+ imports over GDP (lagged one period)	1) Index of capital restrictions (Quinn, 1997); 2) FDI stocks over GDP; 3) covered interest parity differentials	Positive when using 1) and 2). Negative when using 3).	Negative with 3) only		FGLS with FE	CH	Uncertain
15	Islam (2004)	6 OECD countries (separate time series analysis)	Various time spans for individual countries	Govt expenditures in % of GDP	Exports plus Imports divided by GDP		1) In USA: negative relation with trade; 2) in Australia: positive relation with ToT; 3) Canada: positive relation with trade; negative relation with ToT; 4) England: positive relation with trade; (weak) negative relation with ToT; 5) positive relation with trade; negative relation with ToT; 6) Sweden: (weak) positive relation with trade			Uncertain	
16	Molana, Montagna, Violato (2004)	23 OECD countries	1948–1998	Govt consumption in % of GDP	Exports plus Imports divided by GDP		Refusal of the universal validity of the compensation hypothesis. Only Japan, Norway and UK satisfy the causality test (from trade openness to govt size)				No relation	

Table 6 (*continued*)

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
17	Brady, Beckfield and Seeleib-Kaiser (2004)	17 affluent democracies	1975-1998 (with some missing years for some countries)	Govt expenditures as a % of GDP	16 measures of globalization: 1) inward FDI; 2) inward PI; 3) net investment; 4) exports; 5) net trade; 6) net globalization; 7) FDI openness; 8) investment openness; 9) trade openness; 10) total globalization; 11) capital account liberalization index; 12) current accounts liberalization index; 13) outward FDI; 14) outward PI; 15) imports; 16) net migration		Negative relation with the measures 1), 7) and 13)		Failure to verify the curvilinear hypothesis (squared terms)		Uncertain	Uncertain
18	Skidmore, Toya and Merriman (2004)	Max 208 countries	1960-2000	Changes in govt consumption (per capita and over GDP)	Average ratio of real imports+exports to real GDP (in 5-year intervals)	No measure	Negative (both per capita and over GDP)			FE	SH	
19	Garen and Trask (2005)	116 countries	1990	Government expenditures as a % of GDP	Exports plus Imports divided by GDP		Positive				CH	
				Government consumption as a % of GDP			Positive				CH	
20	Hanson and Olofsdotter (2005)	20 OECD countries (unbalanced panel)	1970-2002	Annual change in govt consumption as a % of GDP	Annual change in the sum of exports and imports as a % of GDP	Annual change in the sum of FDI inflows and outflows as % of GDP	Negative (only with FGLS and 2SLS)	No relation			SH	No relation
21	Dreher (2005)	30 OECD countries (unbalanced panel)	1970-2000 (variable)	Total spending over GDP	Index of globalization using 23 variables or sub-index of economic integration. On the trade side a) trade in % of GDP; b) hidden import barriers; c) mean tariff rate; d) taxes on international trade	Index of globalization using 23 variables or sub-index of economic integration. On the capital side a) FDI in % of GDP; b) FPI in % of GDP; c) income paymentsto foreign nationals in % of GDP; d) capital account restrictions.	No relation	No relation			No relation	No relation
22	Kittel and Winer (2005)	17 OECD countries (use Garrett and Mitchell, 2001 dataset)	1961-1993	Total govt spending over GDP	a) Exports plus imports over GDP; b) Share of imports from low-wage countries over total imports	c) FDI flows over GDP	***Pooled OLS*:** Positive with a). Negative with b). ***FE*:** No relation with a). Positive with b). ***BE*:** No relation.	***Pooled OLS*:** No relation. ***FE*:** No relation. ***BE*:** No relation.	In *LEVELS*: FE, FE_PW, WLS: Positive relation with b). FE, GM, WLS, PCSE: Negative relation with c). In *FIRST DIFFERENCES*: Negative relation with c) when using WLS	Pooled OLS, FE, BE, PW, WLS, GM, PCSE (static and dynamic specifications)	Uncertain	Uncertain
23	Epifani and Gancia (2005)	150 countries	1950-2000; 1975-2000	General govt consumption in % of GDP	Exports plus Imports divided by GDP	No measure	Positive			FE, RE	CH	
		subset of countries	1972-1999	Central govt expenditures in % of GDP			Positive				CH	
24	Hays, Ehrlich and Peinhardt (2006?)	17 OECD countries	1960-2000	Govt consumption over GDP	1) Imports; 2) Imports x Deindustrialization (as in Iversen and Cusack); 3) Exports	No measure	Positive with 1). Negative with 2). Negative with 3).			LSDV	Uncertain	

Table 6 *(continued)*

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
25	Liberati (2007)	15-20 countries depending on the specifications	max range 1967-2003 (unbalanced panel, with missing years)	Central govt expenditures in % of GDP	Exports plus Imports divided by GDP	1) Sum of outward and inward FDI; 2) Sum of outward and inward FPI	No relation	Negative	The same holds for estimations in changes rather than in levels		No relation	SH
				General govt expenditures in % of GDP			No relation	Negative			SH	SH
26	Rickard (2007)	19 developing countries	1976-1996	Changes in total central govt spending	Change of imports x Lagged skill ratio (skilled to unskilled workers). Use both variables also in isolation.	No measure	Positive with the interaction term.		Negative relation with change in imports. Negative relation with lagged skill ratio (10%).	ECM	Uncertain	
		24 developed countries	1976-1997				No relation.				No relation	
27	Gemmell, Kneller and Sanz (2008)	25 OECD countries	1980-1997	General govt expenditures in % of GDP	Exports plus Imports divided by GDP	Inward stock of FDI as a share of GDP	Positive or no relation (depending on specifications)	Positive or no relation (depending on specifications)			Uncertain	Uncertain
28	Bertola, Lo Prete (2008)	Max 137 countries	1980-2003	Government share of GDP (PWT)	Exports plus Imports divided by GDP (in logs). 5-year averages	Credit information index	Positive relation	No relation (one in five regressions)	The positive relation with trade is weaker when considering only OECD countries.	Cross-sectional analysis	CH	No relation
29	Ram (2009)	154 countries	1960-2000	Government consumption as a % of GDP (in logs)	Exports plus Imports divided by GDP (in logs)	No measure	Positive relation		Robust to OLS and fixed effects. Robust to annual data and to 5/10 year averages.	OLS/FE	CH	

Table 7 – Empirical studies on economic integration and the composition of public spending

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
1	Pampel and Williamson (1988)		1950-1980	Social welfare spending over GDP	Exports plus imports over GDP (with one lag)		No relation		Positive in one out of five regressions	GLS	No relation	
2	Hicks and Swank (1992)	18 advanced democracies	1960-1982	Welfare spending over GDP	Exports plus imports over GDP (with one lag)		Positive		Robust to welfare effort with and without party interactions	GLS + jackknife replication	CH	
3	Huber, Ragin and Stephens (1993)	17 advanced democracies	1956-1988	Social security transfers over GDP	Exports plus imports over GDP		Positive		Significant in two out of four regressions (significant using GLS adjusting for country-specific errors and for country-specific and time specific errors simultaneously)	OLS/GLS	CH	
				Total social security benefits over GDP			No relation				No relation	
4	Garrett (1995)	15 OECD countries	1967-1990	Budget deficits	Exports plus imports over GDP	Measure of govt restrictions on cross-border financial flows.	Negative	Negative	Positive relation of both trade and capital mobility interacted with left-labour power		SH	SH
5	Quinn (1997)	58-64 countries	1960-1989; 1974-1989	Govt welfare and social security spending over GDP	Trade balance over GDP	0-4 measure of capital account regulation	Positive	Positive			CH	CH
6	Rodrik (1997)	19 countries	Cross-section/1966-1991	Social security and welfare over GDP in OECD countries	1) Export plus imports over GDP; 2) Terms of trade (volatility)	Capital account restrictions (AREAER)	Negative with 1) and 2). Positive with 1) and 2) interacted	No relation	Using *panel data*: Negative relation with 1) (10%). Robust to the introduction of interaction 1) with AREAER. Positive sign on the interaction term.	Cross-section analysis and FE	SH	No relation
		25 countries		Social security and welfare over GDP in countries with 1985 per capita GDP > $4500			Negative with 1) and 2). Positive with 1) and 2) interacted	No relation			SH	No relation
		68 countries	Cross-section	Social security and welfare over GDP			Negative with 1) and 2). Positive with 1) and 2) interacted	No relation			SH	No relation
7	Rodrik (1998)	103 or 125 countries	1985-1989; 1990-1992	Various categories of govt spending	Exports plus Imports divided by GDP (average over the previous decade)		Positive with: a) public services; b) defense (10%); c) education; d) health; e) housing; f) culture; g) economic affairs and services		Results are robust to the inclusion of terms of trade. A measure of *external risk* (the product between openness and terms of trade) is positively related to govt consumption. Social security and welfare are positively associated to external risk		CH	
8	Alesina and Wacziarg (1998)		1980-1984	Six categories of public spending over GDP	Exports plus imports divided by GDP (1980-1984)		Positive with total govt current expenditures (including transfers and interest payments). All regressions controlled for country size.		Positive with public investments. All regressions controlled for country size.		CH	

Table 7 *(continued)*

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
9	Achini and Brem (1998)	22 OECD countries	1960-1995	Social security transfers as a % of GDP	Exports plus imports divided by GDP	Inward+Outward Capital Transaction al Legal Agreements of Exchange Restrictions	*Levels*: Positive	*Levels*: Positive	*Annual changes*: Negative relation with trade openness. No relation with capital openness. Sensitivity analysis for individual countries (8 countries with negative relation; 8 with no relation; 6 with positive relation)		CH	CH
10	Heinemann (1999)	21 OECD countries	1970-1997	Govt spending on social security over total expenditures	Exports plus imports over GDP	Legal restrictions on international capital transactions	No support to the hypothesis that expenditures shift away from social security towards investments for more globalised countries			Cluster and discriminant analysis	No relation	
				Govt net investment over total expenditures								
				Public debt over GDP			No support to the hypothesis that more open countries may have constraints in using public debt.				No relation	No relation
				Primary surplus over GDP								
11	Iversen and Cusack (2000)	15 countries	1961-1993	Level of and change in government transfers (all government payments to the civilian household sector)	Exports plus Imports divided by GDP	An index measuring the extent to which capital markets are liberalised (Quinn and Inclan, 1997)	No relation with levels. Positive with changes	No relation with levels. No relation with changes			Uncertain	No relation
12	Garen and Trask (2001)	116 countries	1990	Government transfers and subsidies as a % of GDP	Exports plus Imports divided by GDP		?					
				Government ownership rating			Negative				SH	
13	Burgoon (2001)	18 OECD countries	1961-1994; 1980-1994	Social security transfers over GDP	1) Exports plus imports over GDP; 2) Low-wage imports (from non-OECD countries) over total imports	3) Inward and outward FDI over GDP; 4) Portfolio flows over GDP	Negative with 1)	Positive relation with 3) and 4)	*Changes*: negative relation with changes and levels of 1)		SH	CH
				Social expenditures over GDP			Negative with 1)		*Changes*: Negative relation with levels of 1)		SH	
				Retirement cash and services over GDP			Negative with 1)		*Changes*: Negative relation with levels of 1)		SH	
				Health-care over GDP			No relation with 1) or 2)		*Changes*: No relation		No relation	
				Family cash and services over GDP			No relation with 1) or 2)		*Changes*: Negative relation with levels of 1) at 10%. Positive relation with 4) in levels		No relation	
				Training and relocation benefits over GDP			No relation with 1). Positive relation with 2) at 10%.		*Changes*: No relation with levels and changes of 1). Positive relation with changes and levels of 2). Positive relation with 3) in levels.		No relation	

Table 7 *(continued)*

Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
14 Kaufman and Segura-Ubiergo (2001)	14 Latin American countries	1973-1997	Changes of welfare spending (social security, health care, education): a) in per capita 1995 dollars; b) over GDP; c) as a share of central govt spending (net of interests)	Exports plus imports over GDP	Index of capital account liberalization (Morley, Machado and Pettinato, 1999).	Negative (both lagged levels and changes) for all definitions of welfare spending.	Positive with welfare spending definition c)	Using an interaction term (trade x capital) with one lag, the negative relation with trade survives for definitions a) and b). It emerges a positive relation of welfare (definition c) with lagged capital. The interaction term (lag and changes) is negatively related to welfare (all definitions).	PCSE ECM	SH	Uncertain
			Changes of social security spending (definitions as above)			Negative (both lagged levels and changes) for all definitions of welfare spending.	No relation.			SH	No relation
			Changes of health+education expenditures (definitions as above)			No relation	Positive			No relation	CH
15 Garrett and Mitchell (2001)	16 OECD countries	1961-1993 with gaps	Social security transfers over GDP	1) Exports + Imports over GDP; 2) Share of imports from low-wage countries over total imports	3) FDI inflows and outflows over GDP; 4) International financial openness index	Negative with 1)	No relation		XTGLS with panel corrected standard errors	SH	No relation
16 Swank (2002)	15 developed democracies	1965-1993 (1979-1993 in some cases)	Total govt expenditure for social welfare programs as a % of GDP	Real imports plus real exports as a % of real GDP	1) Average (lagged 1 to 3 years) of total capital inflows and outflows as a % of GDP	Positive	Positive			CH	CH
					2) Average (lagged 1 to 3 years) of FDI inflows and outflows as a % of GDP	Positive	No relation	Positive relation with capital mobility interacted with social corporatism. Positive relation with capital mobility interacted with universalism. Negative relation with capital mobility interacted with liberalism. No support for the curvilinear hypothesis (squared term of capital liberalization)		CH	No relation
					3) Average (lagged 1 to 3 years) of borrowing on international capital markets as a % of GDP	Positive	No relation			CH	No relation
					4) Index (scale 0-4) of the absence of national restrictions on the cross-border payments and receipts of capital	Positive	Positive			CH	CH
					5) Absolute value of covered interest rate parities	Positive	No relation			CH	No relation

Table 7 *(continued)*

Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with…	Capital integration mainly consistent with…
Swank (2002)	15 developed democracies	1965-1993 (1979-1993 in some cases)	Cash payments for old age, disability, injury, sickness, unemployment and social assistance as a % of GDP	Real imports plus real exports as a % of real GDP	1) Average (lagged 1 to 3 years) of total capital inflows and outflows as a % of GDP	A) *Universal welfare states* : No relation	A) *Universal welfare states* : positive			No relation	CH
					2) Average (lagged 1 to 3 years) of FDI inflows and outflows as a % of GDP	A) *Universal welfare states* : No relation; B) *Liberal welfare states* : No relation.	A) *Universal welfare states* : positive ; B) *Liberal welfare states* : Negative			No relation	SH
					3) Average (lagged 1 to 3 years) of borrowing on international capital markets as a % of GDP	A) *All nations*: No relation; B) *Conservative welfare states* : No relation; C) *Liberal welfare states* : No relation	A) *All nations*: Positive ; B) *Conservative welfare states* : Positive ; C) *Liberal welfare states* : Negative.			No relation	SH
					4) Index (scale 0-4) of the absence of national restrictions on the cross-border payments and receipts of capital	A) *All nations* : No relation	A) *All nations* : Positive			No relation	CH
					5) Absolute value of covered interest rate parities	A) *All nations* : No relation	A) *All nations* : Negative			No relation	SH
Swank (2002)	15 developed democracies	1965-1993 (1979-1993 in some cases)	% of average production worker's gross income replaced by unemployment compensation, unemployment assistance and various entitled social welfare during first year of unemployment	Real imports plus real exports as a % of real GDP	1) Average (lagged 1 to 3 years) of total capital inflows and outflows as a % of GDP	No relation	No relation			No relation	No relation
					2) Average (lagged 1 to 3 years) of FDI inflows and outflows as a % of GDP	A) *Liberal welfare states* : No relation	A) *Liberal welfare states* : Negative			No relation	SH
					3) Average (lagged 1 to 3 years) of borrowing on international capital markets as a % of GDP	A) *Liberal welfare states* : No relation	A) *Liberal welfare states* : Negative	Positive relation with capital mobility interacted with social corporatism. Positive relation with capital mobility interacted with universalism. Negative relation with capital mobility interacted with liberalism		No relation	SH
					4) Index (scale 0-4) of the absence of national restrictions on the cross-border payments and receipts of capital	A) *Liberal welfare states* : No relation	A) *Liberal welfare states* : Negative			No relation	SH
					5) Absolute value of covered interest rate parities	A) *All nations* : No relation	Negative with capital mobility interacted with social corporatism. Negative with capital mobility interacted with universalism. Positive with capital mobility interacted with liberalism			No relation	SH (CH in one case)

Table 7 (*continued*)

#	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
	Swank (2002)	15 developed democracies	1965-1993 (1979-1993 in some cases)	Govt spending on health programs as a % of GDP	Real imports plus real exports as a % of real GDP	1) Average (lagged 1 to 3 years) of total capital inflows and outflows as a % of GDP	A) *Conservative welfare states*: No relation	A) *Conservative welfare states*: Positive			No relation	CH
						2) Average (lagged 1 to 3 years) of FDI inflows and outflows as a % of GDP	A) *Conservative welfare states*: No relation	A) *Conservative welfare states*: Positive			No relation	CH
						3) Average (lagged 1 to 3 years) of borrowing on international capital markets as a % of GDP	A) *Liberal welfare states*: No relation	A) *Liberal welfare states*: Negative			No relation	SH
						4) Index (scale 0-4) of the absence of national restrictions on the cross-border payments and receipts of capital	A) *All nations*: Positive	A) *All nations*: No relation			CH	No relation
						5) Absolute value of covered interest rate parities	A) *All nations*: Positive	A) *All nations*: Positive			CH	CH
17	Bretschger and Hettich (2002)	13 OECD countries	1967-1996	Social expenditures as a % of GDP	Exports plus Imports divided by GDP	No measure	Positive			PCSE, FE	CH	
18	Iversen (2002)	15 OECD countries	1961-1993	Government transfers	Exports plus imports over GDP	Capital market liberalization as in Quinn and Inclan (1997)	No relation	No relation		OLS	No relation	No relation
				Government consumption			No relation	No relation			No relation	No relation
				Unemployment replacement rates			Negative relation	No relation	The negative relation with trade holds for both levels and changes		SH	No relation
19	Huber and Stephens (2003)	29 Latin American and Caribbean countries	1970-2000	Health+education expenditures over GDP		1) Net inflows over GDP; 2) Index for capital account liberalization						
				Social security and welfare expenditures over GDP								
20	Sanz and Velázquez (2003)	26 OECD countries	1970-1997	Various categories of expenditures in share of total govt expenditures	Exports plus Imports divided by GDP	Sum of inward and outward stock of FDI as a % of GDP	No relation	Positive with: a) Public Services; b) Health. Negative relation with FDI of: a) Defence; b) Education; c) Housing; d) Transport & Comm.			Uncertain	Uncertain
21	Korpi and Palme (2003)	18 countries	1975-1995	Cuts in at least one of three programs: sickness, work accident and unemployment insurance	Export/import share	1) Capital account deregulation; 2) Current account deregulation	Positive. The relation disappears when considering only European countries	No relation	The result is robust to the inclusion of the left cabinet variable	Exponential model with constant hazard rate	CH	No relation

Table 7 *(continued)*

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
22	Dion (2004)	49 middle-income countries	1980-1999	Education spending over GDP	Exports plus imports over GDP	1) Gross private capital flows over GDP; 2) Net FDI over GDP	Positive. It disappears when using spending changes	Weakly positive with 1). No relation with 2). The relation with 1) turns negative when using spending changes (still weak)		Prais-Winsten, FE	CH	Uncertain
				Health spending over GDP			Positive. It disappears when using spending changes	No relation with either 1) or 2). Weakly positive when using spending changes			CH	Uncertain
				Social security and welfare spending over GDP			No relation. Weakly negative when using spending changes	Weakly positive with 1) and 2). Disappear when using spending changes			Uncertain	Uncertain
23	Brady, Beckfield and Seeleib-Kaiser (2004)	17 affluent democracies	1975-1998 (with some missing years for some countries)	Social security transfers as a % of GDP	16 measures of globalization: 1) inward FDI; 2) inward PI; 3) net investment; 4) exports; 5) net trade; 6) net globalization; 7) FDI openness; 8) investment openness; 9) trade openness; 10) total globalization; 11) capital account liberalization index; 12) current accounts liberalization index; 13) outward FDI; 14) outward PI; 15) imports; 16) net migration		No relation	Negative with measures 1), 7) and 13). Positive with measure 11)	Curvilinear hypothesis verified only with respect to measure 16)		No relation	Uncertain
24	Skidmore, Toya and Merriman (2004)	Max 208 countries	1960-2000	Changes in govt investments (per capita and over GDP)	Average ratio of real imports+exports to real GDP (in 5-year intervals)	No measure	No relation	No relation		FE	No relation	
				Changes in govt education expenditures (per capita and over GDP)			No relation	No relation			No relation	
25	Hanson and Olofsdotter (2005)	20 OECD countries (unbalanced panel)	1970-2002	Annual change in govt transfers as a % of GDP	Annual change in the sum of exports and imports as a % of GDP	Annual change in the sum of FDI inflows and outflows as % of GDP	No relation	No relation			No relation	No relation
				Annual change in govt fixed investments as a % of GDP			Negative (only with FGLS)	No relation			SH	No relation
26	Mares (2005)	More than 100 countries	?	Aggregate social policy protection index (old-age, sickness, disability, unemployment insurance) on a 0-10 scale for each item	1) Export plus imports over GDP; 2) Variability in terms of trade (external risk)		No relation with 1). Negative with 2).	No relation	A positive relation emerges when 2) is interacted with export concentration. The result is basically robust to the introduction of political control variables.	?	Uncertain	
				Unemployment insurance index (0-10 scale)			Weakly negative with 2)	No relation	Only when a term interacting external risk, export concentration and state capacity is introduced		SH	
27	Dreher (2005)	30 OECD countries (unbalanced panel)	1970-2000 (variable)	Social spending over GDP	Index of globalization using 23 variables or sub-index of economic integration. On the trade side a) trade in % of GDP; b) hidden import barriers; c) mean tariff rate; d) taxes on international trade	Index of globalization using 23 variables or sub-index of economic integration. On the capital side a) FDI in % of GDP; b) FPI in % of GDP; c) income paymensto foreign nationals in % of GDP; d) capital account restrictions.	No relation	No relation			No relation	No relation

Table 7 *(continued)*

	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with ...	Capital integration mainly consistent with ...
28	Gizelis (2005)	14 European countries	1983-1988	Welfare spending over GDP	Exports+Imports over GDP	FDI (?)	Positive	The effect of FDI is not directly measured over welfare spending		3SLS	CH	No relation
29	Hicks and Zorn (2005)	18 OECD countries	1978-1994	Retrenchment in real per capita social spending	Exports+Imports over GDP	a) Ratio of outward FDI investments over GDP; b) Quinn-index of financial liberalization	No relation	No relation. Positive with the Quinn index (means higher liberalization lower retrenchment)	Results do not change when including control variables of fiscal nature	Cox model	No relation	No relation
				Social spending over GDP			No relation	No relation with FDI. Positive with the Quinn index	The positive relation disappears when introducing a lagged dependent variable	GLS with AR(1)	No relation	Uncertain
30	Dreher, Sturm and Ursprung (2005)	WDI dataset - 60 countries	1971-2001	Four expenditure categories in % of GDP: 1) capital (CP); 2) goods and services (GS); 3) Interest payments (IP); 4) Subsidies and current transfers (ST).			No relation	No relation			No relation	No relation
		WDI dataset - 18 OECD countries	1971-2001		Exports plus Imports divided by GDP	Capital openess: 1) Sum of FDI inflows and outflows in % of GDP; 2) A 0-1 index of restrictions on the capital account (IMF)	No relation	No relation			No relation	No relation
		OECD dataset - 10 countries	1991-2001	Ten expenditure categories: public services; defence; public order; economic affairs; environment; housing; health; recreation; education; social			No relation	No relation			No relation	No relation
31	Epifani and Gancia (2005)	subset of countries	1972-1999	Central govt transfers for social security and welfare in % of GDP	Exports plus Imports divided by GDP		Negative				SH	SH
32	Avelino, Brown and Hunter (2005), previous version in 2001	19 Latin American countries	1980-1999	Social spending over GDP		International financial openness (quantitative measure of the regulation of international financial transactions, both in current and capital accounts)	Negative (robust to the use of Prais-Winsten method). Positive when using a PPP-based measure (the positive relation also extends to changes of social spending)	Negative with an interaction term *financial openness and democracy*	Interaction term *trade and democracy* not significant.	PCSE	Uncertain	SH
				Education expenditures over GDP	Exports plus imports over GDP (also PPP-based)		Positive with a PPP-based measure of trade (robust to the use of Prais-Winsten method)	No relation			CH	No relation
				Health expenditures over GDP			No relation	No relation			No relation	No relation
				Social security expenditures over GDP			Positive	No relation			CH	No relation
33	Burgoon (2006)	21 industrialized countries (Comparative Manifesto Project)	1960-1998	Net welfare support	Exports plus imports over GDP	1) Sum of FDI inflows and outflows over GDP; 2) Sum of inward and outward FDI stocks over GDP; 3) Index of capital openness (range 1-14)	No relation	Positive relation with 1) and 3) (controlling for their interaction with left manifestos)	Positive (10%) with trade interacted with left parties.		No relation	CH

Table 7 *(continued)*

|	Author(s)	Countries	Period	Dependent variable	Trade openness measure	Capital openness measure	Sign of the relation with trade integration	Sign of the relation with capital integration	Additional issues	Main estimation methods	Trade integration mainly consistent with …	Capital integration mainly consistent with …
34	Hays, Ehrlich and Peinhardt (2006?)	17 OECD countries	1960-2000	Social benefits over GDP	1) Imports; 2) Imports x Deindustrialization (as in Iversen and Cusack); 3) Exports	No measure	Positive relation with 1). Negative relation with 2). Negative relation with 3).			LSDV	Uncertain	
				Net replacement rate (spending on unemployment insurance per unemployed over the average level of compensation per employee)			Positive relation with 1). Negative relation with 2).				Uncertain	
35	Shelton (2007)	90-100/40-45 depending on specification	1970-2000 (variable)	Various categories of public expenditures (both functional and economic classification for both central and local levels)	Exports plus Imports divided by GDP		Negative with local expenditures on transports. Using a between estimator, the result disappears.		Central expenditures; Defense, transfers and govt consumption are positively related to trade openness. Using a between estimator, only education and govt consumption maintain a positive relation. An alternative specification gives a positive relation with health, transport and public wages and salaries		No relation	
36	Adam and Kammas (2007)	17 OECD countries	1970-1997	Welfare spending over GDP			Positive		No relation (after controlling for terms-of-trade)		CH	
				Non-welfare spending over GDP	Exports plus imports over GDP, corrected by country size		No relation				No relation	
				Transfers expenditures over GDP			Positive		No relation (after controlling for terms-of-trade)		CH	
				Non-transfers expenditures over GDP			No relation				No relation	
37	Gemmell, Kneller and Sanz (2008)	25 OECD countries	1980-1997	Nine expenditures categories (as a *share of total expenditures*): 1) social security; 2) education; 3) health; 4) transport and communications; 5) defence; 6) public services; 7) housing; 8) economic services; 9) cultural affairs	Exports plus Imports divided by GDP	Inward stock of FDI as a share of GDP	No relation	*Levels:* Positive with 1), 3) (10%) and 6). Negative with 2) (10%), 4), 7) and 8). *Short-run:* positive with 3) (10%) and 5). Negative with 4) and 8).	*Levels (including trade openness and FDI inward stock):* positive with 1) (10%) and 6). Negative with 4), 7) and 8) (10%).		No relation	Uncertain
38	Jiang (2008)	23 transitional economies	1990-2005	Govt spending on welfare and social protection over total expenditures	Value of cross-border flow of goods and services over GDP	1) FDI (both in and out) over GDP; 2) net IMF concessional financial flows over GDP; 3) net IMF non-concessional financial flows over GDP; 4) other financial flows (not related to IMF); 5) per capita foreign aid; 6) external debt	No relation	Negative with 2). Positive with 3). No relation with measure 1.		Robust regression	No relation	Uncertain
39	Bertola, Lo Prete (2008)	Max 137 countries	1980-2003	Social policy expenditures over GDP (in logs)	Exports plus Imports divided by GDP (in logs), 5-year averages	Loan-to-value ratio (LTV)	Positive relation	No relation (one in five regressions)	The positive relation with trade is weaker (one in five regressions) when including LTV. A positive relation with trade and LTV emerges in a panel analysis. Robust to OLS, FE and RE	Cross-sectional analysis. Panel analysis with OLS, FE and RE	CH	No relation

Figure 1 – Cumulative real outward FDI
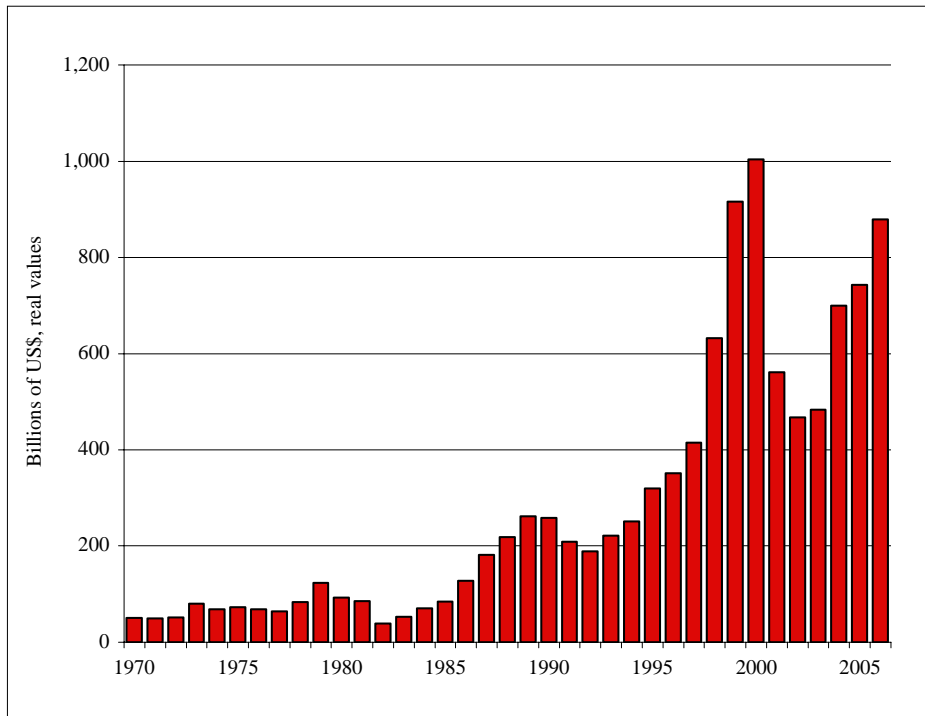
Figure 2 – Cumulative real outward FPI