

How Much Globalisation?
Reassessing the Growth of
International Trade and Investments
in the OECD

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1. Introduction¹

The explosive use of the expression ‘globalisation’ has worn out the concept even though people still disagree about the content. The public discussion tends to overdramatise the extent, since it is often seen as a useful argument, both among those who favour the concept and among those who express serious worries. No matter what opinion one may have, it is necessary to establish proper indicators for the amount and speed of globalisation. As this report will show, both the choice of indicators and the measurement method applied are extremely important for the determination of stylised facts relating to the degree of globalisation. The intention of this report is to examine and identify the measurement methods of a chosen group of indicators that best reflects globalisation. This leads us to reassess the growth patterns of international trade and investment in the OECD area.

The broadest definition of the globalisation process is: increased interdependency between people across borders. An important aspect of this is increased economic openness, which is frequently measured by the relative size of international trade and foreign direct investment (FDI) relative to the production in the country (GDP). Such trade and FDI intensities capture some aspects of openness and globalisation but obviously not all. In an economic sense, globalisation is thought to be liberalisation of the major markets for labour, capital, goods and services.² In this report, we focus on trade in goods and services, and direct investment. Hence we do not examine migration, nor do we analyse financial liberalisation which is an important aspect of globalisation.³

According to the Organisation for Economic Co-operation and Development (OECD) one should distinguish between three phases of the ‘globalisation’ process: *internationalisation* with increased trade across national borders, *transnationalisation* which entails increased investment by foreigners and multinational companies and finally *globalisation* when a world-embracing network of production and information arises.⁴ The concept ‘regionalisation’ includes similar processes in an intra-regional or

1. I am grateful to my colleagues at NUPI: Lars Svindal for valuable research assistance, Leo Andreas Grünfeld and Arne Melchior for comments to earlier drafts and Eilert Struksnes for assistance in questions of linguistic character.

2. Equal to the ‘four freedoms’ of the borderless economy in the European Union.

3. Migration is still institutionally restricted in most of the world. Flows of shortterm financial capital have increased enormously but it is rather blurred whether the volume increase in itself is a good indicator of global interdependence. It might just reflect the growing importance of the sector (both inside and between national borders) and the speed of transactions (whether a given amount of US dollars and euros is exchanged back and forth one or ten times in a day amounts to the same).

4. The distinction between internationalisation and globalisation is blurred in the popular and academic debate. ‘Internationalisation’ to most people means increased activity between nations where the political authorities still have the power to regulate the activity and organise the society in a nationally distinct manner. ‘Globalisation’, on the other hand is often understood as increased interdependence directly between people across the world, without interference of political authorities who further have to organise the society in a given manner determined by forces outside the borders.

intra-continental context.⁵ This report does not intend to examine all aspects of globalisation, but focus on two important elements: trade and FDI intensities by country. While, for instance, the trade intensity (trade/GDP) may seem to be a simple measure, it is complicated by the fact that price levels are different between countries, and furthermore that prices for traded goods have increased less than prices in general. It therefore matters greatly whether we use current or fixed prices, and whether GDP levels are purchasing power parity-adjusted or not (accounting for different price levels across countries). In Chapter 2, these issues are discussed and relatively clear conclusions are reached. From a theoretical point of view, the use of constant values will overestimate the globalisation process. The use of GDP figures adjusted by the official exchange rate instead of purchasing power parities implies an overestimated globalisation level in poor countries and underestimated in rich countries. Hence, we claim that the best indicator is trade and FDI intensities measured in current PPP-adjusted prices.

The report has the following structure. Chapter 2 examines theoretically how trade intensities should be measured, while FDI is studied similarly in Chapter 3. Empirical trade and FDI intensities for the OECD countries are presented in Chapter 4, both aggregated and by country. Chapter 5 looks at international trade and FDI in an historical context, while Chapter 6 contains a more disaggregated approach where trade intensities for manufacture and services are discussed together with other alternative globalisation indicators. Final, conclusions follow in Chapter 7.

We have computed the trade intensities in current PPP-adjusted prices for 24 countries in the OECD from 1970⁶ and similarly FDI intensities from 1981, since no such complete overview existed. The indicators are presented both separately by country and aggregated. Comparisons of the different measurement methods illustrate the importance of choosing the right one. Trade intensities in constant exchange rate-adjusted values increased from 18 per cent in 1960 to 46 per cent in 1996. However, if we apply current PPP-adjusted values, there is a small increase between 1974 and 1996, from 36 to 45 per cent. The data also show that the trade intensity of today is equal to the trade intensity in 1978, when the second oil price shock hit the world economy. Since 1981, FDI intensities measured in current PPP-adjusted values have shown strong volatility. If we discount the nominal FDI flows with the stock market indexes (or a deflator based on such indexes), the volatility is dampened and the growth in FDI flows is strongly moderated.

2. Trade intensity as a measure of globalisation

2.1 The trade intensity concept

Trade intensities can be measured by exports and imports separately or summed together. To give the intensity measure a reference point, it is usually divided by GDP.

5. Such regions might be politically integrated, for instance the European Union or with few political ties like in Asia.

6. Trade intensities with GDP applying official exchange rate is presented from 1960.

The dynamic analysis will give the same result if the foreign account balances, but in many countries this is not so. Imports to the USA are higher than exports and the deficit on the foreign trade account is counteracted by the inflow of money on the capital account as foreigners put their savings in the country. Japan, on the other hand, has traditionally run a surplus on the trade account, reinvesting the money in other parts of the world. This report hence adds together imports and exports to total trade in order to flatten out such temporary imbalances.

2.2 Why not use trade liberalisation as a measure of globalisation?

The drastic reduction in barriers to trade is thought to be one of the most important driving forces behind the globalisation process. According to traditional trade theory based on factor endowment differences, we expect that trade liberalisation will generally lead to more trade. If there has been trade liberalisation, trade intensities should thus increase and indicate that the world has become more globalised. However, the idea of a close correlation between globalisation using trade intensities as proxy, and trade liberalisation is not as clear-cut as one may assume. In fact, there may be cases where liberalisation leads to less trade.

But first of all, the stylised facts on policy relating to international transactions are quite clear. The *institutional barriers* have more or less disappeared. The average customs duty is reduced from around 40 per cent when the first round of General Agreement on Tariffs and Trade (GATT) was completed in 1948, to just 3–4 per cent today as 123 countries now have become members of the World Trade Organisation (WTO) (Tenold and Nordvik, 1998). WTO has also introduced other worldwide standards which reduce the costs of trade, and risks associated with international investments and trade are reduced as more countries behave according to international laws and agreements. The *geographical barriers* mainly relate to transport costs and the problem of communication across distance and cultures. On the technological side, innovations have led to fundamental reductions in transport and communication costs. Compared to 1920, cargo shipment costs are down by more than 70 per cent, telephone calls today only represent 5 per cent of the 1940 price, air transport costs are reduced by 80 per cent since 1945 and modern telecommunication via satellite is cut by 90 per cent in just 15 years (Bergeijk and Mensink, 1997). Internet, mobile and satellite phones, the upsurge of English as a lingua franca and CNN are just a few examples of how people around the world now are able to communicate and understand each other more or less instantaneously.

Will this development lead to more trade? If we look to the traditional economic theory based on comparative advantage and different factor endowments, the answer is yes. When the costs of trading is reduced, the countries will specialise and exchange products through trade. Modern trade theory based on economies of scale, both on the firm level as well as the aggregated industry level, also predicts more trade when barriers are reduced, since companies will make the most out of the created comparative advantage (Helpman and Krugman, 1989). More specially, the most common theory for intra-industry trade (IIT) is founded on the assumption that consumers appreciate a larger product variety. Lower trading costs implies that consumers may purchase a larger variety of products at a lower price. Consequently, what has previously been regarded as solely national varieties, will be spread to more countries as trade costs are cut. This standardisation of consumption between countries with more

variants also reflects a larger extent of international transactions and fits directly into the concept of globalisation.⁷

On the other hand there are trade theories that indicate less trade as a result of reduced trade barriers. This may be the case in oligopolistic markets, when national markets are segmented by trade barriers and firms are able to charge prices that exceed marginal cost at home. If integration and sharper international competition lead to international price convergence and a lower ratio between prices for domestic sales and export prices, a reduction in trade may be the result. The numerical simulations undertaken by Smith and Venables (1988) suggested that intra-EU trade might be sharply reduced for important manufacturing sectors if the EU internal market leads to an elimination of price discrimination across borders. In that case, a more liberal trade policy may slow down the 'globalisation process' as trade intensities fall.

But there exist other modes of international transactions that contribute to the globalisation process. Apparently, to move the production activity instead of the final product has become an important alternative as foreign investments now are welcome and legally protected in most countries. The monopolistic competition model in Brainard (1995) which opens for FDI still favours trade when transport costs are reduced, everything else being equal, but the model also shows how international trade first increases and then decreases as two economies converge. Only FDI and no trade is the final result when economic catch-up is completed and plant-specific fixed costs are small compared to firm-specific costs and transport costs.⁸

FDI is also linked to vertical division of production. Each production stage can be located in a region with comparative advantage for such activity, for instance, labour-intensive part in poor countries, while research and development (R&D) and capital-intensive parts are located in developed countries. Lower trading costs will enforce more segregated production and hence increased trade based on such comparative advantage. Since vertical integration of the production processes is often more profitable, local producers might be driven out of business in the host country. Consequently, we may observe more export of inputs due to higher sales volumes abroad. Empirical investigations are ambiguous as to international trade and investment being substitutes or complements (see Bjørnstad 1998 for a survey).

What this brief account tells us, is that while changes in international trade are an important aspect of the globalisation process, no simple relationship exists between trade liberalisation and such intensities. Thus it is not sufficient to presume that political liberalisation of international transactions is equivalent to increased trade intensities which normally is the indicator of globalisation.

2.3 Trade intensity and measurement problems over time

When we measure trade and GDP in current values, we use the economic agents' valuation of products at a given moment in time,⁹ and this valuation might change from year to year. On the other hand, measures in constant values will reflect the utility of products in a given year, and then the same valuation is applied to other years. This is

7. Countries where such variants first were produced, will often have a comparative advantage in supplying the world market, for instance, small cars from Japan and large cars from USA (Bhagwati, 1982).

8. Markusen and Venables (1995) apply a Cournot model in a similar settings and get the same result even for homogeneous products.

9. We assume marginal utility of money spent is equal between all goods.

an important distinction since the price increase on internationally traded products has been lower than the average price increase in the whole economy. The reason is that manufactured goods constitute a larger share of international trade than GDP, and technological progress in the manufacturing industry has been far greater than in the service sector. The relative price increase for GDP compared to trade is also driven by demand as the general income level has risen and services are luxury goods. Hence measuring trade and GDP in constant values will reflect the physical quantities, while current value will reflect how people at the time perceived the utility of the same quantities. Bergeijk and Mensink (1997) put special emphasis on the former argument, showing that world export as a percentage of world GDP has increased from 5 per cent in 1870 to 14 per cent in export intensities in constant values with pre-historic heights in 1913 at 11 per cent. But comparing physical quantities as such is rather absurd over a 100-year time span as the composition of consumption is completely changed. Measurement in current prices is hence a more proper method and will be applied in this report, since the discussion of economic globalisation is about the level of human interaction. Then it is not the physical amount of goods and services as such, but the utility they represent that matters.

GDP measures the values created in the country in a given year. The number of human activities included in this concept has increased as more of these activities are traded in anonymous markets using money as the medium of exchange. Governmental and private service sectors of today (that is, health, schooling, preparation of meals, etc.) were partly excluded from the GDP concept since they were exchanged as non-monetary favours inside the extended family or local society. Underestimation of earlier GDP levels will generate overestimated growth in trade intensity, and hence too fast a globalisation process. This bias is counteracted by an overestimation of GDP today, implying that the actual trade intensity is at a lower level. Many activities today are reckoned as final products when they in fact are intermediates in production of other goods. This applies to governmental services like education, building of infrastructure, transport, etc. and private services like lawyers and other rent-seeking activity, that is, if the cost is not deduced from value added by the receivers of their services (Rødseth, 1998). The objections based on omitted products in earlier GDP figures are not that important for international trade, since non-monetary exchange for goods and services was not very common across larger distances.

Introduction of new products and quality improvements are often mentioned in discussions of GDP measurement, but this phenomenon also applies to traded products and should hence not affect our chosen openness indicator in a biased way.

2.4 Comparison of trade intensities between countries

International trade usually takes place in free markets where products are traded at a given market price, usually denominated in US dollars or other exchangeable currencies. Economic activity, and hence GDP inside a country, is on the other hand usually denominated in the local currency. The two are not directly comparable and purchasing power parity adjustment is necessary.

Free trade in products and currencies should in theory make GDP comparable using the official exchange rate, and the resulting trade intensities will reflect the utility of traded products to the utility of GDP. But the utility does not necessarily reflect physical volumes. Disregarding differences in transport costs, most countries face the same price in US dollars for the same internationally traded products. Volumes measured in US dollars are hence comparable between countries. GDP is different. Empi-

rical evidence shows that it is possible to buy more products for one US dollar in poor countries than in rich ones, usually due to different prices on non-tradable goods. There are several theories explaining this effect, all based on the idea that developing countries are less productive than countries in the industrialised world.

The Harrod–Balassa–Samuelson approach assumes lower labour productivity in poor countries, but the productivity in the service sector is not as low as in the manufacturing sector. Exports are mainly related to the latter and wages in this sector must be set equally low in order to compete on the world market. This low equilibrium wage level spills over to the service sector where the workers are effective. The result is lower product prices on the sheltered products than in the richer part of the world (Balassa, 1964). The Kravis–Lipsey–Bhagwati approach is a further refinement of this Ricardian model. With equal technology available in all countries and no mobility of labour and capital, the labour-abundant developing countries will have lower wages due to low productivity in the capital-intensive sector for tradable goods (Bhagwati, 1994), and this equilibrium wage will affect the people involved in the efficient service sector where the lack of capital is less important.

The problem of distinguishing between inputs and final products in GDP, discussed under inter-temporal comparisons, also causes biases in comparisons between countries. Poor countries often have a higher share of governmental expenditure like education and governmental services in their GDP, which should be treated more as inputs than final production (Rødseth, 1998).

The world market price on international traded products must be adjusted by transport costs to calculate the consumer price in the receiving country, and this is a source of price level differences between countries. Institutional wedges is another important aspect which affects the measurement of GDP and trade in the reference currency. Restrictions on trade as import or export quotas or tariffs, will allow local prices to deviate from the world market price. Regulated currency markets often imply restricted access to foreign currency at the official exchange rate. This may lead to higher prices in the local currency on the parallel black markets. As a result, trade intensities become downward biased since the official exchange rate undervalues the utility of imports in low-income countries.

Empirical comparisons are made by asking the following question: What is the cost of a given basket of products in local currencies compared to the price of the same basket in a reference country? By dividing the local cost with the cost in the reference country, we get the Purchasing Power Parity index nominated in a local currency unit divided by reference currency units. The traditional reference currency is US dollars. The International Comparison Program (ICP) of the UN is a co-ordination programme to assemble the PPPs. Local statistical authorities gather prices for about 400 products, which are comparable both in quantities and qualities between countries.¹⁰ These are grouped into 150 national account expenditure categories, containing 110 consumption sectors, 35 investment sectors and 5 governmental sectors. The relative price in the given country compared to the reference currency for the categories, is ave-

10. For many products it is extremely difficult to find the same level between cultures and nations. Thonstad (1993) finds housing consumption per capital in Portugal to be higher than in Norway with PPP-adjusted prices in the ICP. This seems intuitively wrong as the consumption level is four times higher in Norway when the official exchange rate is applied, and the Portuguese have less room available and many houses are still without water and bathroom facilities.

rated by using a special regression technique which allows for missing products.¹¹ The resulting relative price for each category is then weighted by its share of total expenditure in order to calculate the final PPP for the actual country. The comparison of GDP between countries, using this method, is unfortunately influenced by the choice of reference country. It is possible to avoid such biases by constructing a world average reference price on each product following the Geary–Khamis approach (UN, 1992). The price in local currency for each country is weighted by the actual country's share of world expenditure for this product, and the resulting price is then a composite currency unit which is utilised the same way as the US dollars in the traditional procedure. This unit is then normalised in order to make the PPP for the USA equal to one. This normalised unit called international dollar makes GDP measured in PPPs transitive between countries.

3. FDI flow intensities

The total FDI flow concept is the sum of FDI flows in and out of a country. Unfortunately, they are normally measured as net streams, that is, gross investments by foreigners in the country minus the amount of investments they redraw in the same period. FDI outflow is also a net concept.

Many of the theoretical reasons for increased FDI were discussed in Chapter 2. Better modes of communication facilitate production in many countries since operations are more easily managed from the same headquarters, both by spreading final production to the countries where the goods are consumed and because of worldwide vertical integration of consumption. Better legal protection against forced nationalisation and other forms of exploitation in the host country have reduced the risk of losing your money invested abroad.

A reduction in costs associated with trade, everything else equal, would entail less FDI on the margin as the costs of transport of goods are compared to moving production as such. The main result of the globalisation process is meanwhile the opening for foreigners to come at all. The communist regimes are gone and developing countries are now competing to attract foreign companies.

Most multinational companies (MNC) have a home base in the industrialised world, and their very existence is often based on staying at the technology frontier (Cantwell, 1989). Sales or licensing of technology could hence be the product itself as an alternative to FDI and trade in finished products. But imperfect markets for knowledge due to information problems (the buyers do not know the real value of the technology up front, they might sell it to others without permission, etc.) often make the own use of the technology advantage more profitable. Vertical integration in MNCs also removes rent seeking activity in the different stages of production, since they otherwise would start bargaining for the monopoly rent which might be associated with the final product.

FDI intensities are equally measured in current values where GDP is adjusted by PPP, due to the same reasons as for trade intensities.

11. The selection of products is not the same all over the world and some differences in products are hence allowed between countries. There are around 1,500 products represented in the ICP in total.

4. Results in the OECD 1960–1996

4.1 *Measurement methods in international organisations*

The use of PPP-adjusted GDP figures in economic analysis is now starting to gain ground. The World Bank has become one of its main advocates, applying figures in PPP-adjusted current values for both pure GDP measures and mixed concepts like trade intensities (World Bank, 1998). The various organisations of the United Nations are more casual in choice. The United Nations Development Program (UNDP) adjusts the GDP figures by PPP in their Human Development index, while trade openness is measured in current values using the official exchange rate to US dollar for GDP. UNCTAD, Eurostat, the OECD and the IMF all apply GDP in current values using the official exchange rate. Openness indicators in constant values, either PPP-adjusted or not, are, on the other hand, rare. They are used in some historical comparisons when it is difficult to compile the openness indicators directly in current values. Maddison (1995) for instance has converted time series in constant values measured in the local currency unit by applying the Purchasing Power Parity index for 1990. Since trade and GDP volumes exist separately, we often see authors compile the trade intensity themselves in academic and popular discussions, without reflecting much around the possible problems.

4.2 *Trade intensities for OECD countries 1960–1996*

The international trade and GDP statistics are drawn from OECD's annual national account figures, which has complete figures for 24 of the 29 OECD countries today.¹² GDP and trade are available in current and constant 1990 values in US dollars since 1960, while current PPP-adjusted values in international dollars are only from 1970.

OECD-24 have experienced a considerable increase in trade intensity since 1960, but the data illustrate the effect of using different measures. Trade intensities in constant values increased from 18 to 46 per cent in 1996, while the corresponding increase in current prices is up from 22 to 40 per cent (Figure 1). The globalisation process has only been half as strong when the trade intensities are measured in current instead of constant values.

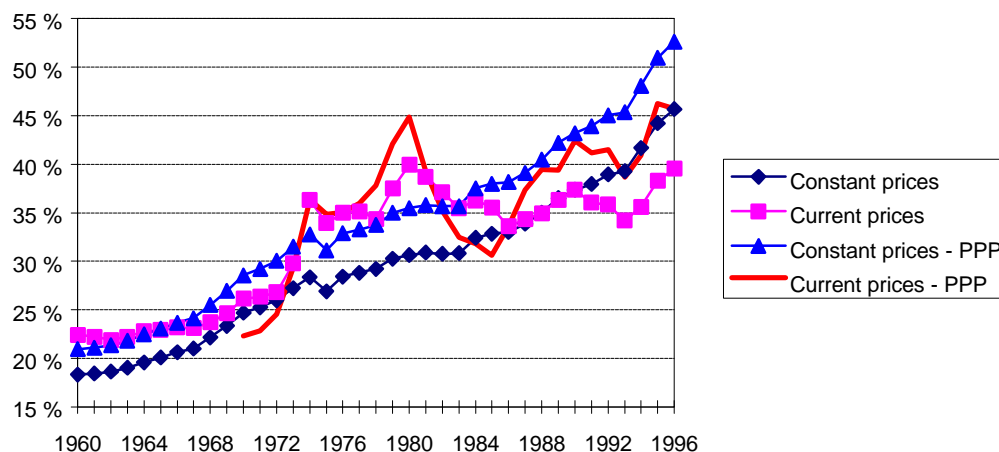
Further PPP adjustments of GDP in trade intensities for current prices unveil another interesting result. PPP-adjusted figures are available from 1970 when the first round of ICP was conducted, and the trade intensities over time are generally higher with PPP-adjusted GDP than trade intensities based on the official exchange rate. The reason is that the OECD countries are rich countries where the cost of living is high.

The use of exchange rate would hence underestimate the globalisation level. In addition it would underestimate the speed of the process, since the cost of living has increased over the period. Trade intensity in current values rose from 26 to 40 per cent applying official exchange rate, while the PPP-adjusted version increased from 22 to 46 per cent over the same period. The globalisation level is hence more than doubled. Trade intensities measured in constant PPP-adjusted prices of 1990 increased from 21 per cent in 1960 to 53 per cent in 1996, an unrealistic increase in openness which

12. All original OECD members are included except Turkey since data were missing for several years and variables, while the new member South Korea is included. Mexico, the Czech Republic, Poland and Hungary are not included.

is based on the unrealistic assumption of constant utility in consumption of the different products.

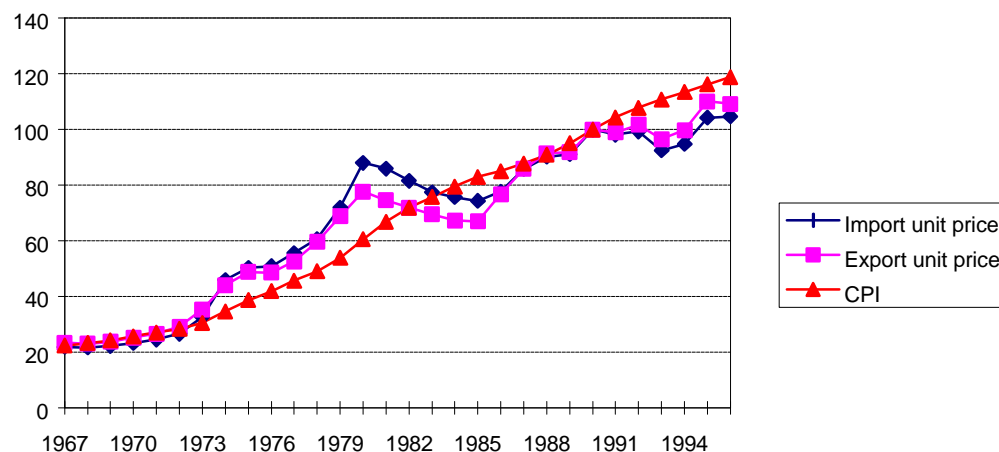
Figure 1: Total trade as share of GDP, OECD-24



Source: Total trade (imports and exports) and GDP from OECD (1997a)

The time series reveals a breaking point in the statistical material, before and after the first oil price shock. When we apply current exchange rates, the average increase in trade intensity was 3.4 per cent a year before 1974 and just 0.4 per cent afterwards. Equally, the current PPP-adjusted trade intensity rose by 12 per cent per year from 1970 to 1974, but just one per cent per year later. Since oil represents a major part of international trade, the import unit price was affected directly. Furthermore, oil and energy are major input factors in export-oriented production, and the result of the oil crisis was a general price hike on most internationally traded products. There was a time lag before wages and prices followed and hence entailed higher nominal GDP. The import unit price in industrialised countries rose by nearly 90 per cent in the period 1972–1975, the export unit price by 70 per cent and the general consumer price index by 35 per cent in the same period.

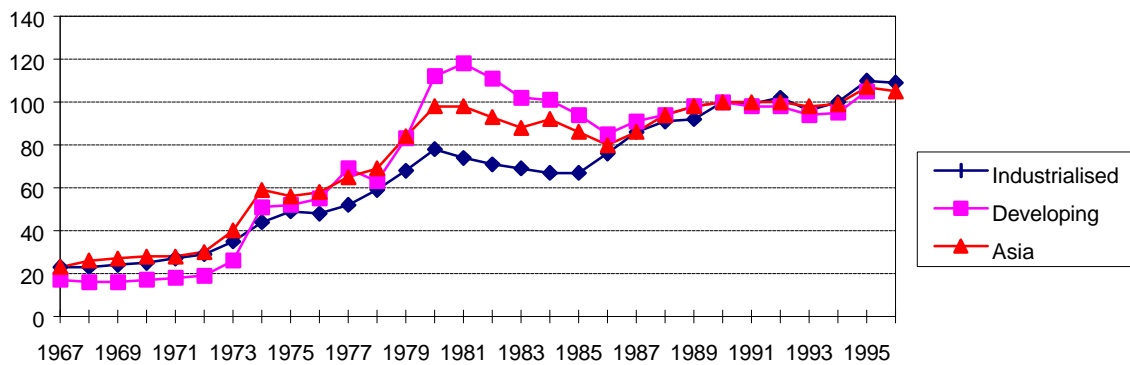
Figure 2: Price indexes for industrialised countries (1990=100)



Source: IMF (1997b)

This resulted in a sudden increase in trade intensities to more than 35 per cent in current values using both measurement methods (Figure 1). The next oil crisis in 1978 sent the prices as high as 40 US dollars per barrel, with peaking trade intensities in 1980 at the same level as today. In addition to falling oil prices in the following years, the transfer of labourintensive production from Europe to developing countries, especially in Asia, speeded up. The intra-regional division of production was transformed to an inter-regional pattern. This pure form of the globalisation process hence generated changes in prices and directions of trade, but not necessarily in the volume traded. The textile industry is a good example. Exports from Portugal, Spain, Italy etc. in the 1970s and 1980s were protected by European import quotas from the even cheaper countries in Asia. When the quota system fell apart, the Europeans preferred to go ‘shopping’ on the other side of the globe (Melchior, 1998). A fall in export and import prices, due to a more efficient division of production in the world, could hence explain a major part of the rising trade intensities in constant values, but hardly the increase in current values over the two last decades (Figure 3).

Figure 3: Export unit price (1990=100)



Source: IMF (1997b)

Other plausible reasons for the lack of increase in trade intensities during the last 25 years, which is thought to be the golden era of globalisation, are that trade actually might decrease when the barriers to trade and FDI are reduced as explained in Chapter 2. Open borders make price discrimination and dumping less viable and hence less will be exported. Companies might prefer to establish production units around the world instead of exporting products.

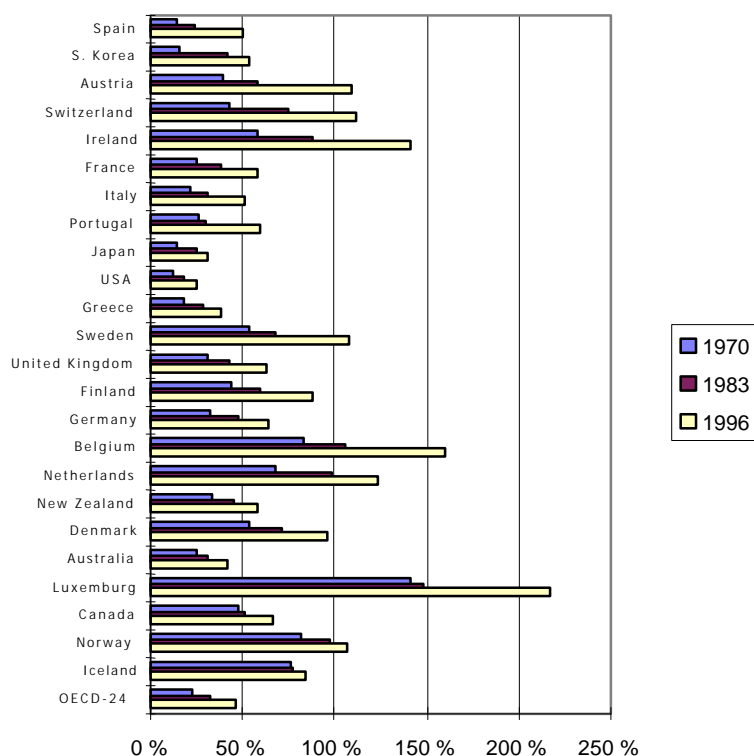
The remarkable volatility of the PPP-adjusted trade intensities compared to intensities calculated by using the official exchange rate, may also be explained by the contra-cyclic development of prices.

The volatility of the PPP-adjusted trade intensity is higher than the exchange rate counterpart, probably due to a reinforcing business cycle, which produces higher prices. When the production capacity is not fully utilised, the unit price increases and hence the cost of living rises.

In this report I choose to analyse changes in openness by using trade intensities measured in current values adjusted by the purchasing power parity. This is a mixed measurement. It emphasises the utility dimension over time by using current values, but also a physical volume comparison between countries by using GDP in terms of

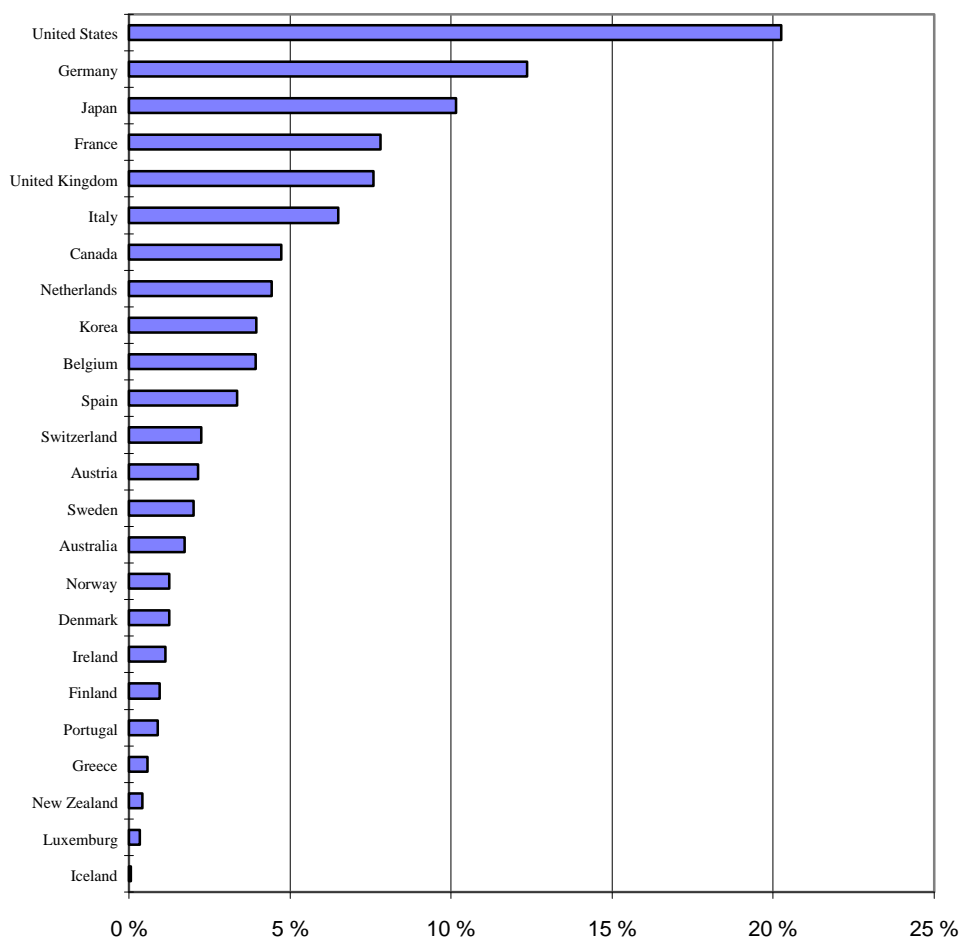
PPP. The increase of 23 percentage points from 1970 to 1996 for OECD-24 is partly due to a large growth in trade intensities for some formerly more or less closed countries, and partly due to the general increase of openness in the large open economies.

Figure 4: Total trade as share of GDP-PPP



Source: OECD (1997a). The countries are ordered by their relative change in trade intensities

Figure 5: Share of change in total trade

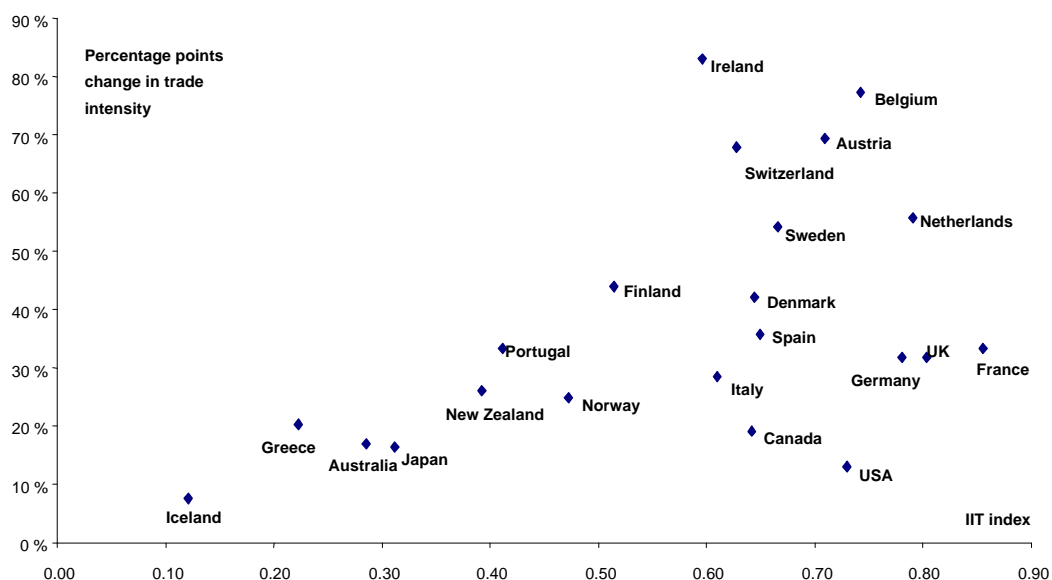


Source: OECD (1997a)

The USA is the major contributor with 20 per cent of the increase in trade value over the period 1970–1996, mainly due to the size of the economy (Figure 5). The relative change in US trade intensity has also increased more than the weighted average for OECD-24, from 11 to 25 per cent, but the GDP growth is slightly lower (Figure 4). The other important contributors are also large economies, but only France and Italy have increased their trade intensities by more than 130 per cent. The small and formerly closed countries Spain and South Korea (due to political dictatorship and underdevelopment) have opened their economies most, driving trade intensities up by a factor of 2.5. The extraordinary economic growth in Korea of 13 per cent per year in GDP-PPP has also made this country a major contributor to the growth in total trade. Another trade-driven economic ‘miracle’ is Ireland with 10 per cent economic growth per year and the trade intensity now at 140 per cent, more than 1.5 times higher as in 1970. Countries that contribute less to the overall trade intensity are the small but traditionally open economies of Iceland and Norway. Their trade intensities have only increased by a factor of respectively 0.1 and 0.3.

The importance of intra-industry trade in the globalisation process is to some degree visible in our sample. There is a weak positive, but not significant, correlation between the share of intra-industry trade to total trade and the relative increase of trade intensities.¹³

Figure 6: The importance of intra-industry trade to increase in openness



Source: Trade intensities from OECD (1997a) and the Grubel-Lloyd IIT index for 1992 from Melchior (1997)

The correlation between intra-industrial trade and the percentage points change in trade intensities from 1970 to 1996 is on the other hand positive at a significance level above 97.5 per cent, and the linear function will explain more than 20 per cent of the variation of the sample. Countries with economies based on resource extraction and trade like Iceland, Australia, New Zealand and Norway have experienced modest changes in trade intensities since 1970. The smaller countries which constitute the core of the integrated Europe, have exploited the opportunities of open borders within the region. Ireland, Belgium, Switzerland, Austria, Finland, Denmark, Sweden and the Netherlands now base much of their economy on intra-industry trade and they have hence experienced a substantial increase in trade intensities. A hypothesis may thus be that intra-industry trade is the driving force behind increased trade within the OECD-area over the last 25 years, while economies based on exports of natural resources and comparative advantage in the traditional sense had reached high levels already in 1970.

Large economies are now highly dependent on intra-industrial trade. Canada, Germany, the United Kingdom, Italy and France all have IIT indexes above 0.6, but the percentage points change in intra-industry has been rather small. This is in accordance with the literature, since large economies are less dependent on trade in general.

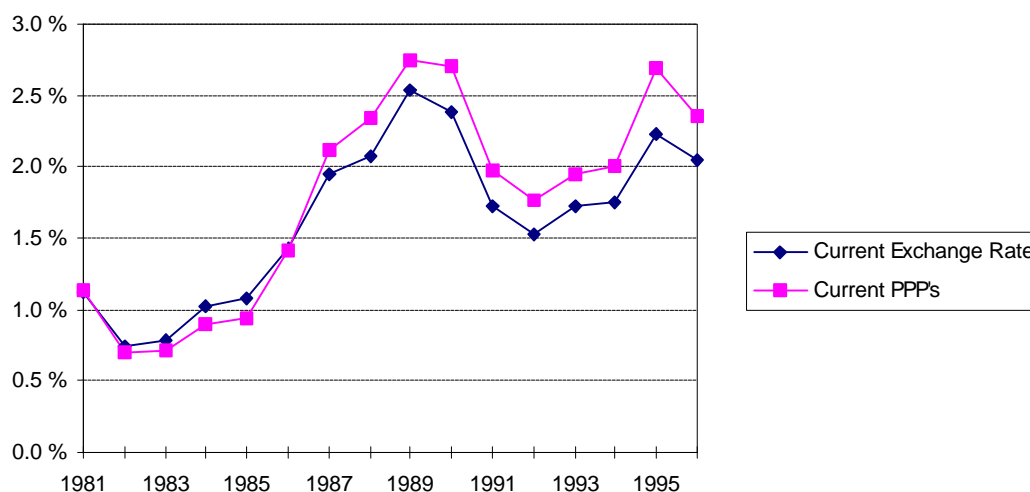
13. The IIT indicators are Grubel-Lloyd indexes by country in 1992, where the economy is split in 1 000 separate industries.

The relative increase in trade intensity in for instance the USA is higher than the average increase of this OECD sample.

4.3 FDI intensities for the OECD countries 1981–1996

OECD International Direct Investment Statistics Yearbook 1997 has FDI flow statistics as far back as 1981. Only current values are presented, probably because it is hard to estimate a price index for such investments. The GDP figures come from the organisation's annual national account figures and both current values and PPP-adjusted values are applied for OECD-24. Unfortunately there are still significant errors in the FDI figures due to unsystematic reporting. The FDI flows are based on trade statistics, while FDI stocks most often originate from information given for tax purposes. Since the MNCs often enter the cost of investment in the country where tax deduction is highest, even though the actual investment is somewhere else, and the OECD started reporting FDI stock statistics for the first time in 1990, I will stick to the FDI flow figures in this analysis. An alternative to FDI intensities is share of foreign ownership of the national capital stock, but this indicator does not include the importance of changes in labour–capital ratio and is hence left out.

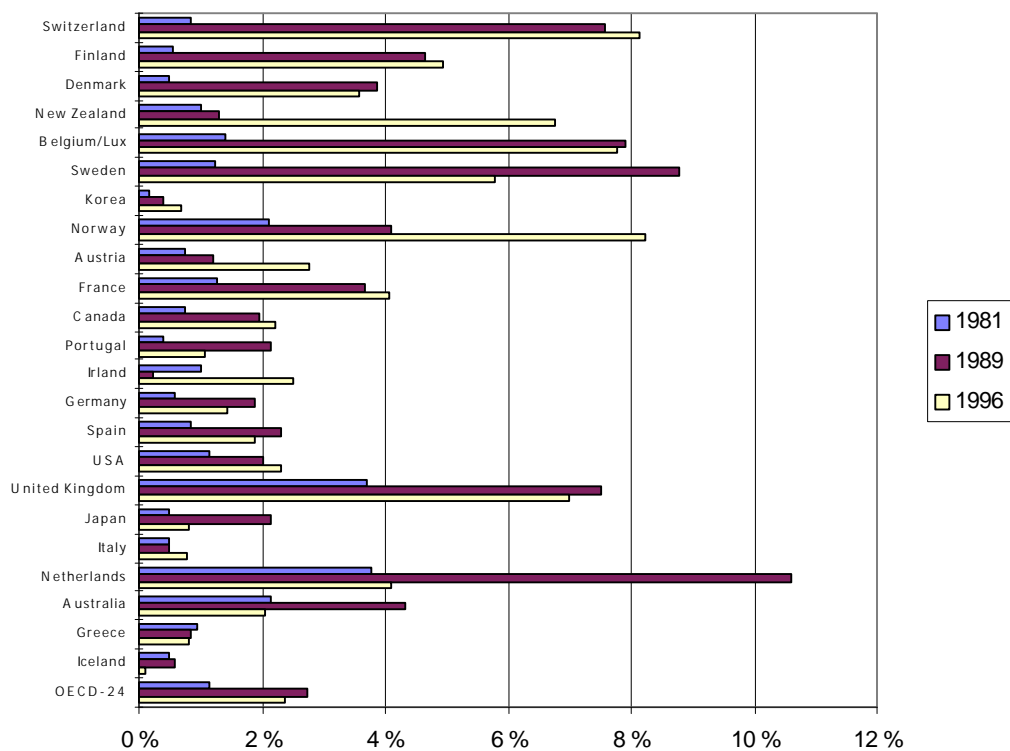
Figure 7: Total FDI flows as share of GDP, OECD-24



Source: OECD (1997a) and OECD (1997b)

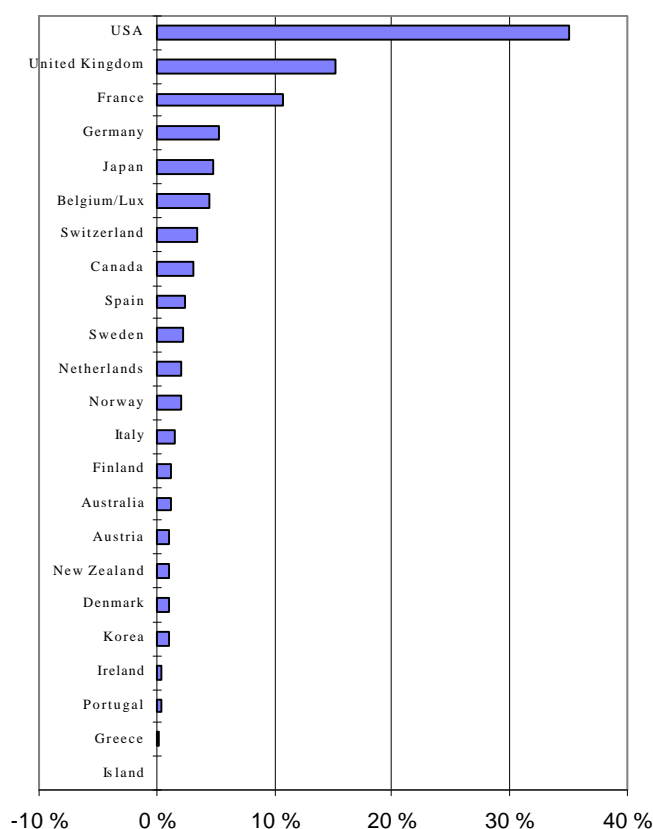
Total FDI flows, in and out of the country, as per cent of GDP-PPP measured in current values, amount to 2.4 per cent in 1996 for OECD-24 (Figure 3), twice as high as the 1981 figure of 1.1 per cent. The FDI flows are more volatile than commodity trade, apparently depending more on the general economic cycles. The maximum of 2.8 per cent occurred in 1989 and slumped to 1.8 per cent in 1992 before rising again in the last years. The resulting level will be lower if total FDI flows are compared to GDP in US dollars using the official exchange rate due to the average higher price level in OECD-24 countries than in the USA.

Figure 8: Total FDI flows as share of GDP-PPP, OECD-24



Source: OECD (1997a) and OECD (1997b). Countries arranged by relative change in FDI intensity

Figure 9: Share of change in total FDI flows



Source: OECD (1997a) and OECD (1997b)

The USA is the major contributor due to the size of its economy, representing 35 per cent of the increase of total FDI flows in the OECD. The US FDI intensity has certainly increased since it has more than doubled since 1981, but this is still slightly less than the average increase in the OECD (figure 8). Since US growth in GDP-PPP is also lower than average, the country's relative importance has decreased. France has become an important contributor due to increasing FDI intensities, while the United Kingdom was initially relatively open compared to the size of the economy. Germany and Japan are also major players in the market for international investments due the size of the economy, but they are still fairly closed countries with relatively small changes in openness compared to other OECD countries.

On the other hand FDI has become a relatively important part of various small economies with FDI intensities rising from 1981 to 1996; Switzerland: 0.9 to 8.1 per cent, Finland: 0.5 to 4.6 per cent, Denmark: 0.5 to 3.6 per cent, Belgium/ Luxembourg¹⁴: 1.4 to 8 per cent, Sweden: 1.2 to 5.8 per cent, Norway: 2.1 to 8 per cent and New Zealand: 1 to 7 per cent. South Korea is still quite closed, up from 0.2 to 0.7 per cent. Much of this is may be due to the integration of the European Union. Australia, Greece and Iceland have actually experienced declining FDI intensities, while Italy and Japan are still rather closed economies and the Netherlands remains open.

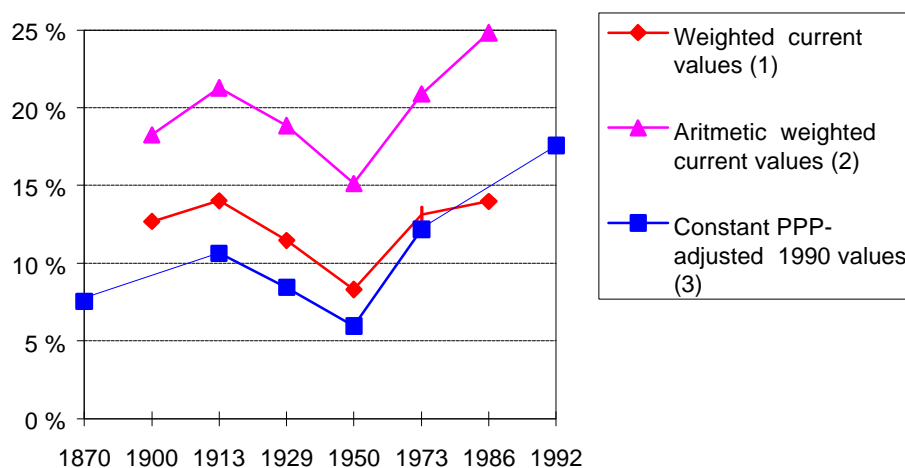
There is a substantial misbalance between inflows and outflows of FDI in many countries. Trade surplus is placed as portfolio or long-term investments abroad and

14. The two countries are grouped together in the OECD international investment statistics.

trade deficits are financed by loans or capital inflows. Trade balance and net FDI flows are hence often correlated.

4.4 FDI flows in volume

Figure 10: FDI inflows, OECD 13¹⁵



Source: OECD (1997b), national stock market indexes

Acquisitions of existing firms, mergers and purchase of bonds and stocks constitute an important part of FDI flows. The ‘price’ on these will increase in good times and decrease in bad. The volatility of FDI could hence be more a question of economic cycles than changes in purchase of real volumes (companies, production facilities, etc.). To take account of this, the FDI inflows in our sample of 13 OECD countries are deflated in two steps. Mergers and acquisitions have constituted between 35 and 70 per cent of all FDI flows in the last decade (UN, 1998). The time specific share is hence deflated by the national stock market index. The use of mergers and acquisitions as a proxy for the share of FDI which actually was traded on the stock market, probably underestimates the figures since acquisitions in most cases are thought to be higher than 10 per cent of the companies’ stocks. The remaining part, which mostly will reflect greenfield investments, is then deflated by the consumer price index.

When we apply the mixed deflator, the level of the total FDI inflow volume has been more or less unchanged (around 60 billion US dollars), while the FDI hit bottom in 1992 with 40 billion US dollars. The cyclical change in stock prices is hence an important reason for the volatility of FDI flows in current prices, since deflated figures rose by just 50 per cent from 1992 to 1996 while current values more than doub-

15 Austria, Belgium/Luxembourg, Canada, Denmark, Finland, France, Germany, Italy, Japan, Norway, Sweden, the United Kingdom and the USA, Norway, Sweden, the United Kingdom and the USA.

led. If FDI is only deflated by the consumer price index, the resulting volume is higher and more volatile.

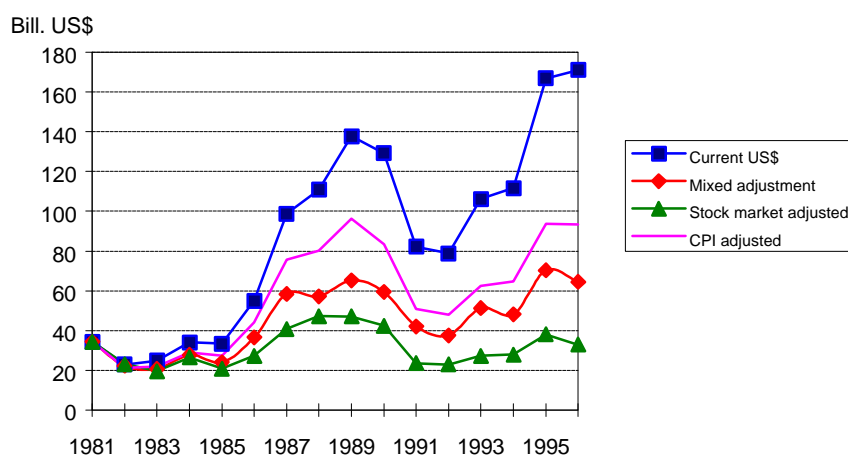
5. Historic comparison 1870–1996

5.1 International trade

There have been various attempts to estimate trade and GDP volumes in historic times. Maddison (1995), going as far back as 1820 for some countries, has figures for a representative group of 17 countries¹⁶ from 1870 (the sample constitutes 97 per cent of GDP in OECD-24 for 1992).

The trade intensities are constructed by dividing merchandise exports in constant 1990 values by GDP measured in constant PPP-adjusted prices for 1990 (Maddison, 1995). This shows a considerable increase in export intensities, up from 8 per cent in 1870 to 18 per cent in 1992. Maddison (1989), on the other hand uses merchandise export intensities that are calculated from the original export and GDP figures in current values for 16 countries.¹⁷ The author reports the arithmetic average which rises from 18 per cent in 1900 to 24 per cent in 1987, but he obviously overestimates the level since smaller countries in general are more open than large ones. The weighted average¹⁸ provides lower and more constant export intensities for the OECD 16 group, rising from 12.7 per cent in year 1900 to 14 per cent in 1987, the same level as in 1913 which was the most open year throughout the sample period.

Figure 11: Merchandise exports as share of GDP¹⁹, OECD 16



Sources: (i) Merchandise exports as share of GDP by nations in current values from Maddison (1989) and then weighted by national shares of GDP-PPP in given years from Maddison (1995), (ii) arithmetic average of merchandise export shares in current values by nations from Maddison (1989), (iii) merchandise exports in constant values divided by GDP in constant values from Maddison (1995).

16. Luxembourg, Greece, Iceland, Ireland, South Korea, New Zealand and Portugal are excluded from the OECD-24 group.

17. Spain is excluded from the OECD 17 group.

18. Using Maddison (1995) figures for GDP-PPP measured in constant 1990 Geary–Khamis international dollars in the given year.

19. The service sector is not included in historic comparisons, since merchandise constituted the major part at the beginning of the century.

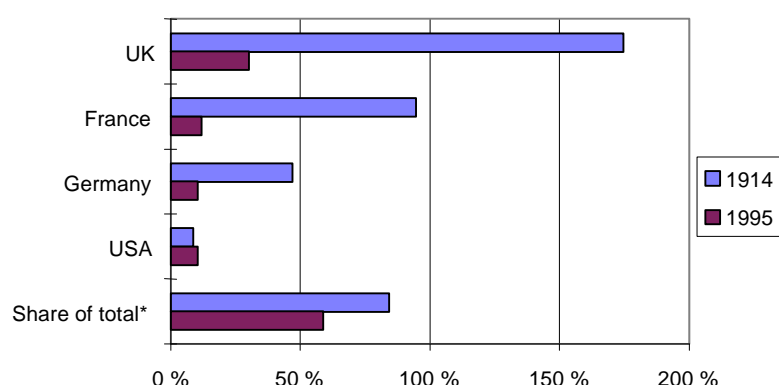
Reduced protectionism, new telecommunication technology and trade in raw materials from the new colonies led to high trade volumes before World War I. The export intensity fell in the next decade due to more segregated markets, but protectionism with preventive tariffs was first introduced *after* the collapse of the stock markets in 1929. The result was falling world market prices and what is called the 'Great Depression'. The world export volume fell by 27 per cent, but the value fell by as much as 62 per cent (Skarstein, 1998). The world economy took a positive turn before World War II. After the war most European countries were busy rebuilding the basic parts of their national economy, while the USA became the natural worldwide supplier of advanced products. One of every four dollars of export from the OECD came from the USA in the 1950s. Economic growth in Europe and Japan was driven by industrial reconstruction and specialisation gave room for a recovery of international trade and higher export intensities, which were further fuelled by regional integration (for instance, the European Community).

5.2 FDI

FDI figures before 1980 are hard to find, but historians have calculated figures based on different forms of other statistics. This section follows the lines given in Woodruff (1971). Europe and North America experienced high growth in the 19th century. New technology meant more effective production, a higher living standard and a rapidly increasing population. Many people emigrated and settled in the new independent territories (for instance, the USA, Latin America and Australia), while populated countries were colonised. And the money followed in European footsteps. Substantial parts of the FDI in the colonies were actually infrastructure like railways, while cross ownership was established between the European countries. 'Foreign investment in the hundred years before 1914 is very largely a matter of the Europeans lending money to each other as well as their kinfolk abroad' (Woodruff, 1971, p. 711). The share of world total inward FDI stock was 26 per cent received in Europe, 24 per cent in North America, 20 per cent in Latin America, 16 per cent in Asia, 9 per cent in Africa and 5 per cent in Oceania.

FDI became especially important for the four main economies and colonial powers at that time (the United Kingdom, the USA, France and Germany) with 86 per cent of outward world FDI stock and the United Kingdom had a unique position among them.

Figure 12: Outward FDI stocks as share of GDP in current values



Source: FDI stocks from Woodruff (1973) and GDP from Michell (1992, 1993) for the 1914 numbers, FDI stocks from OECD (1997b) and GDP OECD (1997a) for 1995 (*The four countries' share of world total in 1914, while today's number is their share of OECD-24 total outward stock in 1994)

The UK's stock of investments abroad amounted to 175 per cent of GDP measured in current values using official exchange rate, well above the 30 per cent we find today. In 1914 the importance of FDI for the British was enormous. The negative trade balance in every year between 1891 and 1906 was covered by large dividends on their investments abroad which were transferred home. 'In 1914 about 10 per cent of its national income came from this source' (Woodruff, 1971, p. 709). France also had large investments abroad, with FDI stocks constituting 92 per cent of their GDP level. But they preferred to locate most of their capital in other European countries (52 per cent) and very little in North America (6 per cent). Germany also invested much in Europe (44 per cent), while North America was heavily involved in their southern neighbour countries in Latin America (47 per cent).

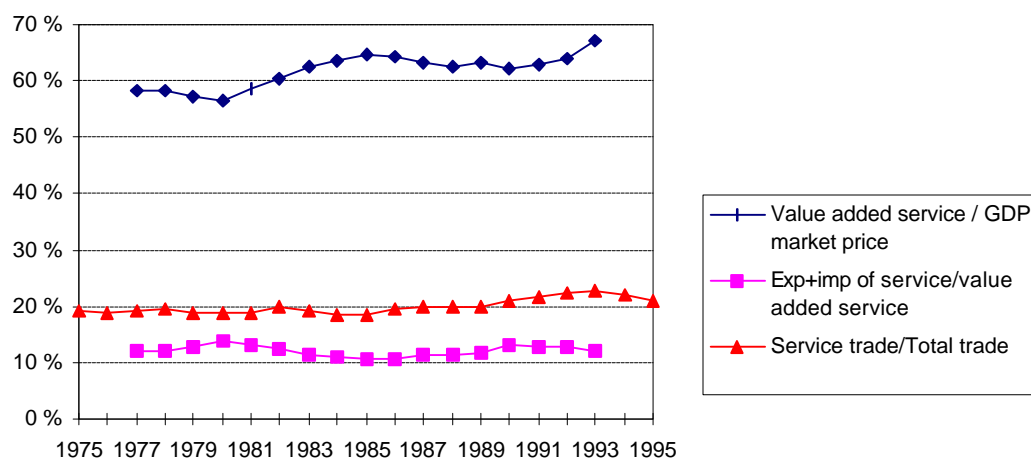
FDI as share of GDP seems to be less important today (except for the USA), since the intensity now is reduced between 10 and 30 per cent for the United Kingdom, France and Germany. Furthermore, the position of these countries is not as superior as it used to be. They had 87 per cent of world total FDI stock in 1914, while their share of outward FDI from the OECD-24 countries was just below 60 per cent in 1994, which implies that their share of world total FDI is even less.

6. Alternative measures of globalisation

6.1 The service and manufacture sector segregated

International trade in services has become more common due to new technology and international ownership, and constitutes now more than 20 per cent of the total trade of goods and services for the OECD-24 countries.

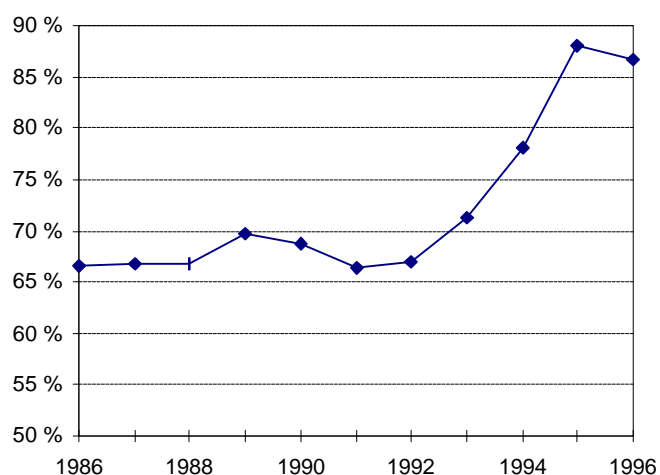
Figure 13: Service sectors' importance in trade and production, OECD-24



Source: World Bank (1998)

Hence, the service sector has become more important in the world economy. Value added in the service sector now constitutes close to 70 per cent of GDP at market prices measured in current US dollars, while the export share of total value added in the sector has been fairly constant around 13 per cent since the mid-70s.

The increase in trade of merchandise goods is, on the other hand, expected to grow drastically due to specialisation and vertical division of production. The OECD series for value added by sectors is unfortunately not specified for many countries before 1986. It constituted between 65 and 70 per cent before 1992, while the later years showed a remarkable growth up to around 85 per cent.

Figure 14: Merchandise trade as % of GDP goods, OECD 23²⁰

Source: OECD (1997a)

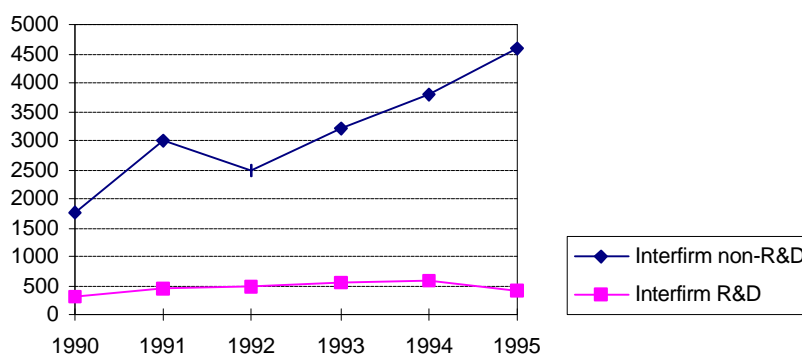
20. No numbers available for Switzerland. GDP goods is equal to GDP in market price where value added in the service sectors is subtracted.

The merchandise trade intensities in the USA and the smaller EU nations like Spain, Portugal, Finland and Ireland have shown the most pronounced growth, with a relative increase of more than 40 per cent. The merchandise sector in Luxembourg, Germany and Greece has experienced a reduction in merchandise trade intensities.

6.2 Strategic alliance and interfirm agreements

Alternative ways to take part in international production are forms of strategic partnerships, like joint ventures, subcontracting, franchising, licensing, research and development co-operation etc. An MNC might earn just as much money by letting others take care of the daily business by licensing out a brand name or technology. International activity without complete ownership, either of the production process or product, has been a trend since the mid-80s. There were 1,760 cross border inter-firm agreements (R&D partnership excluded) concluded in 1990, rising to 4,600 just five years later.²¹ The number of inter-firm research and development partnerships has increased from 300 in 1990 to 500 in 1994.

Figure 15: Annual concluded cross border inter-firm agreements, World



Source: Narula and Sadowski (1998)

6.3 Regionalisation

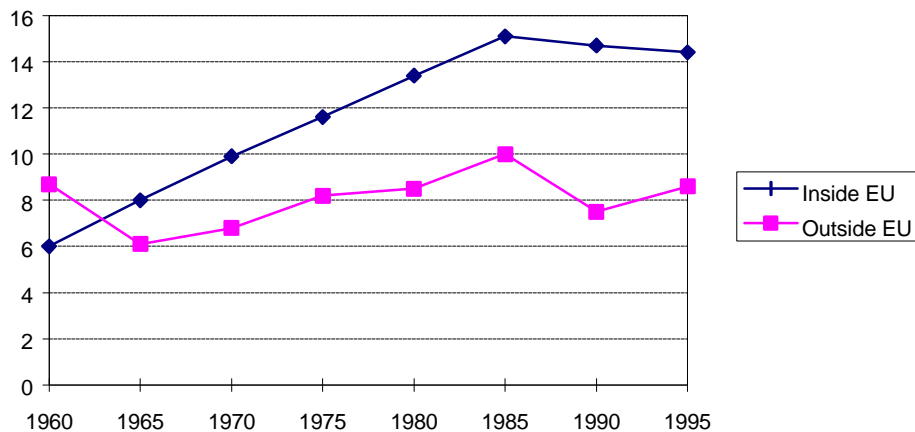
The co-operation in WTO is based on the concept of Most Favoured Nation (MFN) treatment. This principle of equality implies that no country is allowed better trade and investment conditions than another. However, countries may form regional economic and political unions, for instance the European Union (EU), NAFTA and Mercosur, with reduced trade tariffs as long as the barriers to trade towards other WTO members do not increase. Lately, several regional economic unions have formed, and much of the increased economic activity across borders is actually found inside such regions. The internationalisation of economic activity could hence be characterised more as regionalisation than globalisation. Yeats' (1998) study of trade in the Mercosur countries Brazil, Argentina, Paraguay and Uruguay shows a remarkable increase in trade between the member countries and this trade has to some degree replaced trade with countries in the rest of the world. Only 6.7 per cent of total exports went to

21. UN World Investment Report 1997, based on statistics from UNCTAD and IFR Security Data Company.

other member countries in the mid 80s, while this share had risen to nearly 20 per cent in 1994 after the introduction of regional trade policies.

The stepwise economic integration of countries in the European Union (EU) has led to one single market with hardly any barriers to trade and investment across borders. Kleinknecht and ter Wengel (1998) find regionalisation and not globalisation to be the true reason for increased export intensities for the EU countries since 1960, using trade statistics from the European Commission.

Figure 16: Export of goods as share of GDP in current values, EU 12



Source: Kleinknecht and ter Wengel (1998) based on OECD statistics among others

Intra-regional trade for 12 countries in the EU²² has increased from only 6 per cent in 1960 to above 14 per cent in 1995, while export of goods to countries outside the EU constituted nearly 9 per cent in 1960, rising to 10 per cent in 1985 and then decreasing to the original level in 1995.

7. Conclusions

The problem of ‘white lies and statistics’ is absolutely present in the globalisation debate. Not just the choice of indicator appears to be important in order to map the speed and level of the globalisation process, but the choice of measurement methods is also open to manipulation. Applying trade intensities measured in constant instead of current values overestimates the globalisation process. In our computed complete data set for 24 OECD countries, the former rises from 18 per cent in 1960 to 46 per cent in 1996, the latter from 22 to 40 per cent. Adjusting GDP by the purchasing power parity index will result in less openness in poor countries and more openness in rich countries. In our OECD sample trade intensities using exchange rate on current prices, increase from 26 per cent in 1970 to 40 per cent and the PPP-adjusted equivalent from 23 to 46 per cent, that is, more globalisation. The combination of current prices and PPP adjustment in trade and FDI intensities is the measurement method which best reflects how people experience their lives and hence the level of globalisation in a given year. The choice of reference year then becomes more important as PPPs are more volatile than exchange rates. The oil and raw materials price shocks

22 The EU-12 countries are Belgium/Luxembourg, Denmark, (West) Germany, Greece, Spain, France, Italy, Ireland, the Netherlands, Portugal and the United Kingdom.

drove up the trade intensities to a level which is more or less the same as today, while it drastically slumped in the mid 80s. Globalisation, when interpreted as trade intensities, is hence not a steady process, but varies contracyclical to the state of the economy. The surprising lack of increase in trade intensities during the last 25 years may also rest on market conditions. Open borders entails free competition, less price discrimination and hence export dumping in other countries. Furthermore, the spread of the market economy, more FDI-friendly regimes and improved communication techniques might have led companies to move production instead of products.

FDI intensities have also increased, measured in current PPP-adjusted values, from 1 per cent in 1981 to above 2 per cent in 1996. The volatility is quite high, peaking of 2.5 per cent in 1989 and down to 1.5 per cent three years later. We show that this volatility can be explained by the volatile prices on stocks. A mixed deflation of FDI inflows by both stock market index and consumer price index that takes account of the share of greenfield investments, generates volumes in 1996 that are similar to the level in 1987. Moreover, the volatility is dramatically reduced compared to the volatility of FDI in current prices or just CPI deflated.

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Summary

This report examines the consequences of using different measurement methods for the most common globalisation indicators; trade and FDI intensities. Applying constant prices will overestimate the increase in economic openness, while the use of official exchange rates will underestimate the level of openness and the speed of the globalisation process in our sample of relatively rich countries. This report claims that measurement should be based on purchasing power parity-adjusted GDP levels and current prices. According to this, trade intensities have on average more than doubled for the OECD since 1970, but with little increase after the oil crisis of the 1970s. For the OECD countries, FDI intensities since 1981 are also presented. When discounted with stock market indexes, the volatility and the increase in international investment activity are strongly reduced.

Appendix

Table 1. Change in total trade as share of national production*

	Trade/GDP			Trade growth	GDP growth	Shares of OECD-24 total			GDP 1970	GDP 1996	GDP ch.
	1970	1996	growth			Trade 1970	Trade 1996	Trade ch.			
Spain	14 %	50 %	259 %	2722 %	687 %	1.8 %	3.3 %	3.4 %	2.9 %	3.0 %	3.0 %
Korea	16 %	54 %	240 %	9773 %	2804 %	0.6 %	3.7 %	3.9 %	0.8 %	3.2 %	3.5 %
Austria	40 %	109 %	175 %	2027 %	673 %	1.6 %	2.1 %	2.1 %	0.9 %	0.9 %	0.9 %
Switzerland	43 %	111 %	157 %	1338 %	459 %	2.5 %	2.2 %	2.2 %	1.3 %	0.9 %	0.9 %
Ireland	58 %	141 %	143 %	2937 %	1151 %	0.6 %	1.1 %	1.1 %	0.2 %	0.4 %	0.4 %
France	25 %	58 %	135 %	1470 %	568 %	7.9 %	7.8 %	7.8 %	7.1 %	6.1 %	6.0 %
Italy	22 %	50 %	130 %	1539 %	613 %	6.2 %	6.5 %	6.5 %	6.4 %	5.9 %	5.8 %
Portugal	26 %	59 %	127 %	2074 %	857 %	0.6 %	0.9 %	0.9 %	0.5 %	0.7 %	0.7 %
Japan	14 %	30 %	119 %	2047 %	881 %	7.3 %	10.0 %	10.1 %	11.8 %	15.0 %	15.5 %
United States	11 %	24 %	115 %	1473 %	632 %	20.3 %	20.3 %	20.3 %	39.8 %	37.8 %	37.6 %
Greece	18 %	38 %	112 %	1711 %	756 %	0.5 %	0.6 %	0.6 %	0.6 %	0.7 %	0.7 %
Sweden	53 %	108 %	102 %	1036 %	462 %	2.9 %	2.1 %	2.0 %	1.2 %	0.9 %	0.8 %
United Kingdom	31 %	63 %	102 %	1132 %	511 %	9.9 %	7.7 %	7.6 %	7.1 %	5.6 %	5.4 %
Finland	44 %	88 %	100 %	1377 %	638 %	1.0 %	0.9 %	0.9 %	0.5 %	0.5 %	0.5 %
Germany	32 %	64 %	99 %	1323 %	616 %	13.8 %	12.4 %	12.4 %	9.6 %	8.9 %	8.8 %
Belgium	82 %	160 %	94 %	1288 %	616 %	4.5 %	4.0 %	3.9 %	1.2 %	1.1 %	1.1 %
Netherlands	67 %	123 %	83 %	1226 %	626 %	5.3 %	4.5 %	4.4 %	1.8 %	1.7 %	1.6 %
New Zealand	33 %	59 %	80 %	1102 %	569 %	0.5 %	0.4 %	0.4 %	0.4 %	0.3 %	0.3 %
Denmark	54 %	96 %	79 %	1118 %	582 %	1.6 %	1.3 %	1.2 %	0.7 %	0.6 %	0.6 %
Australia	25 %	42 %	68 %	1314 %	741 %	2.0 %	1.7 %	1.7 %	1.7 %	1.9 %	1.9 %
Luxemburg	141 %	216 %	54 %	1383 %	864 %	0.3 %	0.3 %	0.3 %	0.1 %	0.1 %	0.1 %
Canada	48 %	67 %	40 %	1092 %	750 %	6.4 %	4.8 %	4.7 %	3.0 %	3.3 %	3.4 %
Norway	82 %	106 %	30 %	1119 %	836 %	1.6 %	1.3 %	1.2 %	0.4 %	0.5 %	0.6 %
Iceland	76 %	84 %	10 %	1056 %	950 %	0.1 %	0.1 %	0.1 %	0.0 %	0.0 %	0.0 %
OECD-24	22 %	46 %	105 %	1479 %	670 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Source: Trade and GDP figures from OECD (1997a)

*Total trade (imports and exports) is measured at current US dollars and GDP is purchasing power parity adjusted and measured in current international dollar

How Much Globalisation?

Table 2. Change in total FDI flows as share of national product* (FDI/GDP-PPP)

	FDI/GDP-PPP				FDI growth	GDP-PPP growth	Shares of OECD-24 total					
	1981	1989	1996	growth			FDI 1981	FDI 1996	FDI ch	GDP-PPP 81	GDP-PPP 96	GDP ch
Switzerland	0.9 %	7.6 %	8.1 %	855 %	1746 %	117 %	0.9 %	3.0 %	3.5 %	1.1 %	0.9 %	0.8 %
Finland	0.5 %	4.6 %	4.9 %	811 %	1992 %	130 %	0.3 %	1.0 %	1.2 %	0.5 %	0.5 %	0.5 %
Denmark	0.5 %	3.9 %	3.6 %	613 %	1653 %	146 %	0.3 %	0.9 %	1.0 %	0.6 %	0.6 %	0.6 %
New Zealand	1.0 %	1.3 %	6.8 %	567 %	1436 %	130 %	0.3 %	0.9 %	1.0 %	0.3 %	0.3 %	0.3 %
Belgium/Lux	1.4 %	7.9 %	7.8 %	455 %	1224 %	139 %	1.5 %	3.8 %	4.4 %	1.2 %	1.2 %	1.2 %
Sweden	1.2 %	8.8 %	5.8 %	365 %	859 %	106 %	1.1 %	2.1 %	2.3 %	1.1 %	0.9 %	0.8 %
Korea	0.2 %	0.4 %	0.7 %	332 %	2117 %	486 %	0.2 %	0.9 %	1.0 %	1.3 %	3.2 %	4.4 %
Norway	2.1 %	4.1 %	8.2 %	289 %	908 %	159 %	1.0 %	1.8 %	2.0 %	0.5 %	0.5 %	0.6 %
Austria	0.7 %	1.2 %	2.8 %	279 %	813 %	141 %	0.6 %	1.0 %	1.1 %	0.9 %	0.9 %	0.9 %
France	1.3 %	3.7 %	4.1 %	220 %	591 %	116 %	7.8 %	10.2 %	10.8 %	7.0 %	6.1 %	5.5 %
Canada	0.8 %	2.0 %	2.2 %	193 %	583 %	134 %	2.3 %	3.0 %	3.2 %	3.5 %	3.3 %	3.2 %
Portugal	0.4 %	2.1 %	1.1 %	167 %	607 %	164 %	0.2 %	0.3 %	0.3 %	0.6 %	0.7 %	0.7 %
Ireland	1.0 %	0.2 %	2.5 %	147 %	744 %	242 %	0.2 %	0.4 %	0.4 %	0.3 %	0.4 %	0.4 %
Germany	0.6 %	1.9 %	1.4 %	141 %	486 %	143 %	4.7 %	5.2 %	5.3 %	9.1 %	8.9 %	8.8 %
Spain	0.8 %	2.3 %	1.9 %	126 %	456 %	146 %	2.2 %	2.3 %	2.3 %	3.0 %	3.0 %	3.0 %
United States	1.1 %	2.0 %	2.3 %	101 %	388 %	143 %	38.6 %	35.7 %	35.0 %	38.5 %	37.8 %	37.4 %
United Kingdom	3.7 %	7.5 %	7.0 %	88 %	326 %	127 %	19.9 %	16.1 %	15.2 %	6.1 %	5.6 %	5.3 %
Japan	0.5 %	2.1 %	0.8 %	70 %	366 %	174 %	5.6 %	5.0 %	4.8 %	13.5 %	15.0 %	16.0 %
Italy	0.5 %	0.5 %	0.8 %	56 %	246 %	122 %	2.9 %	1.9 %	1.6 %	6.5 %	5.9 %	5.4 %
Netherlands	3.8 %	10.6 %	4.1 %	9 %	165 %	144 %	5.6 %	2.8 %	2.1 %	1.7 %	1.7 %	1.6 %
Australia	2.1 %	4.3 %	2.0 %	-5 %	146 %	159 %	3.4 %	1.6 %	1.2 %	1.8 %	1.9 %	2.0 %
Greece	0.9 %	0.8 %	0.8 %	-12 %	103 %	141 %	0.6 %	0.2 %	0.1 %	0.7 %	0.7 %	0.7 %
Iceland	0.5 %	0.6 %	0.1 %	-80 %	-57 %	163 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
OECD-24	1.1 %	2.7 %	2.4 %	109 %	428 %	147 %	100 %	100 %	100 %	100 %	100 %	100 %

Source: FDI from OECD (1997b) and GDP from OECD (1997a)

* FDI-total (inwards and outwards) is measured in current US dollars and GDP is purchasing power parity adjusted and measured in international dollars.

