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# THE INFLUENCE OF POLICIES ON FOREIGN DIRECT INVESTMENT<sup>1</sup>

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## THE INFLUENCE OF POLICIES ON FOREIGN DIRECT INVESTMENT

### 1. Introduction

The beneficial effects of foreign direct investment (FDI) on efficiency and growth are generally recognised, and there is a wide consensus that policy should aim at reducing or eliminating hindrances to global trade and FDI integration. However, border barriers are still significant in some countries and industries, in particular in the form of restrictions to FDI. Moreover, there is growing recognition that policies aimed at non-border-related objectives may have a significant impact on the activities of multinational enterprises (MNEs). Thus, unnecessarily restrictive product and labour-market regulations can act as barriers to FDI. The state of the domestic physical infrastructure can also influence countries' capacities to participate in the globalisation of economic activity.

This paper assesses the importance of certain border and non-border policy measures for global economic integration. A number of studies have looked at the influence of economic and/or policy factors on FDI, but most of them tended to deal mainly with geographical and structural factors or focus on a small subset of policy variables (*e.g.* border variables). Building on previous OECD work, this paper takes into account a much broader set of policy variables, including infrastructure supply, product and labour-market regulation as well as openness to FDI in both goods and services industries.

The aim of the paper is threefold:

- First, it describes trends in FDI, as well as border and non-border policies that are likely to affect it. In this context, the focus is on four widely-advocated policies: removing explicit restrictions to FDI; promoting domestic competition; improving the adaptability of labour markets; and ensuring adequate levels of infrastructure capital. To assess policy patterns in these areas, a large set of indicators constructed by the OECD is used, including new summary indicators for infrastructure supply and FDI-specific restrictions.<sup>2</sup>
- Second, the paper estimates the impact of these policies on FDI. The empirical analysis focuses on bilateral FDI patterns, but also looks at the determinants of multilateral inward FDI to explain the overall ability of individual OECD countries to attract international investment.
- Third, using the results of the empirical analysis, the paper discusses and quantifies the effects on global integration of policies targeted at removing border and non-border barriers to FDI in the OECD area. It should be noted at the outset that, insofar as the

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2. The willingness of businesses to expand cross-border activity and their localisation decisions are likely to depend to some extent also on the taxation of profits of foreign subsidiaries. Patterns of FDI taxation and their effects on global integration are studied in two companion papers (Yoo, 2003; and Hajkova *et al*, 2003).

results of the simulations are only suggestive of what could happen under different policy scenarios, they may overestimate the effects of policy changes on the variables of interest.<sup>3</sup>

The three following sections develop this analysis, while a final section concludes. Details about empirical results (including their sensitivity to changes in empirical specifications) and the construction of the underlying data sets can be found in Nicoletti *et al* (2003).

## **2. FDI and policies: trends and linkages**

### **2.1. FDI trends**

Over the past decade, foreign investment intensity (defined as the outward FDI position over GDP) has increased significantly in the average OECD country (Figure 1).<sup>4</sup> Most global international investment activity occurred among OECD countries and took the form of ownership changes in existing enterprises (mergers and acquisitions, privatisation), with so-called “green-field” investment playing only a minor role (OECD, 2002c).<sup>5</sup> While different forms of FDI might respond to policies differently, the empirical analysis of the paper is based on aggregate financial FDI data since the identification of the different forms of FDI is not possible for many OECD countries. In 1999, the OECD accounted for around 91 per cent of world investment outflows and 74 per cent of world inflows (UNCTAD, 2001). Over the same period, EU countries combined were both the largest recipients and the largest suppliers of FDI in the OECD area, followed by the United States, Japan, Canada and Switzerland (Figure 2).

**[Figure 1. Trade and FDI patterns in the OECD]**

**[Figure 2. Distribution of OECD FDI positions in 1998]**

The average share of FDI inflows in total business investment went from little more than 3 per cent over the 1980s to almost 11 per cent in the 1990s, bringing about a significant increase in the outward and inward positions of most OECD countries. Given the way these data are constructed (Box 1), part of this increase may be due to a revaluation of existing positions reflecting the sharp increase in equity prices over the same period (OECD, 2002c). Nonetheless, the upward trend in FDI flows points to a rising internationalisation of production over the 1990s. FDI activity dropped sharply in recent years, but most observers attribute the decline to transitory causes rather than to a reversal of the earlier decade-long upward trend.<sup>6</sup>

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3. The simulations are based on partial equilibrium, reduced-form models that are unable to account for the general equilibrium interactions between policy changes and trade and FDI flows. This approach produces important diversion effects.
  4. Outward and inward positions are multilateral measures of FDI activity that cumulate for each investor country the bilateral stocks held in all FDI partner (host) countries (henceforth, outstocks) and for each host country the bilateral stocks held by all partner (investor) countries (henceforth, instocks).
  5. FDI activity can in principle be decomposed into *i*) mergers and acquisitions, *ii*) greenfield investments, *iii*) reinvested earnings, and *iv*) capital transfers between related enterprises. In practice, available data rarely allow such decomposition to be made.
  6. For instance OECD (2002c) considers the drop as a “correction” of the investment and stock market bubble that occurred at the turn of the century. High levels of FDI flows were also partly related to a flurry of unprecedented privatisation activity.

### Box 1. FDI data

Foreign direct investment is a category of international investment made by a resident entity in one country (direct investor) with the objective of establishing a lasting interest in an enterprise resident in another country (direct investment enterprise).<sup>1</sup> This involves both the initial transaction between the two entities and all subsequent capital transactions between them and among affiliated enterprises, both incorporated and unincorporated.

Conventionally a foreign direct investment enterprise is an incorporated enterprise in which a foreign investor owns 10 percentage or more of the ordinary shares or voting power or an unincorporated enterprise in which a foreign investor has equivalent ownership. Financial FDI data may be geographically biased to the extent that MNEs use strategically-located holding companies to intermediate their investments.

Statistics on FDI transactions and positions are based on the OECD database developed by the Directorate for Financial, Fiscal and Enterprise Affairs (published under the title *International Direct Investment Statistics Yearbook*). These statistics are compiled according to the concepts used for balance of payments (flows) and international investment position (stocks) statistics. Both data sets are available for inward and outward investment with further breakdowns *i*) by partner country and *ii*) by economic sector (according to ISIC Rev. 3 classifications).

Generally, information on inward flows and stocks and on outward flows and stocks is available. The data set used in the empirical analysis covers 28 OECD countries (Luxembourg and Belgium report together; data for Slovakia are not included) over the 1980-2000 period and hence comprises 756 country-partner pairs per year for a potential of 15 876 observations. However, some countries are not yet able to provide complete sets of statistics and, therefore, the panel is unbalanced.<sup>2</sup> An attempt has been made to restore some of the missing data by using available antipodal bilateral data.

Substantial progress has been made towards the agreed international standards for FDI data compilation established by the IMF and the OECD. However, some OECD countries still deviate from the standards in terms of, for instance, the elements included in the disseminated data (income on equity, reinvested earnings and income on debt), the treatment of indirectly-owned investment enterprises or, to a minor extent, definitions used to identify direct investment enterprises resident in the reporting country. The majority of countries report data on investment positions based on book values, but some measure the positions in market values. These issues make the cross-sectional comparability of the data somewhat problematic.

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1. "Lasting interest" implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence by the direct investor on the management of the direct investment enterprise.
  2. For the period 1980-2000, no geographic breakdown is available for the stock data for the Belgium-Luxembourg Economic Union, Spain, Ireland and Turkey; for outward stocks for Hungary and Mexico; and for outflows for Greece and Mexico.

The general move towards internationalisation has been matched by an increasing cross-country dispersion of the amount of FDI supplied and hosted relative to the size of the investor and host countries (Figure 3). By the year 2000, the variances of the instocks and outstocks as ratios to GDP among OECD countries were larger than two decades earlier, though less so for outstocks. Figure 3 also shows that a number of host countries have relatively large instock ratios, while outstock ratios tend to be more evenly distributed across investor countries. Focusing on inward FDI positions, Figure 4 shows the average instock to GDP ratios of individual countries in the 1980s and 1990s. It suggests that the largest contribution to the increase in the cross-country dispersion of the OECD instock was provided by Ireland, Belgium and the transition countries, in which inward FDI surged during the 1990s.

**[Figure 3. Inward and outward FDI positions: trends and cross-country dispersion]**

**[Figure 4. Inward FDI positions in OECD countries, 1980s and 1990s]**

The variance of the multilateral measures masks very different cross-country patterns at the bilateral level. First, in 1998 (the latest year for which bilateral data are reasonably complete) the number of host partners varied across investing countries, ranging from below 10 for Hungary and Turkey to above 20 for many EU countries, the United States and Canada. Second, the extent to which countries geographically specialise their FDI across a given number of partners also differs. While many countries tend to evenly distribute their FDI across partners, some of them (*e.g.* Canada, Korea, Denmark and the United Kingdom) tend to concentrate FDI on a few host countries. Similarly, some countries (Austria, Canada, the United Kingdom and Mexico) mostly host FDI originating from just a few countries.

The indicators depicted in Figure 5 report patterns of geographical specialisation focusing on inward (and outward) FDI from (to) the European Union, the United States and Japan -- where specialisation is defined in terms of a country hosting (supplying) a share of FDI from an investor country (to a host country) larger than the share hosted (supplied) by the OECD. Geographical factors are clearly important in explaining patterns of FDI instocks (panel A): most European countries specialise in hosting FDI originating from EU countries; Canada, Mexico and Ireland specialise in hosting FDI from the United States; and Pacific shore countries specialise in hosting FDI from the United States and/or Japan. Interestingly, however, the degree of geographical specialisation varies significantly both within the same area and relative to countries located outside the area. On the whole, the dispersion of specialisation patterns suggests that geographical factors are important, but they cannot explain the entire variability in the data.<sup>7</sup>

### **[Figure 5. Patterns of geographical specialisation in inward and outward FDI]**

The increase in trade intensities over the past two decades has probably been matched by rising intra-firm trade related to the widening role played by MNEs in the OECD area (OECD, 2002d). Indirect evidence of this is provided by the rising share of intra-industry trade, especially in transition countries, which parallels the sharp increase in FDI inflows over the same period. Direct measures of intra-firm trade, which are available for only a few countries (notably the United States, Japan and some Nordic countries), also point in this direction. The available data suggest that intra-firm trade among MNEs and foreign affiliates located in high-income OECD countries mainly involved the export of final goods for sale in local markets, reflecting horizontal-type FDI, while trade between MNEs located in high-income countries and their affiliates in middle-income OECD countries also involves imports of intermediate goods to be further manufactured and sold in the country of the parent company (or other countries), reflecting vertical-type FDI.

## **2.2. Policy and other determinants of FDI**

Two broad sets of factors affect FDI: *non-policy factors* -- including the effects of gravity (*e.g.* market size and distance) and factor proportions (*i.e.* relative endowments of different inputs) -- and *policy factors* (Table 1). The influence of these factors (*i.e.* the sign of the relationship and its intensity) is not necessarily the same across different types of FDI. In particular, it may depend on whether FDI is of the horizontal or vertical type. This section principally looks at key policy factors, grouping them into four categories: openness, product-market regulation, labour-market arrangements and infrastructure.<sup>8</sup> Some of these policy channels restrict market access by foreign investors (*e.g.* explicit FDI restrictions). Other

7. Geographical specialisation indicators for FDI inflows and outflows are broadly characterised by the same patterns. However, inflows indicators suggest that a "catch up" phenomenon is taking place in some countries, such as Greece *vis-à-vis* the European Union and Korea *vis-à-vis* Japan; and outflow indicators show that several countries (including a few EU members, Canada, the United States, New Zealand and Korea) had developed a specialisation in investing in Japan over the 1995-1998 period.

8. The effects of FDI taxation are studied in Hajkova *et al.* (2003).

border and non-border policies reduce the net returns of MNEs when they invest abroad (*e.g.* host country regulations that raise production costs). Alternatively, policies can facilitate FDI, for example by creating areas of free trade or improving the business environment in which MNEs operate (*e.g.* promoting competition or infrastructure supply).<sup>9</sup> This section shows by means of newly-developed indicators that approaches often differ across countries in each of the four policy categories and, when possible, offers *prima facie* evidence that these differences may be relevant for FDI.

**[Table 1. Policy and other influences on outward foreign direct investment]**

**2.2.1. Openness**

As noted above, openness of a country to FDI is primarily assessed here in terms of policies that create (or eliminate) border barriers for investors, measured by indicators of statutory restrictions to FDI and multilateral agreements that create areas of free trade and/or capital movements among signatory countries. However, tariff and non-tariff barriers to trade in goods and services are also considered, because they may affect the choice of MNEs between exporting and investing abroad as well as the choice between horizontal and vertical FDI.

*FDI restrictions*

Although formal international agreements on FDI have been far less extensive than on international trade, global negotiations and regional free-trade agreements often cover some aspects of international investment as well (*e.g.* capital-market liberalisation within the European Union and provisions on commercial presence in the GATS), generally leading to lower barriers to FDI. Moreover, a number of bilateral investment treaties have been signed among OECD countries, aiming at curbing barriers to FDI. A new set of indicators of FDI restrictions was assembled by the OECD to summarise and quantify such barriers and their evolution over time. The indicators, which are described in detail in Golub (2003), cover mainly statutory barriers, ignoring most of the other direct or indirect obstacles impinging on FDI, such as those related to corporate governance mechanisms and/or hidden institutional or behavioural obstacles that discriminate against foreign firms.<sup>10</sup>

According to these indicators (Figure 6), liberalisation of FDI flows has been substantial over the past two decades in all OECD countries except the United States and to a lesser extent Japan, both of which had relatively low statutory restrictions to begin with.<sup>11</sup> Despite the easing of restrictions and their generally much lower level at the end of the 1990s, cross-country differences remain significant, with most EU countries showing greater openness than the United States and Japan, and a few OECD countries maintaining a relatively restrictive approach (Iceland, Canada and Turkey). In most countries, restrictions on control of domestic firms by foreign residents (through either ceilings on foreign-owned equity or limitations on management and business choices) dominate those related to screening procedures

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9. Policies can also affect FDI indirectly, through their effect on factor proportions, for example by improving the quality of a country's infrastructure capital or the skills of its labour force.
  10. Non-statutory barriers to FDI are very difficult to ascertain and quantify. However, some of them were included in the indicators, such as the absolute barrier represented by full state ownership of business enterprises and hidden institutional or behavioural barriers documented in official reports.
  11. To a large extent, the generalised decline in restrictions reflects full liberalisation of capital flows within the European Union (completed in the early 1990s) and the concomitant extensive privatisations both in the European Union and elsewhere (*e.g.* Mexico), which have opened up previously sheltered public firms and monopolies to foreign capital.



(e.g. economic benefits or national interest tests).<sup>12</sup> On average, the bulk of restrictions are found in non-manufacturing industries.<sup>13</sup> FDI inflows into manufacturing are almost completely unrestricted, aside from economy-wide restrictions such as notification or screening requirements. Within non-manufacturing, electricity, transport and telecommunications are the most restricted industries, followed by finance, while the other service industries are on average relatively unrestricted.

**[Figure 6. FDI restrictions in OECD countries, 1980-2000]**

Variable FDI restrictions across countries, industries and time are a natural candidate for explaining the dispersion observed in bilateral FDI transactions. These restrictions clearly raise barriers to foreign investment of MNEs and are likely to influence their choice among different investment locations. Some evidence of this is provided by Figure 7, which suggests that in very broad terms there is a weak but visible inverse relationship between the sectoral shares of employment in foreign affiliates and the level of FDI restrictions across a number of selected sectors.<sup>14</sup>

**[Figure 7. Foreign affiliates and FDI restrictions in the selected industries]**

*Free trade areas and currency unions*

The effect of free-trade agreements on bilateral FDI transactions is complex.<sup>15</sup> By substantially lowering trade costs among signatory countries, free-trade agreements make trade more advantageous than local production, tending to reduce horizontal FDI flows at any given level of fixed costs. However, by enlarging the overall size of the market in the free-trade area, these agreements also increase the scope for reaping firm-level economies of scale through horizontal FDI.<sup>16</sup> Moreover, the reduction in trade costs tends to increase vertical FDI flows that are aimed at re-exporting products into the home country or into other signatory countries. Furthermore, free-trade agreements tend to have a positive effect on horizontal FDI flows from non-signatory countries, because they enlarge the size of the market that they can access by producing locally at any given level of trade costs.<sup>17</sup> In conclusion, the effect of free-trade agreements on FDI flows among signatory countries is ambiguous, while it is presumably positive on FDI flowing from non-signatory countries. These effects are empirically tested in the next section.

Equally complex are the implications of currency unions on FDI among signatory countries. Exchange-rate variability may increase the transaction costs involved in trading goods and services and the risk premia on the returns to FDI. Currency unions eliminate those costs and reduce investment risk.

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12. The indicators are unable to capture differences in the enforcement of restrictions, which might be particularly important for screening requirements. Also, several countries have further eased restrictions since the data were last collected.
  13. A simple count of restrictions affecting different industries shows that 67 per cent of all restrictions concern the services sector (Sauvé and Steinfatt, 2003).
  14. The simple bivariate correlation across countries between the sectoral indicators of FDI restrictions and the sectoral shares of employment in foreign affiliates is negative and significant.
  15. See Markusen (2002) for an extensive discussion of the conflicting forces acting on bilateral FDI flows as trade liberalisation is implemented.
  16. This could partly explain the wave of within EU mergers and acquisitions that followed the Single Market Programme.
  17. Neary (2002) argues that this tendency takes the form of consolidation of different plants into a single location within the free-trade area. He also notes that the increased competition from MNEs of signatory countries can have an opposite influence on third-party investors, leading them to *reduce* investment in the free-trade area.

Therefore, they can be expected to increase trade flows and expand FDI. Theoretical and empirical research has shown, however, that the impact of exchange-rate variability on trade is uncertain (for reviews, see McKenzie, 1999, and Taglioni, 2002), though recent evidence tends to find a positive effect of currency unions (Rose, 2000). At the same time, as suggested by Cushman (1985), the effects of reduced exchange-rate volatility on FDI depend on whether the firm sells output in the host country or abroad, uses the host country or foreign inputs and finances its capital at home or abroad. Therefore, the effect of exchange-rate variability on FDI is ultimately an empirical issue

### *Tariff and non-tariff barriers*

Tariff barriers can also indirectly affect bilateral FDI relationships. Vertical FDI aimed at re-importing to the home country or exporting to third-party countries the final or intermediate goods produced by foreign affiliates can be depressed by high bilateral tariffs between the host and investor country or between the host and third-party countries. On the other hand, high bilateral tariffs can generate so-called “tariff-jumping” behaviour by MNEs. Horizontal FDI that is prompted by tariff-jumping could be positively related to the level of tariffs in the host country. The same kind of relationship could *a fortiori* be expected between horizontal FDI and non-tariff barriers, since the latter often raise absolute barriers to market access (*e.g.* quantitative restrictions). Therefore, non-tariff barriers are likely to have a positive effect on FDI.

Figure 8 reports the evolution of average (import-weighted) most-favoured-nation (MFN) tariff rates and import coverage of non-tariff barriers from 1988 to 1996, the latest year for which time-series data are available.<sup>18</sup> The conclusion of global and regional trade agreements during this period was reflected in a decline of both non-tariff and, to a lesser extent, tariff barriers within the OECD area. However, cross-country differences in average barriers still persist. Indeed, Figure 9 shows that in 2001 the dispersion of average (unweighted) applied tariff rates was indeed wide across OECD country pairs. This reflects tariff discrimination across trading partners, which may well contribute to explaining differences in bilateral trade and FDI intensities among OECD countries.<sup>19</sup>

### **[Figure 8. Manufacturing trade liberalisation in the OECD area, 1988-1996]**

### **[Figure 9. Median and dispersion of bilateral applied tariffs by importing countries in 2001]**

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18. Non-tariff barriers include so-called “core” measures, such as price controls (voluntary export restraints, variable charges, anti-dumping and countervailing actions) and quantitative restrictions (non-automatic licensing, export restraints, quotas and prohibitions). See OECD (1997*b*) for details.
  19. *Multilateral tariff and non-tariff barriers* are derived from detailed data on *ad valorem* MFN tariff rates and the frequency of non-tariff barriers in 6-digit industries of the Harmonised System of Classification (UNCTAD, 1998). The data are aggregated using average 1998 OECD import weights up to the 2-digit ISIC Rev. 3 level and average 1998 OECD value-added weights thereafter. Information about cross-country differentials in import shares for different goods (net of intra-EU imports) was exploited to differentiate trade barriers across EU countries. *Bilateral tariffs* are based on the new MacMaps data produced jointly by the Centre d’Etudes Prospectives et d’Informations Internationales and the International Trade Center (Bouet *et al.*, 2001, 2002). The MacMaps data report information on MFN duties, other *ad valorem* duties, specific duties, preferential margins, prohibitions, tariff quotas and anti-dumping (specific or *ad valorem*) duties. These are aggregated to the 2-digit ISIC Rev. 3 level using average import weights differentiated by group of trading partners. Despite the use of *average* import weights in aggregation, both the multilateral and the bilateral indicators may tend to underestimate the extent of trade barriers if import shares are depressed in industries with high barriers.

### 2.2.2. Product-market regulation

OECD product markets have become increasingly open to competition over the past two decades (Figure 10). At the same time, the cross-country dispersion in regulatory approaches has increased, due to differences in initial conditions and/or in the scope and pace of reforms implemented by OECD countries. As a result, in 1998 (the latest year for which cross-country regulatory data are available) regulations still differed substantially both at the economy-wide level and, especially, at the industry-level in several non-manufacturing industries.<sup>20</sup> Here, the focus is on regulations in the investor country or the host country that curb market forces where competition is viable and/or impose unnecessary costs on the firms involved in the bilateral investment transaction.<sup>21</sup> Domestic regulation generally does not discriminate between local and foreign firms, but it may have distorting effects on FDI flows by affecting the relative prices of different products (*e.g.* tradeable *versus* non-tradeable or home *versus* foreign) or the relative rates of return expected from investing in different locations.

#### [Figure 10. Regulatory reform in OECD countries, 1980-1998]

By raising production costs or entry barriers, regulations can affect FDI in multiple and at times conflicting ways:

- Cost-increasing regulations in the host country can deter FDI by lowering its expected rate of return if the foreign subsidiary is used as a platform for re-exporting final or intermediate goods back home or to other less regulated countries (the case of the vertical MNE). However, if FDI aims at accessing the local market (the case of the horizontal MNE), cost-increasing regulations in the host country may encourage FDI because the foreign affiliate can take advantage of the production structure of the parent firm, which may be more efficient than in local firms if regulations in the home country are more pro-competitive. Cost-increasing regulations in the home country may also stimulate outward FDI by favouring the delocalisation of production plants in countries with less costly regulations. On the other hand, the costs implied by these regulations may cripple the ability of home-country firms to internationalise production to the desired level.<sup>22</sup>
- Similar conflicting influences can be exerted by regulations that raise entry barriers in host countries. Such entry barriers clearly deter “greenfield” FDI aimed at establishing new firms or creating new production plants. However, by endowing local firms with market power, they can actually encourage inward FDI aimed at acquiring (or merging foreign parents with) existing local firms.

Despite the potentially conflicting linkages between regulation and FDI, *prima facie* evidence suggests that, on the whole, barriers to entry and cost-increasing regulations in the host country, as summarised by the product of the 1998 indicator of economy-wide regulation with the summary 1980-

20. Details on the regulatory indicators shown in the figures can be found in Nicoletti *et al.* (1999), Nicoletti *et al.* (2001) and Nicoletti and Scarpetta (2003).

21. While regulations that bar entry or raise costs may deter FDI, regulations that are aimed at protecting intellectual property rights (IPR) may increase the attractiveness of the host country for international investors, because protection of IPR makes it more difficult to imitate their firm-specific knowledge assets (*e.g.* through the movement of managers or employees from the foreign affiliate to local firms). See Smith (2001).

22. For instance, there is evidence that certain product market regulations can hinder firm growth and curb R&D spending (Nicoletti *et al.*, 2001; Bassanini and Ernst, 2002). Both factors can constitute a handicap for internationalisation.

1998 indicator of barriers to entry in seven non-manufacturing industries, are inversely related with the intensity of inward FDI in OECD countries over the 1980-2000 period (Figure 11).

**[Figure 11. Product-market regulation and FDI, 1990-1998]**

*2.2.3. Labour-market arrangements*

A wide set of policies and institutions affects the functioning of the labour market impinging on FDI transactions. In this study, the focus is restricted to employment protection legislation (EPL), collective bargaining mechanisms and labour income taxation, for which comparable cross-country data are available.<sup>23</sup> The OECD (1997c, 1999) has extensively documented cross-country differences in labour-market policies and institutions. Both employment protection and labour income taxation are driven by important policy objectives, but could also have side effects on the level and geographical allocation of FDI.

The main channel through which EPL and labour tax wedges can affect FDI is the influence they may have on the adaptability of labour markets and on the cost of labour.<sup>24</sup> In the absence of offsetting mechanisms, EPL and labour taxes can affect FDI patterns for largely the same reasons as cost-increasing product-market regulations do, *i.e.* by adversely affecting the relative prices of different products, or by adversely affecting relative returns from investing in the country that has stringent EPL or high wedges.<sup>25</sup>

In principle, the effects of EPL and labour income taxation on FDI may also depend on the regime of industrial relations in place in each OECD country. Previous research has shown that some collective bargaining arrangements can provide an effective offsetting mechanism for the costs implied by labour income taxation and EPL by making the shifting of such costs onto wages possible.<sup>26</sup> However, the scope for such offset in the case of FDI is doubtful. This is because strict EPL is likely to affect not only

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23. Other important factors include, for instance, coverage of collective agreements, minimum wages and health and safety regulations, for which cross-country data are patchy or lacking.
  24. EPL and the social expenditures that are financed through labour income taxation may also lower transaction costs in the relationship between workers and firms, reduce labour market frictions and smooth out the social costs associated with adverse labour market outcomes. Through these channels, EPL and labour income taxation can actually have positive repercussions for export prices and expected investment returns. However, these effects are difficult to measure and, in this study, the focus is on the role they play in pushing up production costs.
  25. Moreover, in the same way as product market regulations, stringent EPL and high wedges in the home country may also encourage firms to localise production in countries where labour market rules and taxation are more favourable to business, thereby stimulating outward FDI; but at the same time EPL may handicap firms that want to do so by hindering their potential for reorganising production or growing in size. Nicoletti *et al.* (2001) find that the average size of firms is negatively related to the stringency of EPL in a panel of OECD countries and industries.
  26. This idea was first put forth by Calmfors and Driffill (1988). Specifically, regimes in which bargaining is done at the national (*i.e.* centralised) level and with a tight co-ordination among employers and unions operating in different industries may make it possible to shift the implicit costs of wedges and EPL onto wages, much in the same way as may happen in decentralised and uncoordinated labour markets, provided wage resistance is not encouraged through other arrangements (such as high income replacement rates in unemployment benefit systems). See Elmeskov *et al.* (1998) for evidence on the interaction between EPL and bargaining mechanisms and Daveri and Tabellini (2000) for the interaction between labour income taxation and bargaining mechanisms. To the extent that this offsetting mechanism is operating, effects of EPL or tax wedges on FDI should be found mainly in situations in which bargaining is neither co-ordinated nor decentralised, as it is found for instance in countries where negotiations are implemented at the industry level.

the returns expected from foreign investment (*e.g.* through effects on labour costs that can be offset by bargaining institutions) but also their variability (*e.g.* by influencing the capacity of foreign affiliates to respond to supply or demand shocks), thereby increasing the risk that investors face in the host country. Since MNEs can choose *ex ante* where to locate their investment, they may still tend to move where the risk/return ratio is lowest, independent of the features of bargaining institutions in potential host countries.<sup>27</sup> Similarly, the potential for shifting the costs implied by labour taxation onto wages may be limited in MNEs whose highly-skilled employees and managers are likely to be more mobile across borders than their homologues in local firms.

#### 2.2.4. Infrastructure

FDI may also be affected by factors that are, or have been, closely-related to government policies regarding transportation, communications and energy supply. Indeed, due to their public good and natural monopoly characteristics, some fixed network infrastructures are financed through public investment.<sup>28</sup> Figure 12 uses the indicators of Golub (2003) to show the evolution of infrastructure endowments of OECD countries over the past two decades. The indicators are increasing in the quality and quantity of infrastructure and summarise information about transport, communication and energy supply infrastructure (Box 2). There have been substantial increases in infrastructure capital over the period in all OECD countries. By the year 2000, the Nordic countries, the United States, Canada, Australia and other small European countries, such as Switzerland and, to a lesser extent, Ireland had the highest levels of infrastructure. New OECD members and transition countries, such as Mexico, Turkey, Poland and to a lesser extent Hungary, the Czech Republic and Korea, were estimated to have relatively low levels of infrastructure.

[Figure 12. Infrastructure endowments]

#### Box 2. Infrastructure indicators

The infrastructure indicator summarises, on a 0-1 scale, the quality and quantity of telecommunications, transport and electricity infrastructure. Items covered include mainlines per capita, mobile phones per capita, the share of digital lines in total lines, answer seizure ratios (*e.g.* the percentage of successful international phone calls) and fault rates (*e.g.* the percentage of faults repaired within 24 hours) in telecommunications; length of motorways per capita, length of paved roads per capita and aircraft departures per capita in transport; transmission losses, generating capacity per capita and reserve margins in electricity supply. The relevant data were drawn from the OECD, the European Conference of Ministry of Transportation, International Energy Agency and World Bank sources. Each sectoral indicator is a weighted average of the corresponding items. The overall infrastructure indicator is a weighted average of the three sectoral indicators. Weights assigned to items and sectors reflect judgements about the economic relevance of each component. A time-series of the indicator was calculated for the 1980-2000 period.

The provision of infrastructure may affect comparative and absolute advantage and, therefore, cross-country patterns of FDI (Findlay, 1996). The availability and the quality of infrastructure may positively affect inward FDI because good infrastructure lowers transactions costs, facilitating international

27. It is also possible that foreign investors may find the implications of restrictive EPL provisions more difficult to ascertain than domestic investors (due to an asymmetry of information) and hence have to face higher costs.

28. More importantly, government policies (*e.g.* access regulations) are crucial for ensuring a regulatory and business environment which is conducive to efficient private investment in infrastructure. See Gönenç *et al.* (2000) and OECD (2001b) for a detailed discussion of these issues.

specialisation and the location choices of footloose industries (Jones, 2000).<sup>29</sup> However, a possible complication is that FDI in infrastructure has increased in recent years. Thus, it is possible that countries with weaker infrastructure might attract FDI, implying a reverse relationship between FDI and infrastructure endowments.

### 2.2.5. *Geographical and economic factors*

As already mentioned, a number of factors unrelated to government policies can impinge on FDI. These factors are mainly related to market size, distance (*i.e.* so-called “gravity” influences) and factor proportions of the two partner countries. In general, geographical and economic factors are expected to affect FDI in the following ways:

- Outward FDI tends to be positively affected by the combined market size of the countries involved in the transactions, due to both gravity effects and economies of scale.
- *Horizontal* outward FDI also tend to be positively affected by the size similarity of the two countries. Size similarity favours firm-level economies of scale of horizontal MNEs, which have multiple production plants at home and abroad producing the same good (or service) (see Markusen, 2002).
- The effects of distance and transport costs on FDI are unclear because they imply transaction costs for investors, and these costs could offset any advantage that FDI may have over trade when dealing with distant and ill-connected countries.<sup>30</sup>
- Dissimilarities in factor endowments encourage vertical FDI of trading partners, because they make it possible to exploit comparative advantages.<sup>31</sup> Conversely, horizontal FDI is discouraged by factor dissimilarities because they may make production of the same good in different countries difficult.

## 3. **Empirical evidence**

This section presents evidence on the impact of policy and other factors on bilateral outward FDI positions (henceforth FDI outstocks) and multilateral inward FDI positions (henceforth total FDI instocks) of OECD countries. Thus, the focus is on the determinants of outward FDI from a country to its partners and the determinants of the global attractiveness of a country for international investors. Although the analysis focuses on bilateral outstocks, it should be stressed at the outset that results for bilateral outflows are broadly the same.<sup>32</sup> For ease of exposition, only the results from “preferred” regression specifications are reported below (for detailed results, see Nicoletti *et al.*, 2003). Due to limitations in data coverage, the data sets on which the results are based vary across the dependent variables and the policies considered. FDI outstock and instocks cover 28 OECD countries and partners over the 1980-2000 period at the

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29. Yeaple and Golub (2002) attempt to test these hypotheses and provide some support for the effects of infrastructure on comparative and absolute advantage.

30. Markusen (2002) notes that FDI has only a *relative* advantage over trade with distant countries. Therefore, distance and transport costs may well have a negative influence on the intensity of outward FDI.

31. The role of factor proportions in determining vertical FDI is emphasised in Helpman (1984) and Helpman and Krugman (1985).

32. The focus on FDI outstocks or instocks (instead of outflows or inflows) is justified by the fact that the decision of firms concerns the level of local production, which is a function of the desired level of the local stock of FDI.

bilateral and multilateral levels. However, a long enough time-series of total FDI instocks is only available for a smaller set of OECD countries. All FDI variables are expressed in dollars at 1996 purchasing power parity values.<sup>33</sup>

### 3.1. Approach

The estimated equations are reduced forms relating FDI outstocks from the home country to the partner country (henceforth also called “partner” for brevity) to non-policy-related factors, and the relative costs of trading and investing implied by policies in the home or partner countries. This is in line with recent research that stresses the joint determination of trade and FDI transactions.<sup>34</sup>

Thus, the building blocks of the estimated equations are *geographical and non-policy-related structural factors* including:

- *Variables expressing gravity forces*: total GDP (the sum of home country and partner GDPs in bilateral equations) proxying for total market size; an index of similarity of GDPs proxying for size similarity; distance (from capitals); and transport costs (computed as the difference between CIF imports in the partner and FOB exports by the home country).<sup>35</sup>
- *Variables expressing factor proportions*: dissimilarity in capital-labour ratios; and dissimilarity in human capital endowments (taking into account the share of population by different education levels and average years of schooling in each level).
- *Other economic variables likely to affect FDI*: R&D intensity in the home country or partner, defined as the ratio of business R&D expenditure to GDP; bilateral exchange rates, defined as nominal exchange rates in bilateral equations and effective (import-weighted) nominal exchange rates in total instock equations;<sup>36</sup> and exchange rate variability, defined as the standard error of the monthly exchange rates.

As in the previous section, *policy factors* are grouped in four categories:

- *Openness*: multilateral and bilateral tariffs; multilateral indicators of non-tariff barriers; dummies for free-trade agreements (henceforth FTA); and the indicator of FDI restrictions described in Golub (2003).
- *Product-market regulation*: this covers two broad areas -- protection of intellectual property rights (henceforth IPR) and regulations curbing competition. The former is proxied by the Ginarte and Park (1997) cross-section indicator of protection of IPR in 1997. Anti-competitive regulation is proxied by a time-series indicator that combines

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33. As mentioned above, the “financial” FDI data used in the analysis suffer from several drawbacks (*e.g.* they do not distinguish between mergers and acquisitions and greenfield investment, and may be geographically biased to the extent that MNEs use strategically-located holding companies to intermediate their investments), but the period and country coverage of the data on foreign affiliates was too limited for the purposes of empirical analysis.

34. For similar specifications see, for instance, Markusen and Maskus (1999) and Egger (2001).

35. The year-on-year difference of transportation costs was smoothed out to eliminate excessive volatility in the data.

36. Bilateral and effective exchange rates capture both valuation and asset effects

barriers to entry in seven non-manufacturing industries over the 1980-1998 period with economy-wide regulation in 1998.

- *Labour-market arrangements*: the tax wedge on labour income; and an indicator of employment protection legislation (EPL).
- *Infrastructure*: the indicator of infrastructure supply in transport, telecommunications and electricity.

All indicators are normalised and range from 0 to 100. The scale of all policy indicators is from least to most restrictive, except for the indicator of IPR which is increasing in the *lack of* protection. The infrastructure indicator is increasing in the quality and quantity of infrastructure. Details on all variables and indicators used in the regressions, including sources, definitions, methodologies, sensitivity analyses and a description of cross-country patterns are contained in Nicoletti *et al.* (2003).

The empirical estimates are based on panel regressions that take into account four different kinds of effects potentially unexplained by the above set of variables and indicators: *i*) time invariant effects that are specific to each home country and partner (*e.g.* institutions, data collection and reporting methods); *ii*) time invariant effects that are specific to each country pair involved in bilateral transactions (*e.g.* common language, cultural affinity); *iii*) time-varying factors common to all home countries and partners (*e.g.* global demand, supply or technology shocks); and *iv*) time-varying factors specific to each home country and partner (*e.g.* business cycle, country-specific technology shocks).<sup>37</sup> The econometric approach takes into account these factors either explicitly (by estimating the relevant parameters) or implicitly (by transforming the data prior to estimation) as in Erkel-Rousse and Mirza (2002).<sup>38</sup> In the analysis of bilateral FDI, the observations are country pairs in each period; in the analysis of total FDI instocks observations are countries in each period. The analysis of total FDI instocks accounts for the possibility that the adjustment of actual to desired stocks of FDI is costly and takes time. Therefore, equations for total FDI instocks are of the dynamic partial adjustment kind, with the total FDI instock in each period also depending on the realised instock in the previous period (see Cheng and Kwan, 2000, for a similar specification). Moreover, the estimations also account for the possibility that some of the variables explaining FDI might be endogenous to outcomes (*e.g.* while the FDI instock may depend on infrastructure conditions in the country, infrastructure conditions themselves may depend on FDI in infrastructure) by using an appropriate instrumental variables estimation approach. Finally, the total instock equations also account for the possibility that investments in FTAs are the outcome of a two-stage process in which, first, the decision is made to invest in the FTA, and, second, locations within the FTA are chosen based on the relative attractiveness of member countries.<sup>39</sup> Estimation methods are briefly summarised in Box 3.

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37. In addition a specific dummy for English-speaking countries was introduced to test for the possible influence of “language” effects, but no such effect was detected perhaps due to the presence of the bilateral fixed effect.

38. This transformation involves expressing the data as deviations from the values for the average home country or the average partner, which eliminates partner-specific or home country-specific effects, respectively.

39. Thus, in preliminary regressions, FDI instocks were related to both the average restrictiveness of policies in the host-country's FTA and their restrictiveness in the host country relative to other countries within the same FTA.



### Box 3. Empirical methods

Regression results are obtained from single-equation estimation of reduced forms for bilateral FDI outstocks as well as for total FDI instocks. To appropriately account for both the cross-section and time-series dimensions of the data, panel data estimation methods are used.

In bilateral equations, panel data methods require controlling for unobserved factors that are specific to each country, each partner, each country pair and each period, as well as for shocks that are common to all countries over time. However, estimating dummies for all these factors is not viable, due to an excessive loss of degrees of freedom and a high potential multicollinearity. Therefore, the “transformed least squares” (TLS) approach (Erkel-Rousse and Mirza, 2002) was employed, which simplifies the equation to be estimated while at the same time preserving the desirable properties of the relevant coefficient estimates. This approach expresses all variables as deviations from the mean investor or, alternatively, the mean host. Thus, for instance, two equations for bilateral FDI outstocks are obtained: a “country” equation, in which bilateral outstocks and all explanatory variables are expressed as deviations from their values for the average investor; and a “partner” equation, in which bilateral outstocks and all explanatory variables are expressed as deviations from their values for the average host. The advantage is that in the country equations partner-specific unobserved effects (and common time trends) are accounted for prior to estimation in a non-parametric way and only country-specific effects have to be estimated, while in the partner equations it is the country-specific unobserved effects (and common time trends) that are accounted for non-parametrically and the partner-specific effects that are estimated. This reduces the number of parameters to be estimated in each equation.<sup>1</sup> The downside is that, due to the transformation of the data, no time-invariant partner-specific variables can be included in the country equations and, symmetrically, no time-invariant country-specific variables can be included in the partner equations. Finally, additional degrees of freedom are gained by assuming that, in each of the two equations, the incremental information provided by the unobserved country pair effect over the “pure” country or partner effect is random and can be included in the error term.

Total instock equations are estimated using a panel data procedure that controls for the possible inconsistency of estimates implied by the presence of the lagged dependent variable and the potential endogeneity of some of the explanatory variables (Bond, 2002). To this end, the equations are first-differenced, the lagged dependent variable and endogenous explanatory variables are instrumented by the lagged values of the variables themselves and the parameters are estimated applying a generalised method of moments procedure (Arellano and Bond, 1991). Serial correlation tests and Sargan tests for overidentifying restrictions were performed to ensure that the regression specifications reported in the main text were supported by the data.

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1. To check the robustness of regression results to this transformation, each equation was also estimated using a standard fixed effects regression, including all unobserved effects save the country-partner pair effects.

All the results reported below are based on full-model specifications including both non-policy related variables and policy variables. However, the results are generally robust to the omission of subsets of policy variables. It is important to keep in mind that the results for the total FDI instock are based on a dynamic specification, which is significantly different from the static bilateral one, and covers a more limited set of countries.<sup>40</sup>

### 3.2. *Non-policy-related structural factors impinging on FDI*

Table 2 reports the estimates of the basic equations that include only non-policy-related structural factors. Three main features stand out:

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40. Due to data limitations, the total instock regressions covered only 10 to 19 OECD countries, depending on the policy variables included.

- First, as expected, the coefficients of the gravity variables -- market size, market similarity, distance and transport costs -- are correctly signed and significant in all regressions.<sup>41</sup>
- Second, factor dissimilarities negatively affect outward FDI, though a high level of human capital tends to attract inward FDI. Taken together, the findings of a positive effect of market size similarity and a negative effect of factor dissimilarity support the conjecture that FDI by horizontal MNEs is prevalent among OECD countries
- Third, the sizeable coefficient estimate for the lagged FDI instock in the dynamic total instock regressions suggests that there is a high persistence present in the data, with FDI flowing to countries that already have relatively high bilateral instocks. This phenomenon may reflect the presence of “agglomeration effects”, whereby FDI is attracted to locations in which important investments by home country MNEs have already been made (see, for related evidence, Barrell and Pain, 1998 and 1999).<sup>42</sup>

**[Table 2. Non-policy-related structural factors impinging on FDI]**

R&D intensity in the home and partner countries and the level and volatility of bilateral and effective exchange rates have the expected influence on FDI. The overall level of R&D expenditure in the host country increases its attractiveness for total inward FDI. For given relative prices (whose effect is captured by relative factor endowments and, in later regressions, by the product and labour-market regulation variables), an exchange rate appreciation has two opposing effects on FDI. On the one hand, it reflects a pure valuation effect, with the US\$ value of assets held by the home country in the host country decreasing; on the other hand, it reflects an asset effect, increasing the attractiveness of investment in the host country, as its assets become cheaper for foreigners. The results are ambiguous. The estimated effects change sign across bilateral FDI specifications, though the valuation effect seems to prevail in most regressions (see Nicoletti *et al.*, 2003). At the multilateral level (as captured by the dynamic total instock regressions), the asset effect seems to prevail, perhaps due to composition effects.<sup>43</sup> The effects of exchange rate variability are discussed below.

**3.3. *The direct and indirect influence of policies***

Table 3 reports the results of regressions that include policy variables. The reported specifications generally include all of them. However, some policy variables are sometimes omitted when the inclusion of all variables would imply either significant changes in country coverage (such as in the total instock equations) or excessive multicollinearity. Most of the variables are expressed in ratios. The effects of each of the four sets of policies covered in this paper are analysed in turn under the usual headings.

**[Table 3. The influence of policies on FDI]**

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41. Distance could not be estimated in bilateral FDI equations because of its purely cross-section nature. Its effect is captured by the bilateral fixed effects which are accounted for non-parametrically.
  42. Relatedly, persistence could be also driven by the large share of reinvested earnings in FDI flows.
  43. In the total instock regressions the relevant variable is the nominal effective exchange rate, which is a trade-weighted average of bilateral exchange rates. A depreciation of this rate does not necessarily imply a depreciation of all bilateral rates. Thus, the overall effect depends on the interaction of depreciation with the country mix of bilateral trade flows.

### 3.3.1. Openness

FDI restrictions by the partner are estimated to have a significant negative impact on bilateral FDI outstocks (Table 3, panel A). For instance, the semi-elasticity estimates imply that such barriers could be depressing FDI outstocks by between 10 and 80 per cent, depending on the restriction considered (see Table 4).<sup>44</sup> FDI restrictions are also found to significantly depress the inward position of a host country in the dynamic total instock regressions, which are based on a smaller set of OECD countries. However, this effect appears to be sensitive to changes in the country coverage, probably due to a relative lack of variability of restrictions across subsets of OECD countries, and to the inclusion of additional policy variables in the regression, reflecting the close correlation between FDI and product-market liberalisation over the sample period.

#### [Table 4. FDI positions: the hypothetical effect of removing FDI restrictions]

Table 3 also reports estimates of the potential cross-effects of border barriers on FDI. To this end, tariff and non-tariff barriers were included in the FDI equations (to test for the tariff- jumping hypothesis). Estimation results for bilateral FDI outstocks and, especially, total instock equations provide some evidence that FDI may be aimed at bypassing non-tariff barriers, which often establish limits to market access (*e.g.* quotas), rather than tariff barriers, which generally add to the cost of trade without necessarily foreclosing exports. Indeed, tariff barriers appear to have a negative effect on FDI outstocks, perhaps reflecting their discouraging effect on the intra-firm trade related to vertical FDI.

As regards FTAs, the empirical analysis considered the impact of different situations of the home and partner countries: *i*) the two countries belong to *any* FTA; *ii*) the partner belongs to *any* FTA; *iii*) the two countries belong to the *same* FTA; *iv*) the two countries belong to the EU, NAFTA or EFTA; and *v*) the partner (but not the home country) belongs to the EU, NAFTA or EFTA. Only results concerning the latter three situations are reported, since the dummies for membership of both countries or the partner in any FTA were insignificant in most cases. The analysis of situations *iv*) and *v*) omitted policy variables unrelated to openness to avoid multicollinearity problems, but the results are broadly unchanged in specifications including all policy variables. The two main findings were:

1. Membership in the *same* FTA increases FDI outstocks;
2. Outward FDI to partners belonging to a different FTA tend to increase only when the partner is a EU country;

Thus, FTAs primarily benefit FDI integration among their members. FDI outstocks are stimulated for other partner countries as well when they belong to the European Union, though this effect is only weakly significant. In other words, the European Union appears to be more attractive for third-party FDI than other FTAs, such as NAFTA. This may be related closer integration (*i.e.* a custom union *versus* a free-trade area) in the Single Market and/or the different role played by rules of origin in the two areas.<sup>45</sup>

Exchange-rate variability can be interpreted as capturing the effect of economic unions to the extent that these generally require stable exchange rate arrangements or a single currency. In most

44. The estimated effect of restrictions is similar for FDI flows, with the reduction in flows implied by the restrictions varying between 9 and 70 per cent. The estimation results for FDI outflows are reported in Nicoletti *et al.* (2003).

45. The finding that FDI is boosted by EU membership is consistent with related evidence by Pain (1997) and Pain and Lansbury (1997). Positive effects of EU membership on FDI from third-party countries were also found by Dunning (1997) and Barrell and Pain (1998).

regressions, a reduction of both bilateral and multilateral exchange-rate volatility tends to increase FDI in the host country. Though this effect is not significant at conventional levels in the regressions reported in Table 3, it is significant in other bilateral and multilateral specifications of the FDI outstock and outflow equations (see Nicoletti *et al*, 2003). In some specifications, however, the sign is reversed, suggesting a positive relationship between exchange rate volatility and FDI. Whether currency unions stimulate economic integration among their members remains, therefore, a largely unresolved empirical issue.

### 3.3.2. *Product and labour market arrangements*

Product-market regulations that curb competition are estimated to have a negative and significant effect on FDI. What is relevant for bilateral FDI outstocks is the ratio of the regulatory indicators in the host and home countries. As regulation in the host country becomes more restrictive than regulation in the home country, outstocks of the latter decrease. This is confirmed by the significantly negative impact of anti-competitive regulations in the host country (relative to the OECD average) on its total FDI instock.<sup>46</sup> Put simply, the net effect of regulations that curb competition is to make the host country less attractive for international investors located in countries where regulations are less restrictive. No robust effect of the lack of intellectual property rights protection in the host country could be found on FDI outstocks, perhaps due to the crude proxy used to test for this potential effect of policies, which varies only in the cross-section dimension.<sup>47</sup>

The tax wedge on labour income appears to influence FDI in much the same way as anti-competitive regulation. What appears to be relevant for bilateral FDI outstocks is the ratio between wedges in the partner and the home country: the higher this ratio, the lower the outstock of FDI from the home country to the partner. This latter result is only partially confirmed by the dynamic total instock estimates, in which the wedge is estimated to have a negative, but weakly significant, impact on the ability of the host country to attract OECD-wide FDI. On the other hand, the effect of EPL on bilateral FDI outstocks and total FDI instocks mirrors that of anti-competitive regulations and wedges: host countries in which EPL is stricter than in their investing partners tend to attract significantly less FDI. To check whether the industrial relations regime would play a moderating role on the impact of EPL or wedges on FDI in countries with centralised and coordinated bargaining institutions, these variables were also interacted with an indicator of degree of “corporatism” of bargaining regimes. However, no evidence of such a moderating role was found, perhaps due to the influence of EPL regimes on the risk-adjusted returns to foreign investment or differential information costs for domestic and foreign investors (see above). Therefore, the results of these additional regressions were not reported in Table 3.<sup>48</sup>

### 3.3.3. *Infrastructure*

Table 3 looks also at the influence of infrastructure provision on FDI. Even though the coefficient estimated for infrastructure has the expected sign, the estimation results provide little evidence that the quality and quantity of infrastructure in the partner, as captured by the indicator described in the previous section, significantly affects bilateral patterns of FDI. Therefore, this variable was omitted from the “preferred” bilateral specifications reported in Table 3. The lack of any definite result for this variable may also be related to its potential endogeneity to FDI (see above). Indeed, total instock regressions, which control for endogeneity through instrumental variable estimation, suggest that infrastructure tends to

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46. In the total instock equation regulation can be interpreted as being expressed relative to the OECD average.

47. Results for IPR are not robust to the adjustment of standard errors for repeated observations over the time dimension. The relationship between IPR protection and FDI is discussed in OECD (2002g).

48. The results of these additional regressions are available from the authors upon request.

improve the overall attractiveness of a host country for international investors, though this result is sensitive to changes in country coverage.<sup>49</sup>

### 3.4. *Summing up*

Empirical results broadly support the influences expected from both non-policy related and policy factors on FDI. The main insights are the following:

- Gravity forces affect bilateral FDI largely in the same way as they affect bilateral trade.
- Border barriers have a direct depressing effect on FDI, but there is also evidence that MNEs may be able to bypass non-tariff barriers, which limit the access of exporters to local markets, by increasing the activity of their foreign affiliates in these markets. Conversely, no such bypass seems to occur for tariff barriers, which raise the cost of trade for both exporters and vertical MNEs.
- Participation in a FTA enhances FDI amongst its members, but the only FTA that appears to have benefited also from an increase in FDI from third parties is the European Union, perhaps due to its closer degree of integration.
- There is some evidence that the supply of high quality infrastructure enhances the overall appeal of a host country with respect to inward FDI.
- Anti-competitive regulations curb FDI.
- High tax wedges on labour income and strict EPL also curb FDI.

## 4. **How do policies shape trade and FDI patterns?**

The impact of policies on FDI is significant, but how much of the observed differences in bilateral FDI transactions among OECD countries can actually be explained by differences in policies? What are the policies that play the largest role in explaining such differences? What would be the effect of changing policies on FDI? Bearing in mind the illustrative nature of any policy simulation based on regression results, empirical estimates can be used to provide tentative answers to these questions.<sup>50</sup> Specifically, this section quantifies *i*) the relative contributions of policies and other factors to the observed deviations of inward FDI stocks from OECD averages; and *ii*) the long-run impact on such stocks of changes in policies that affect border barriers and product-market regulation. It is important to notice that the quantitative effects highlighted in the policy simulations depend on the specification of the estimated models as well as on the configuration of policies and the distribution of FDI stocks in the baseline scenario. This is particularly the case for simulations concerning domestic regulatory policies in product markets. Finally, given the specification of some of the policy variables, which entail a comparison between policies of the home country and the partner, diversion effects are not taken into account. To the extent that these effects are important, the simulation results may overestimate the effects of policy changes on the variables of interest.

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49. Excluding the low infrastructure countries yields insignificant (though correctly signed) estimates, probably due to the lack of sufficient cross-country variability in the data.

50. In particular, this kind of simulations assumes that policy moves do not change the estimated average relationships (*i.e.* the estimated regression coefficients) between FDI and policies and are thus subject to the Lucas critique (Lucas, 1976). Moreover, it is assumed that these average cross-country relationships are representative of relationships in each country.

#### 4.1. *Accounting for cross-country patterns of FDI*

Figure 13 shows the contributions of policies to the deviation (in logarithms) of total FDI instocks in each country from the OECD average over the 1990s. The figures also show how much of these deviations is explained on average by non-policy-related factors -- including gravity forces, factor endowments and all effects that are not accounted for by the policy and non-policy-related variables in the regressions (*i.e.* the country and partner-specific fixed effects and the bilateral effects) -- and the unexplained regression residual.<sup>51</sup> The decomposition shown in the figure is based on the results of the bilateral equation averaged over the estimation period and investor countries. The precise specification on which the simulation is based is reported in the figure.

#### [Figure 13. Policies and inward FDI positions]

Policies influence bilateral FDI positions across OECD countries almost as much as all other (“non-policy”) factors taken together.<sup>52</sup> The most important policy effects come from labour-market arrangements and openness factors. A more detailed analysis shows that the labour tax wedge is the most influential component of these arrangements, with EPL playing a lesser role. Anti-competitive product-market regulations explain a smaller part of the deviations of FDI instocks from the OECD average. However, these policy influences play different roles in different countries. For instance, while labour-market arrangements have a relatively positive influence on FDI instocks in English-speaking countries, Japan and Portugal, they tend to depress them in other European countries. Similarly, while in most European countries and the United States openness factors play a positive role, comparatively restrictive border measures depress FDI instocks relative to the OECD average in Canada, Australia and, to a lesser extent, Japan. The contribution of product-market regulation is significant for countries having either a relatively liberal approach (the United States, the United Kingdom, Australia, New Zealand, Canada and Sweden), where it pushes up relative FDI instocks, or a relatively restrictive approach (continental European countries), where it pulls down relative FDI instocks.

#### 4.2. *The impact of removing impediments to FDI*

The lifting of border and non-border barriers to investment figures significantly on both national and international policy agendas (see, for instance, World Bank, 2002, 2003; and OECD, 2001d, 2003). To quantify the likely impact of such policy changes, the preferred equations described above have been used to simulate the following hypothetical policy scenarios:

- *Policies aimed at lifting border barriers.* These include *i)* the OECD-wide alignment of FDI restrictions on those of the least restrictive OECD country; and *ii)* the accession to the European Union by the Czech Republic, Hungary and Poland;
- *Domestic competition-oriented policies in product markets* that result in an alignment of product-market regulations on those of the least restrictive OECD country.

Figure 14 (Panel A) shows the effect of bringing FDI restrictions in all OECD countries down to the level of restrictions in the United Kingdom, the least restrictive country according to the indicator described in Golub (2003). This move would require country-specific reforms that differ in content and scope depending on the patterns of FDI restrictions in place, but typically they would imply lifting screening requirements and restrictions on foreign shareholdings, and substantially reducing other

51. Since differences in the level of FDI across countries are captured by dummy variables, it is not surprising that policy variables appear to play a relatively small role in contributing to the overall variance in the data.

52. The unexplained residual is generally very small in the FDI equations.

restrictions (*e.g.* on the nationality of management, board composition and movement of people). The effects of such reforms on FDI instocks depend on how restrictive each country was before the policy move. Relatively restrictive countries could increase their total FDI instock by between 40 and 80 per cent, but even in countries that are estimated to be already relatively liberal the gains could amount to around 20 per cent of their initial instock.<sup>53</sup> Overall, such policy reforms could increase OECD-wide instocks by almost 20 per cent.

Reducing anti-competitive product-market regulations is also likely to increase significantly FDI instocks (Figure 14, Panel B). If all OECD countries were to reduce the level of their product-market regulations to that in the United Kingdom (again the least restrictive country according to the indicator used in the analysis), OECD-wide instocks would increase by over 10 per cent relative to the initial instock. Since bilateral FDI outstocks are estimated to depend on the relative stringency of regulation in the home and host countries, relatively restrictive host countries -- such as Greece, Italy and France -- that host FDI from relatively liberal countries could increase their FDI instocks by as much as 60 to 80 per cent through regulatory reform. Conversely, countries that are relatively liberal would see the relative attractiveness of their product markets either unchanged (such as in the United States, New Zealand and Sweden) or even reduced (such as in the United Kingdom and Australia).

**[Figure 14. Policies and inward FDI positions: the scope for further integration]**

Empirical results suggest that participation in free-trade agreements has had significant effects on FDI, especially within the European Union. Quantifying these effects is particularly important for OECD countries that will join the European Union in 2004, as established in the recent Athens EU Council Meeting. Table 5 suggests that the gains from EU accession for the Czech Republic, Hungary and Poland will indeed be sizeable in terms of FDI stocks. This is due to both increased transactions with other EU countries and (to a lesser extent) increased investment flows from non-EU countries. FDI outstocks and instocks are estimated to double relative to average levels in the 1990s in most countries. However, these simulation results are likely to overestimate the actual post-accession gains to the extent that FDI stocks have already been affected by the expectation of EU membership.

**[Table 5. The effects of European Union accession on FDI]**

## 5. Summary and conclusions

The results of the empirical analysis suggest that border openness to trade and investment and competition-oriented domestic policies have important implications for patterns of FDI in the OECD area. The main conclusions in each of the broad policy areas examined in the paper are reviewed below under four headings.

*Openness: formal trade and FDI restrictions:*

- The empirical results suggest that the removal of border barriers in existing free-trade areas, such as the European Union (EU) Single Market or the North American Free-Trade Agreement (NAFTA), has boosted overall FDI flows among participating countries. Likewise, simulations suggest that prospective EU membership may be associated with booming inward FDI positions for new EU members.
- A number of countries (especially outside the European Union) still have a relatively restrictive FDI environment in some important non-manufacturing industries, such as electricity, transport

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53. In the simulations, the initial stock is defined as the inward FDI position in 1998.

and telecoms. Aligning FDI restrictions on those of the most liberal country would increase significantly the OECD-wide inward FDI position.

- There is some limited evidence that stable exchange-rate arrangements may positively affect the inward FDI position of participating countries. Through this channel, countries that are members of currency unions (such as the European Monetary Union) experience further integration of their markets in both the union itself and globally. The complexity of the relationship between FDI and exchange-rate variability suggests, however, that this aggregate result may mask a variety of different responses of MNEs to the establishment of currency unions.

#### *Product and labour-market reforms*

- The countries with relatively restrictive and costly product-market regulations will tend to have lower stocks of foreign capital. Thus, product-market reforms that reduce the relative restrictiveness of regulations are likely to increase the level of inward FDI in a given country. OECD-wide product-market reform can raise the *overall* stocks of inward and outward FDI outstanding, thereby increasing global integration.
- Estimates suggest that strict employment protection legislation (EPL) and high tax wedges on labour income tend to lower inward FDI by raising the cost of investment in the host country. If EPL increases the risk/return ratio on foreign investment, foreign investors are likely to choose locations where this ratio is lowest, irrespective of the potentially offsetting effect of the collective bargaining regime. Empirical estimates suggest that labour-market reforms easing employment protection legislation and lowering tax wedges on labour income would boost global economic integration.

#### *Infrastructure*

- There is some limited evidence that improving network infrastructure has positive effects on the ability of a country to attract FDI. However, since inadequate infrastructure may motivate foreign investment in network industries, the precise relationship between infrastructure supply and FDI is difficult to identify at the bilateral level.



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Table 1. Policy and other influences on outward foreign direct investment

<i>Factors:</i>	<i>Expected impact:</i>
<b>Market size</b>	+
	Gravity and economies of scale effects
<b>Size similarity</b>	?/+
	Positive for horizontal MNE (economies of scale) No effect on vertical MNE
<b>Distance</b>	?/-
	Transaction cost
<b>Transport costs</b>	?/-
	Negative for vertical MNE No effect on horizontal MNE
<b>Dissimilarity in factor endowments</b>	?
	Negative for horizontal MNE (cost similarity needed) Positive for vertical MNE (comparative advantage exploited)
<b>Product differentiation (R&amp;D intensity)</b>	+
	Positive for horizontal MNE (firm-level scale economies)
<b>Exchange rate (host vs home)</b>	?
	Positive asset effect on flows Negative valuation effect on stocks
<i>Policies:</i>	
<b>Tariff barriers</b>	+/?
	Positive for horizontal MNE (tariff-jumping) Negative for vertical MNE
<b>Non-tariff barriers</b>	+/?
	Positive for horizontal MNE (tariff-jumping) Negative for vertical MNE
<b>Free trade area (same for home and host)</b>	+/?
	Ambiguous for horizontal MNE Positive for vertical MNE
<b>Free trade area (only host)</b>	+
	Non-members access larger market
<b>FDI restrictions</b>	--
	Investment cost/barrier
<b>Product market regulation (at home)</b>	?
	Incentive to delocalise Handicaps ability to internationalise
<b>Product market regulation (in host)</b>	?
	Negative for vertical MNE and "greenfield" FDI Ambiguous for horizontal MNE and M&A FDI
<b>Lack of IPR protection (in host)</b>	--
	Reduces incentives to FDI due to risk of imitation
<b>EPL and tax wedge on labour (at home)</b>	?
	Incentive to delocalise Handicaps ability to internationalise Effect depends on bargaining regime at home
<b>EPL and tax wedge on labour (in host)</b>	--/?
	Investment cost Investors may choose locations with lower risk-return ratio
<b>Currency unions (same for home and host)</b>	+/?
	May reduce risk in some cases
<b>Infrastructure (at home)</b>	na
<b>Infrastructure (in host)</b>	+/?
	Reduces investment cost Discourages FDI in infrastructure
<b>General comments</b>	If horizontal MNE dominate, then size similarity and factor dissimilarity should have opposite effects Relative stringency of regulations and labour market arrangements in home and host countries most relevant for outward FDI

Table 2. Non-policy-related structural factors impinging on FDI

Dependent variable (ln)	FDI outstock		Total FDI instock
Specification	bilateral TLS <sup>a</sup>		multilateral dynamic IV <sup>b</sup>
	country	partner	
Total GDP <sup>c</sup>	1.928 [4.89]**	1.903 [5.37]**	0.135 [2.02]*
Size similarity	1.436 [7.50]**	1.247 [7.22]**	
Factor dissimilarity	-0.199 [3.18]**	-0.43 [7.05]**	
Human capital dissimilarity	-2.122 [9.43]**	-2.153 [10.28]**	
Human capital endowment			1.873 [4.38]**
Transport costs	-0.722 [5.95]**	-0.506 [3.86]**	
R & D intensity			0.36 [5.42]**
Bilateral exchange rate	0.637 [3.78]**	-0.701 [4.34]**	
Effective exchange rate			0.005 [4.70]**
Exchange rate variability <sup>d</sup>	-0.003 [1.94]	-0.002 [1.65]	
Lagged dependent variable			0.688 [17.11]**
Constant	-2.13 [4.31]**	-1.06 [2.76]**	0.00 [0.34]
Notes:	28 countries		19 countries
Period	1980-2000		1980-2000
Observations <sup>e</sup>	4521	4517	174
R-squared <sup>f</sup>	0.72	0.65	n.a.
Country effects	Yes	Implicit	Yes
Partner effects	Implicit	Yes	
Common time trend	Implicit	Implicit	
Country-specific trend	Yes	Implicit	
Partner-specific trend	Implicit	Yes	
Bilateral effect	Fixed	Fixed	
Sargan test <sup>g</sup>			224 (340)
Autocorrelation in first-differenced residuals			
First-order <sup>h</sup>			-3.940
Second-order <sup>h</sup>			-2.160

Absolute value of t or z-statistics in brackets. \* significant at 5% level; \*\* significant at 1% level; n.a. = not applicable.

a) Equations estimated using the Transformed Least Squares (TLS) approach (Erkel-Rousse and Mirza, 2002).

"country" indicates the use of data expressed as deviations from the mean host that allows for estimation of investor-specific variables, "partner" indicates the use of data expressed as deviations from the mean investor that allows for estimation of host-specific variables.

b) The dynamic panel specification was estimated using the Arellano and Bond (1991) generalized method of moments estimator.

c) Defined as domestic absorption in the total instock regressions.

d) Coefficients multiplied by 100.

e) Samples are adjusted for outliers based on the Welsch distance cut-off (Chatterjee and Hadi, 1988).

f) The R-squared is reported only in fixed effects regressions.

g) The Sargan statistic tests the null hypothesis that all moment conditions are satisfied. The statistic is  $\chi^2$ -distributed with degrees of freedom in p.

h) These tests check the assumption that residuals are serially uncorrelated. This assumption implies that their first differences follow an MA(1) process having non-zero first-order correlation but no higher-order correlation. Reported statistics, both distributed  $N(0,1)$ , test the null hypothesis of zero first-order and second-order autocorrelation, respectively.

Source: OECD.

Table 3. The influence of policies on foreign direct investment

Dependent variable (ln)	FDI outstock					Total FDI instock		
	bilateral TLS <sup>a</sup>				Fixed effects with clustering <sup>j</sup>	multilateral dynamic IV <sup>b</sup>		
Specification	country	partner	country	partner				
Total GDP <sup>c</sup>	3.342 [8.39]**	1.328 [3.78]**	1.89 [4.86]**	1.918 [5.42]**	0.866 [1.53]	0.283 [3.76]**	0.389 [5.01]**	0.363 [4.56]**
Size similarity	2.187 [11.43]**	0.968 [5.64]**	1.414 [7.51]**	1.255 [7.25]**	0.729 [2.58]*			
Factor dissimilarity	-0.059 [0.63]	-0.794 [6.90]**	-0.176 [2.79]**	-0.395 [6.41]**	-0.763 [3.43]**			
Human capital dissimilarity	-0.844 [3.57]**	-1.383 [6.08]**	-1.906 [8.56]**	-1.934 [9.34]**	-1.378 [2.82]**			
Human capital endowment						1.248 [2.83]**	0.658 [1.42]	1.219 [2.67]**
Transport costs	-0.662 [5.39]**	-0.743 [6.14]**	-0.693 [5.75]**	-0.479 [3.74]**	-0.744 [3.13]**			
R & D intensity						0.323 [4.93]**	0.403 [5.71]**	0.485 [6.66]**
Bilateral exchange rate	0.283 [1.61]	-0.97 [5.70]**	0.711 [4.26]**	-0.718 [4.47]**	-1.094 [3.08]**			
Effective exchange rate						0.004 [4.15]**	0.003 [3.33]**	0.004 [3.70]**
Exchange rate variability <sup>d</sup>	0.024 [5.45]**	-0.0001 [1.23]	-0.003 [1.50]	-0.002 [1.26]	-0.006 [0.91]	-0.008 [1.33]	-0.008 [1.47]	-0.011 [1.80]
Lagged dependent variable						0.626 [15.19]**	0.558 [12.42]**	0.519 [10.98]**
Free trade area	0.366 [5.22]**	0.482 [5.84]**			0.489 [3.18]**			
European Union			0.529 [7.73]**	0.808 [3.89]**				
NAFTA			1.578 [7.37]**	1.754 [7.69]**				
EFTA			0.466 [2.53]*	0.5 [1.49]				
Partner in: European Union				0.376 [1.79]				
NAFTA				-0.048 [0.27]				
EFTA				0.264 [0.98]				
FDI restrictions		-0.019 [3.06]**			-0.019 [2.23]*	-0.007 [2.62]**	-0.002 [0.50]	0.006 [1.58]
Bilateral tariff barriers	-0.1 [6.08]**	-0.059 [4.07]**			-0.06 [1.84]			
Non-tariff barriers		0.011 [1.89]			0.01 [0.95]	0.112 [3.55]**	0.143 [4.44]**	0.166 [4.89]**
Employment protection ratio <sup>i</sup>	-0.032 [2.62]**	-0.053 [5.37]**			-0.046 [1.78]	-0.007 [2.91]**	-0.007 [2.46]*	
Labour tax wedge ratio <sup>i</sup>	-0.925 [9.20]**	-2.297 [11.65]**			-2.328 [5.84]**	-0.005 [1.10]	-0.008 [1.75]	
Regulation ratio <sup>i</sup>	-0.142 [8.25]**	-0.1 [6.11]**			-0.102 [2.94]**	-0.006 [1.53]	-0.010 [2.53]*	
IPR					-0.239 [1.76]			
Infrastructure						0.008 [2.12]*	0.013 [2.92]**	0.006 [1.35]
Constant	-0.87 [1.75]	-3.29 [7.97]**	-2.21 [4.53]**	-0.85 [2.05]*	-4.56 [4.18]**	-0.008 [1.07]	-0.007 [0.88]	0.009 [1.04]
Notes: Period	28 countries and partners 1980-2000		28 countries and partners 1980-2000			16 countries 1980-2000	14 countries	10 countries
Observations <sup>e</sup>	3792	3601	4521	4517	3601	169	163	134
R-squared <sup>f</sup>	0.71	0.72	0.73	0.66	0.72	n.a.	n.a.	n.a.
Sargan test <sup>g</sup>						223 (340)	205 (693)	151 (338)
Autocorrelation in first-differenced residuals								
First-order <sup>h</sup>						-3.45	-3.30	-3.30
Second-order <sup>h</sup>						-1.93	-1.94	-1.73

Absolute value of t or z-statistics in brackets. \* significant at 5% level; \*\* significant at 1% level;  
n.a. = not applicable.

Country, partner, bilateral and time effects as in Table 2.

Notes: a)-h) see Table 2

i) The ratio increases as employment protection, regulation or the labour tax wedge become more restrictive in the host country. Host-country levels for the respective variables in multilateral estimation.

j) Estimates obtained by relaxing the assumption that the observations within specified groups (clusters) are independent in order to obtain correct standard errors when some variables are country specific and time-invariant.

Source: OECD.

**Table 4. FDI positions: the hypothetical effect of removing FDI restrictions<sup>a</sup>**  
**Average across countries**

	<i>Per cent change in inward FDI position</i>
Removal of foreign equity ceilings	77.9
Removal of approval and national interest tests	21.2
Easing of nationality requirements on management <sup>b</sup>	10.1

*a)* The simulations are based on coefficients estimated in panel regressions of bilateral outward FDI positions on non-policy factors (distance, transport costs, market size, similarity in size and factor endowments, and other country and time-specific effects) and policy influences (FDI restrictions, tariff and non-tariff barriers, participation in free-trade areas, and product and labour market arrangements). The regressions cover bilateral FDI relationships between 28 OECD countries over the 1980-2000 period.

*b)* From majority of domestic managers to only one or more domestic managers.

*Source:* OECD.



Table 5. The effects of European Union accession on FDI <sup>a,b</sup>

	<i>Percent increase in the FDI outstock<sup>d</sup></i>	<i>Percent increase in the FDI instock<sup>d</sup></i>
<b>Czech Republic</b>	103.0 (0.4)	112.0 (24.2)
<b>Hungary</b>	28.1 (1.6)	107.0 (19.3)
<b>Poland</b>	92.2 (0.3)	104.9 (9.3)

*a)* The simulations are based on coefficients estimated in panel regressions of bilateral outward FDI positions on non-policy factors (distance, transport costs, market size, similarity in size and factor endowments, and other country and time-specific effects) and policy influences (FDI restrictions, tariff and non-tariff barriers, participation in free-trade areas, and product and labour market arrangements). The regressions cover bilateral FDI relationships between 28 OECD countries over the 1980-2000 period.

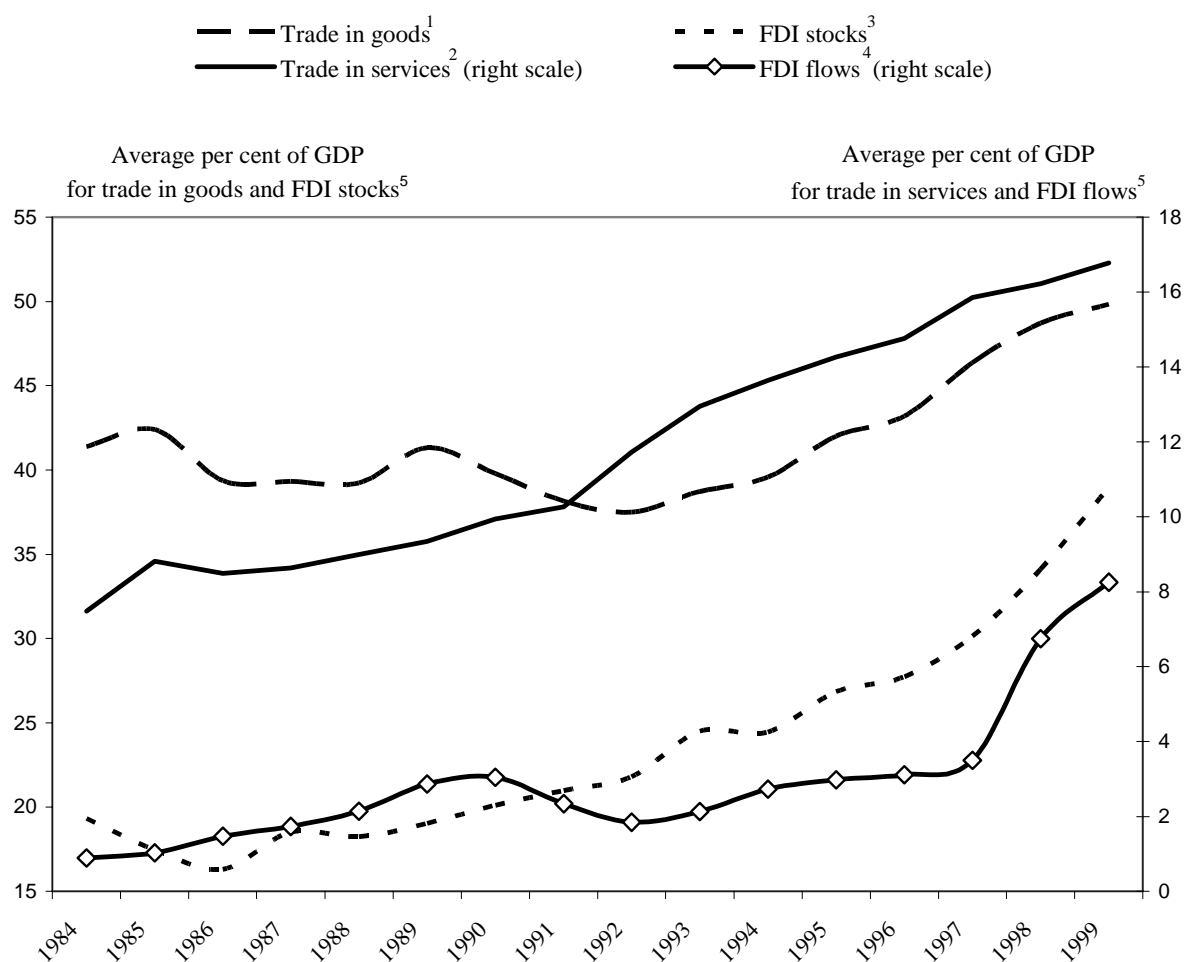
*b)* Initial levels relative to GDP are in parentheses.

*c)* Relative to 1998 values.

*d)* Relative to the average level over the 1990s.

*Source:* OECD.

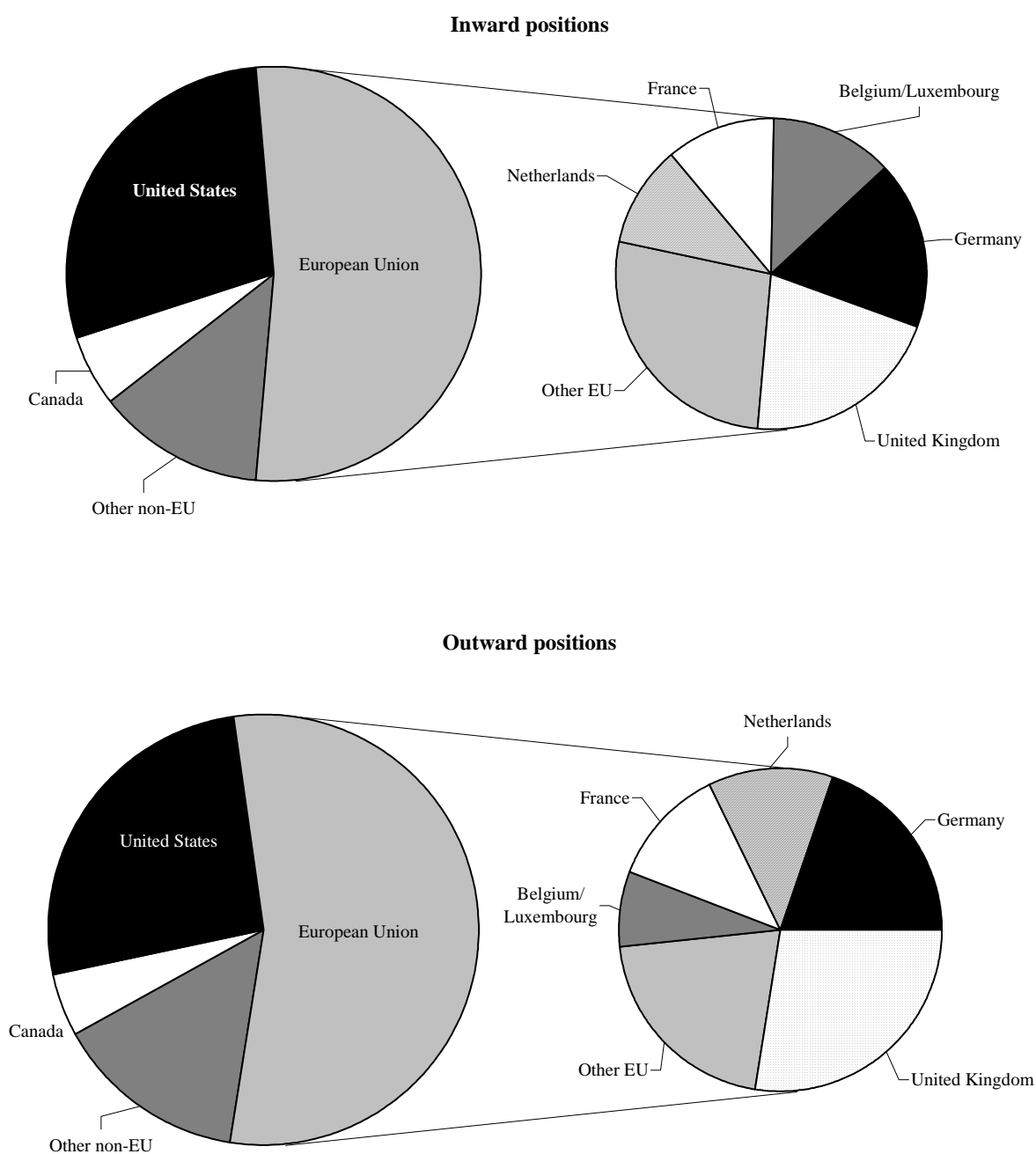
Figure 1. Trade and FDI patterns in the OECD



1. Trade in goods is defined as the sum of exports and imports of goods realised between a reporting country and the OECD area.
2. Trade in services is defined as the sum of exports and imports of services realised between a reporting country and the world (due to the lack of OECD-specific data, services trade cannot be defined relative to the OECD area).
3. FDI stock is the sum of inward and outward positions of the average country in the OECD area.
4. FDI flow is the sum of yearly investment inflows and outflows of the average country to the OECD area.
5. Simple average of the ratios of OECD countries.

Source: OECD.

Figure 2. **Distribution of OECD FDI positions in 1998<sup>1</sup>**

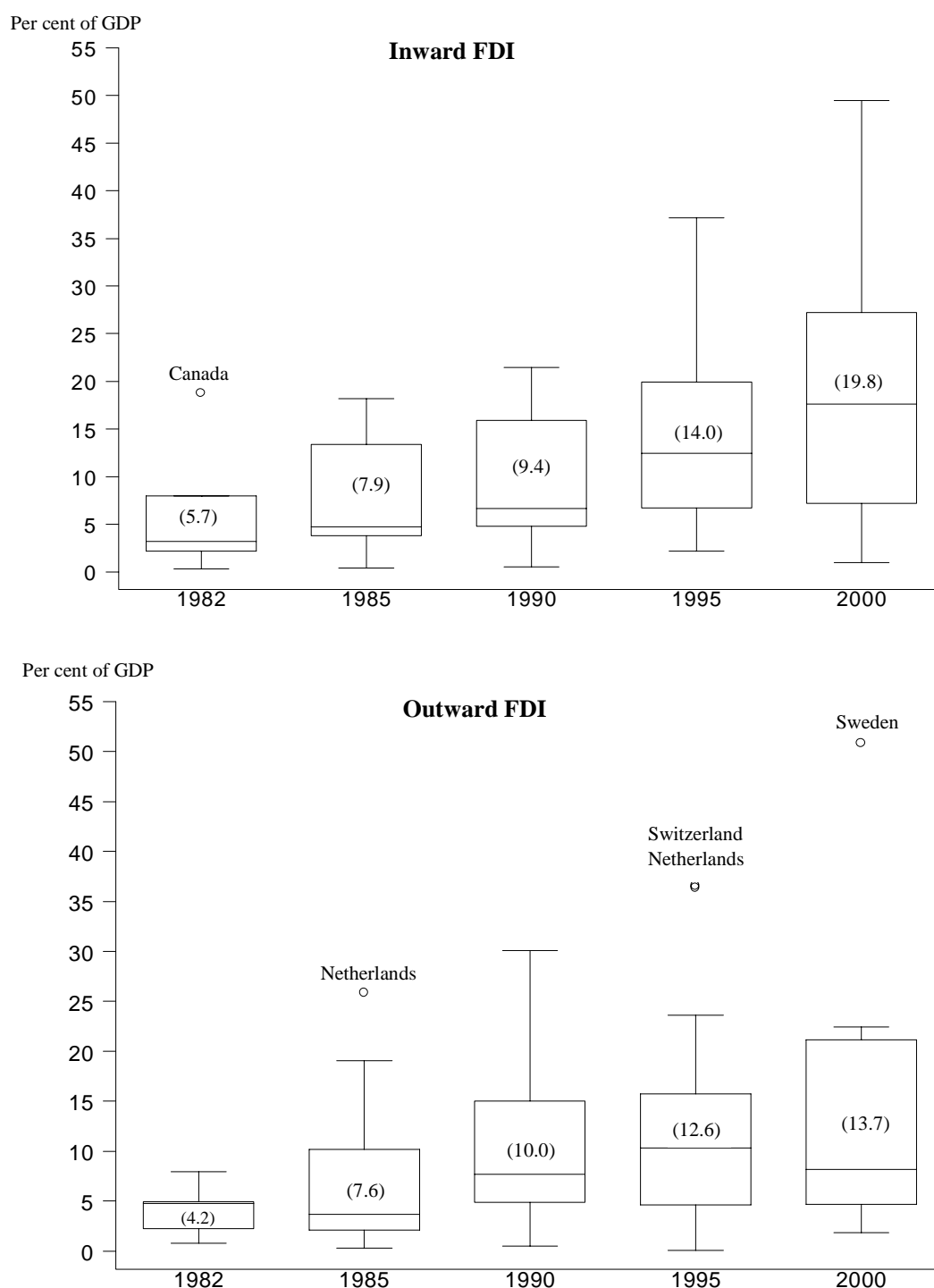


1. The charts are based on bilateral data. As the method used for valuing FDI positions varies across countries, the resulting shares are undervalued for countries that report book values (e.g. the United States).

Source: OECD.

Figure 3. **Inward and outward FDI positions: trends and cross-country dispersion**<sup>1</sup>

Unweighted OECD average positions<sup>2</sup>

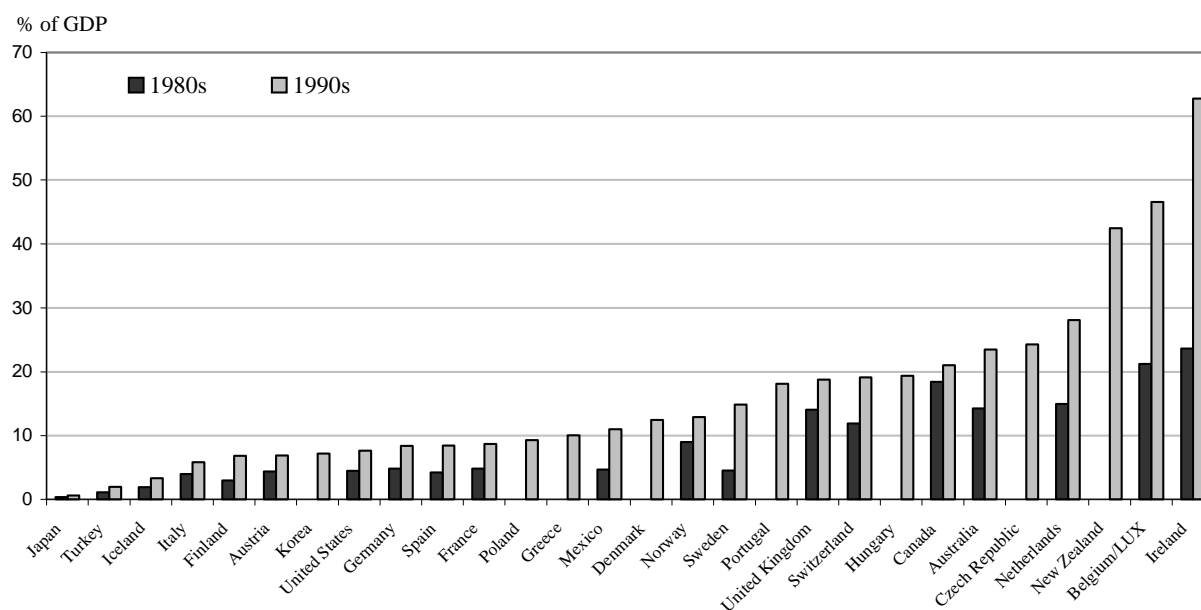


1. The box plot shows, in each year, the median OECD value of the inward or outward stock of FDI (the horizontal line in the box), the third and second quartiles of the cross-country distribution (the edges of each box) and the extreme values (the two whiskers extending from the box). Dots identify outlier observations.

2. Data in parentheses are unweighted average GDP ratios.

Source: OECD.

Figure 4. **Inward FDI positions in OECD countries, 1980s and 1990s<sup>1</sup>**



1. Average values over the two periods. For countries where FDI position data are not available, values of bilateral stocks reported by their OECD partners were summed up to obtain an approximate measure of multilateral FDI stocks.

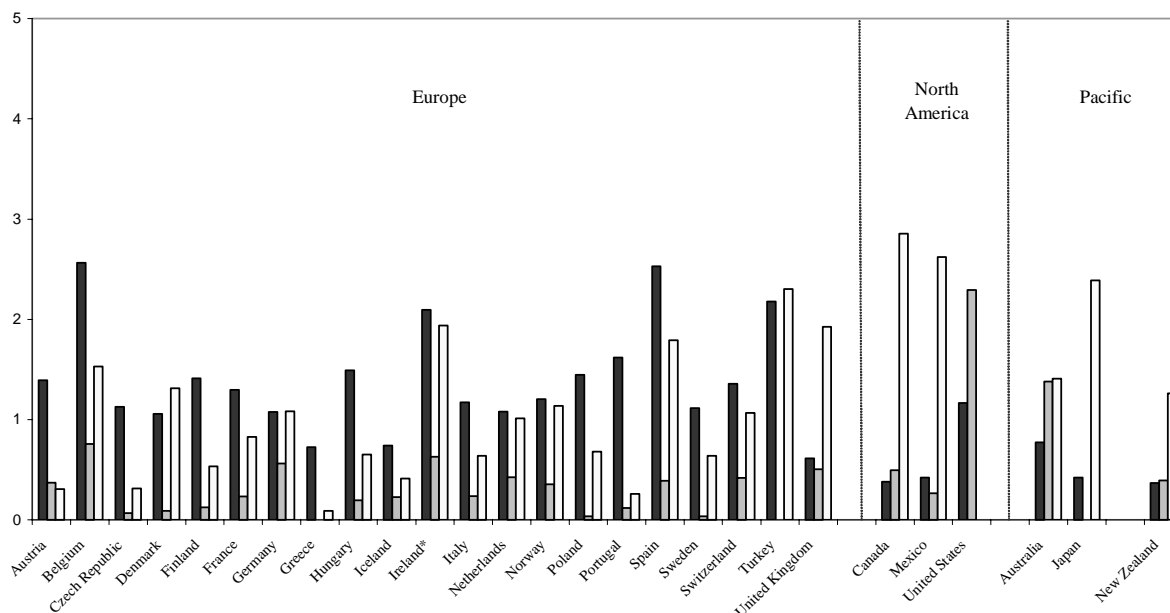
Source: OECD.

Figure 5. Patterns of geographical specialisation in inward and outward FDI<sup>1</sup>

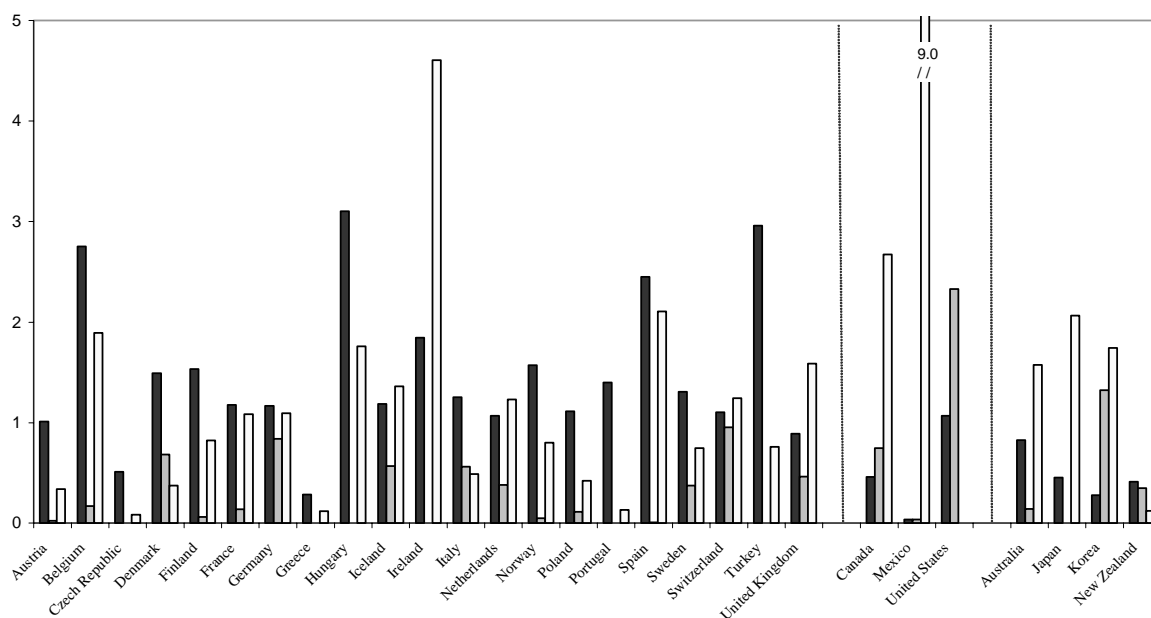
Average 1995-1998

■ European Union    ■ Japan    □ United States

**Inward positions**



**Outward positions**

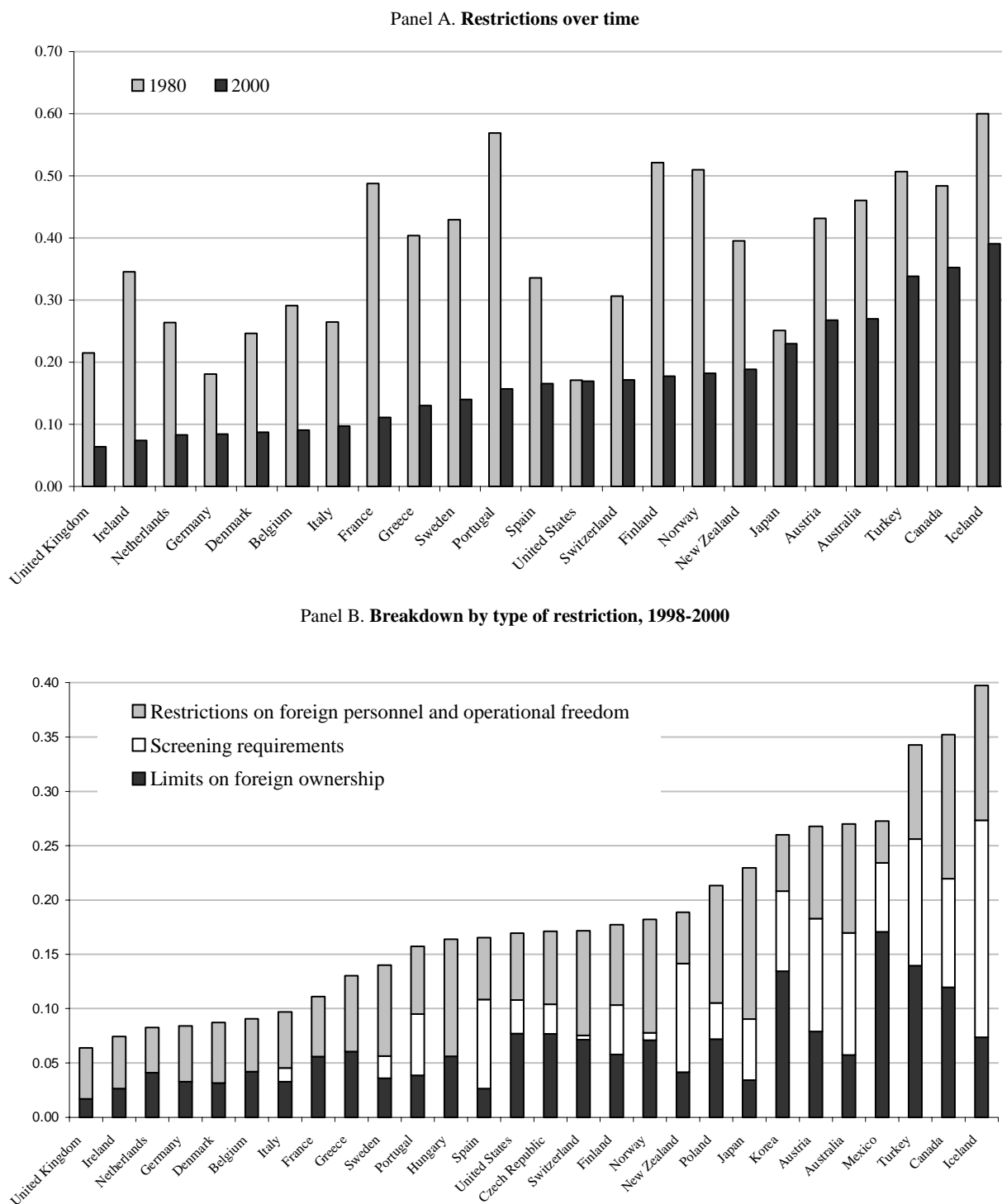


1. Inward geographical specialisation is defined as the revealed tendency of a country to host a share of FDI from an investor country (European Union, Japan, United States), which is larger than the share hosted by the OECD as a whole.  
Outward geographical specialisation is defined as the revealed tendency of a country to invest a share of FDI in a host country (European Union, Japan, United States), which is larger than the share invested by the OECD as a whole.  
A country is "geographically specialised" in investing to (or in hosting from) another country if the indicator is above unity.

\* Data for FDI from Japan are for 1991-1994.

Source: OECD.

Figure 6. FDI restrictions in OECD countries,<sup>1</sup> 1980-2000

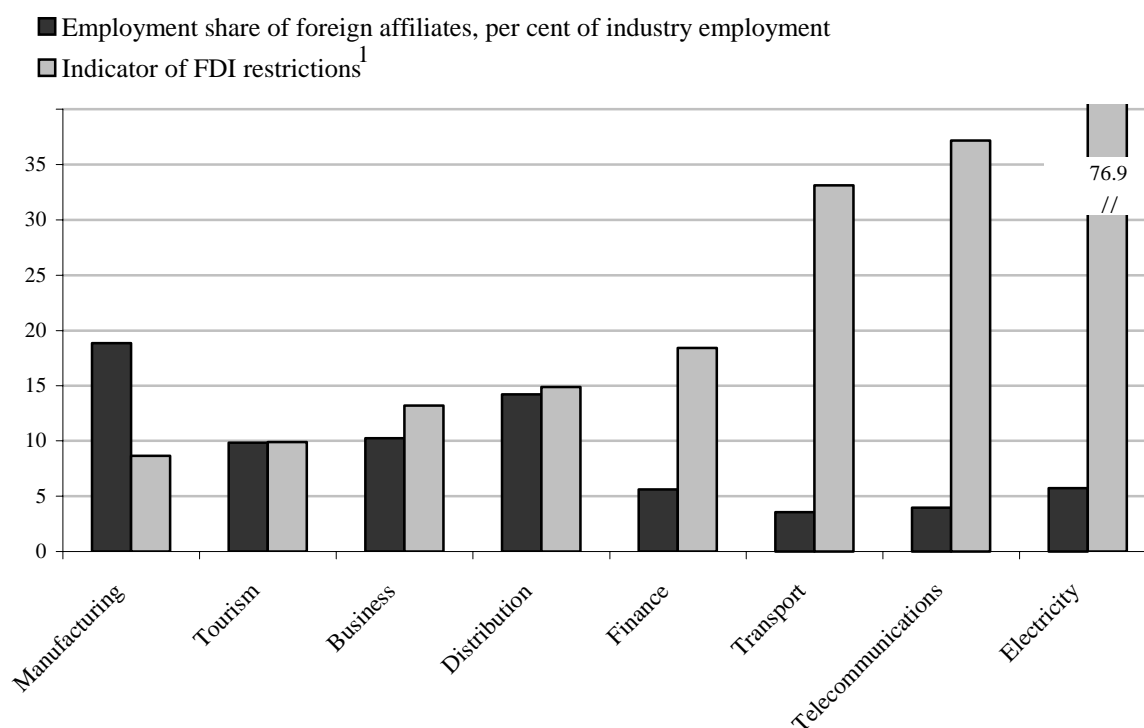


1. The indicator ranges from 0 (least restrictive) to 1 (most restrictive). The most recent year for which data are available varies across countries between 1998 and 2000.

Source: Golub (2003).

Figure 7. **Foreign affiliates and FDI restrictions in selected industries**

OECD average

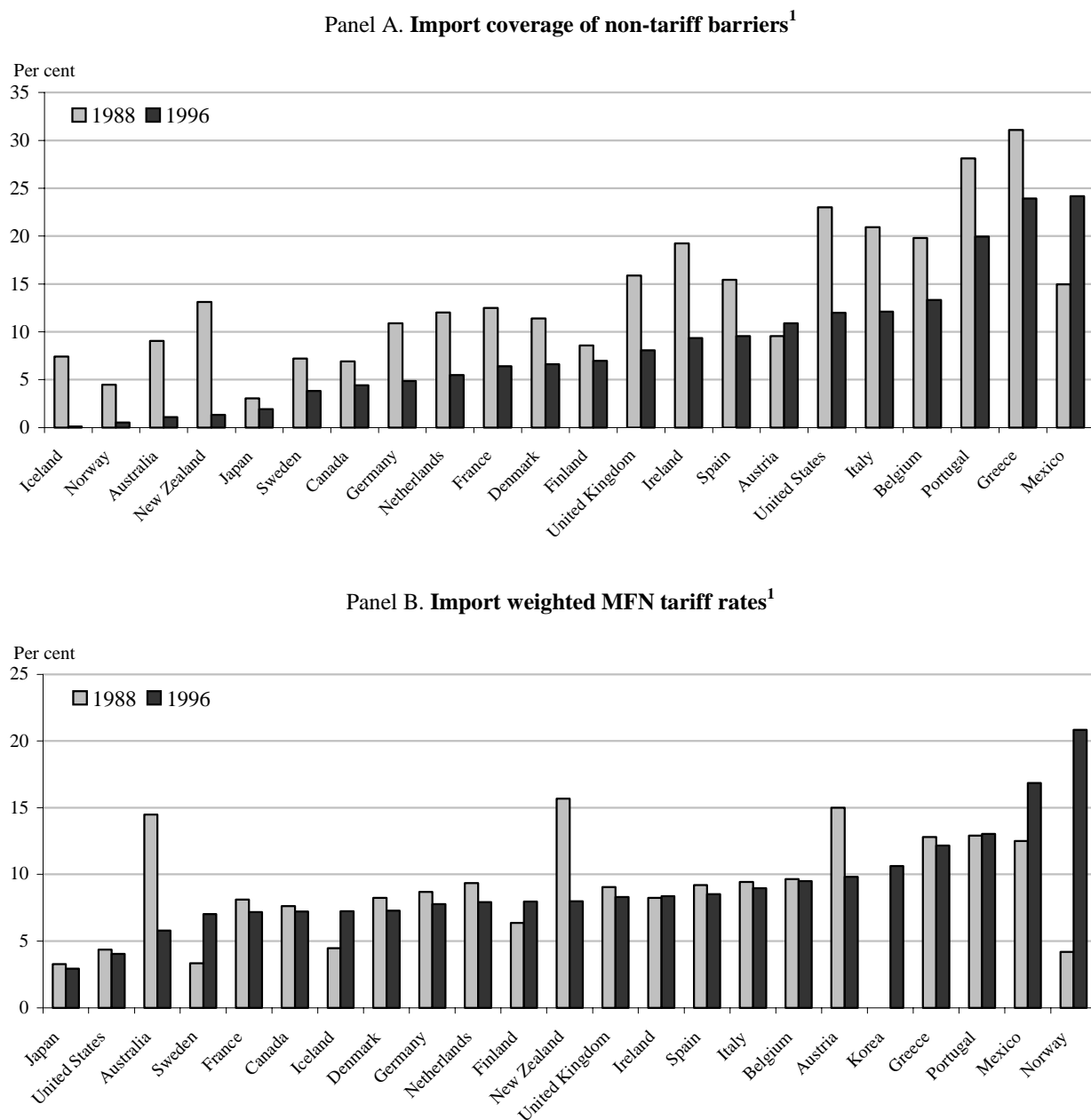


1. For this figure, the indicator ranges from 0 (least restrictive) to 100 (most restrictive).

Source: Golub (2003) and OECD



Figure 8. **Manufacturing trade liberalisation in the OECD area, 1988-1996**

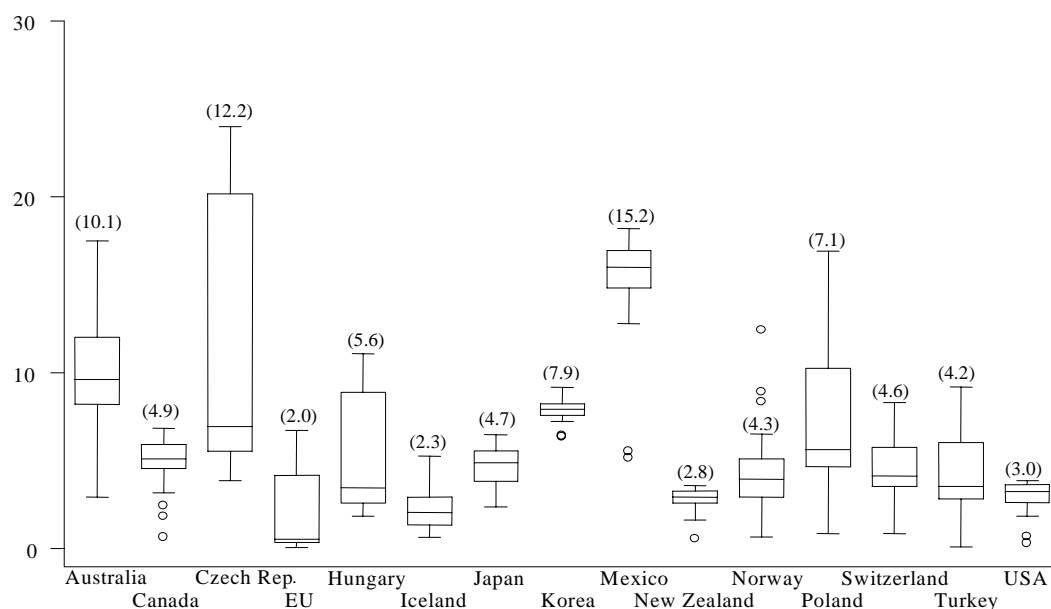


1. OECD calculations based on UNCTAD data. Aggregation from 2-digit level tariffs to national level using sectoral value-added weights.

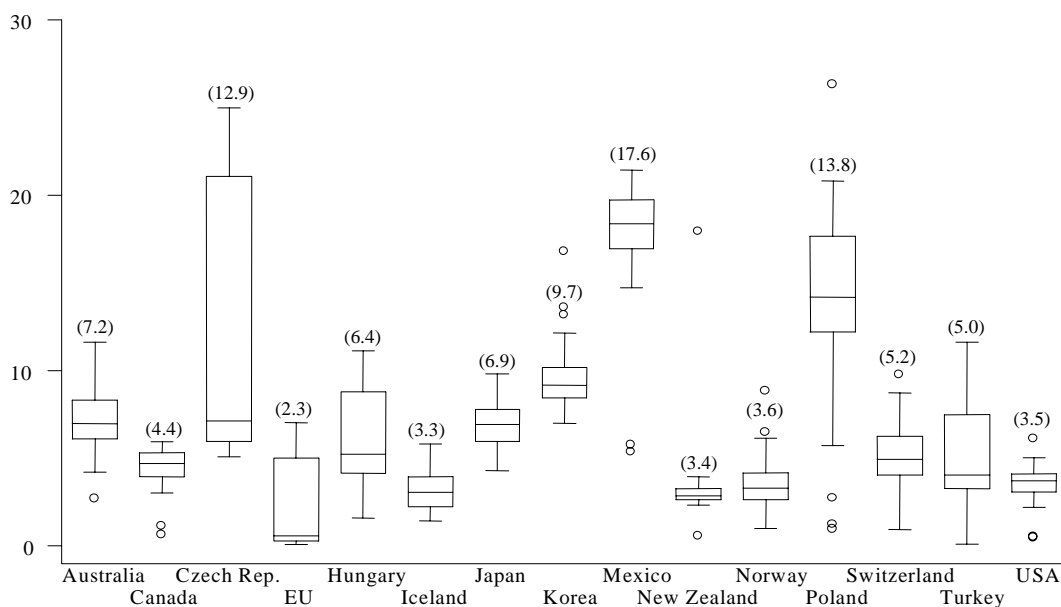
Source: UNCTAD, OECD.

**Figure 9. Median and dispersion of bilateral applied tariffs by importing countries in 2001<sup>1</sup>**  
(Average values in parentheses)

**Panel A. Dispersion reflecting the compound effect of regional preferences and OECD import product mix<sup>2</sup>**



**Panel B. Dispersion reflecting only regional preferences<sup>3</sup>**



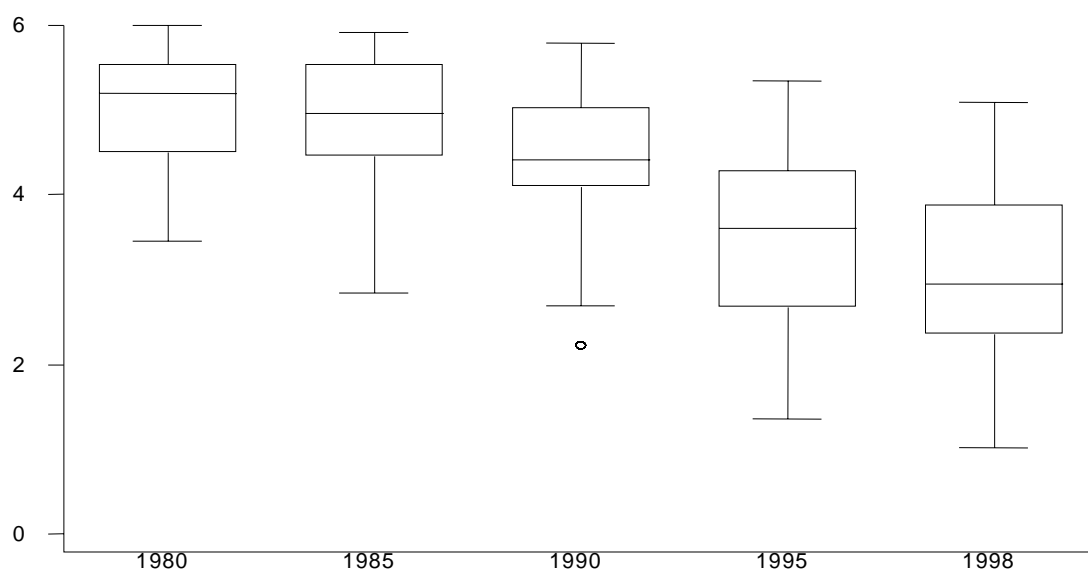
1. The box plot shows, for each country, the variation in the tariffs imposed on imports from partner countries. The median value of the tariff is depicted by the horizontal line in the box, the third and second quartiles of the cross-country distribution by the edges of each box, and the extreme values by the two whiskers extending from the box. Dots identify outlier observations.

2. ISIC rev.3 two-digit industry-level tariffs were aggregated to national level using the weights of the OECD import product mix.

3. National levels represent a simple average of ISIC rev.3 two-digit industry-level tariffs.

Source: International Trade Center, Geneva and CEPII, Paris.

**Figure 10. Regulatory reform in OECD countries,<sup>1</sup> 1980-1998**  
**Summary indicator of regulation in seven non-manufacturing industries<sup>2</sup>**

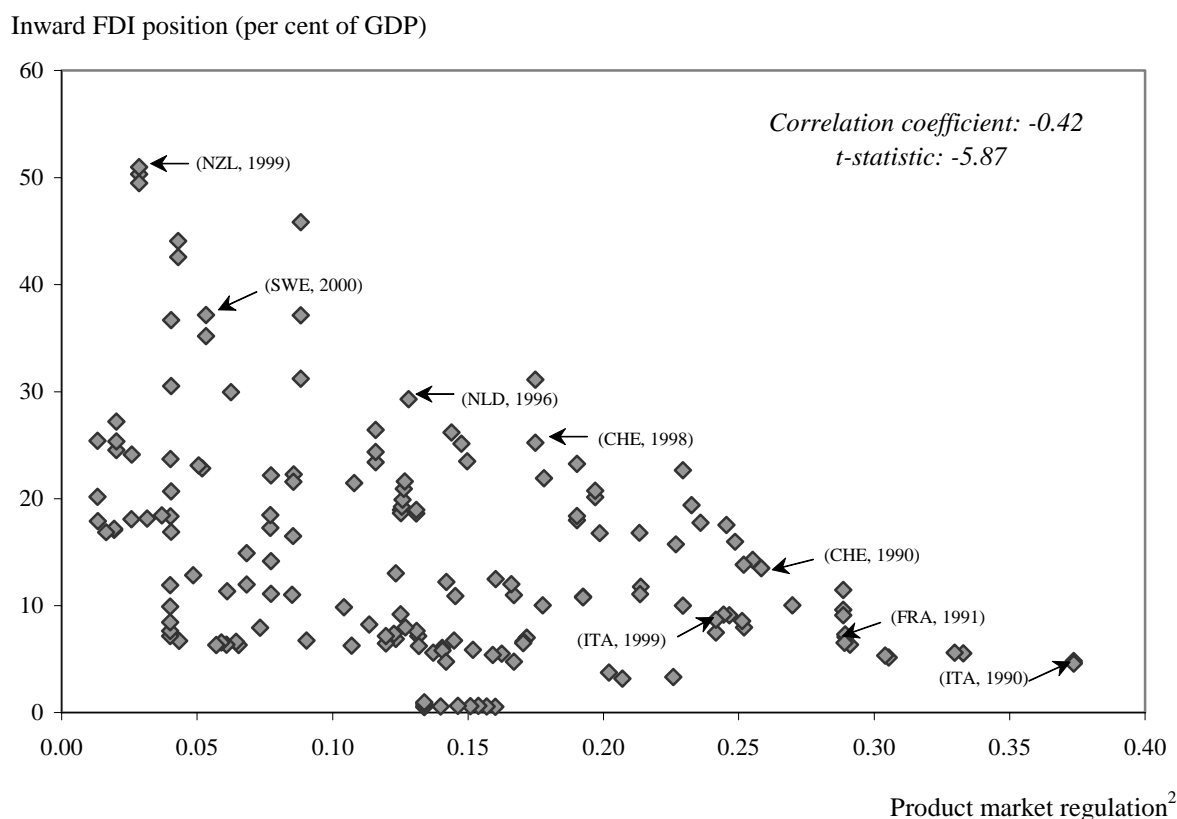


1. The box plot shows, in each year, the median OECD value of the regulatory indicator (the horizontal line in the box), the third and second quartiles of the cross-country distribution (the edges of each box) and the extreme values (the two whiskers extending from the box). Dots identify outlier observations.

2. The indicator ranges from 0 (least restrictive) to 6 (most restrictive). It covers 25 OECD countries.

*Source:* Nicoletti and Scarpetta (2003).

Figure 11. **Product market regulation and FDI, 1990-1998<sup>1</sup>**



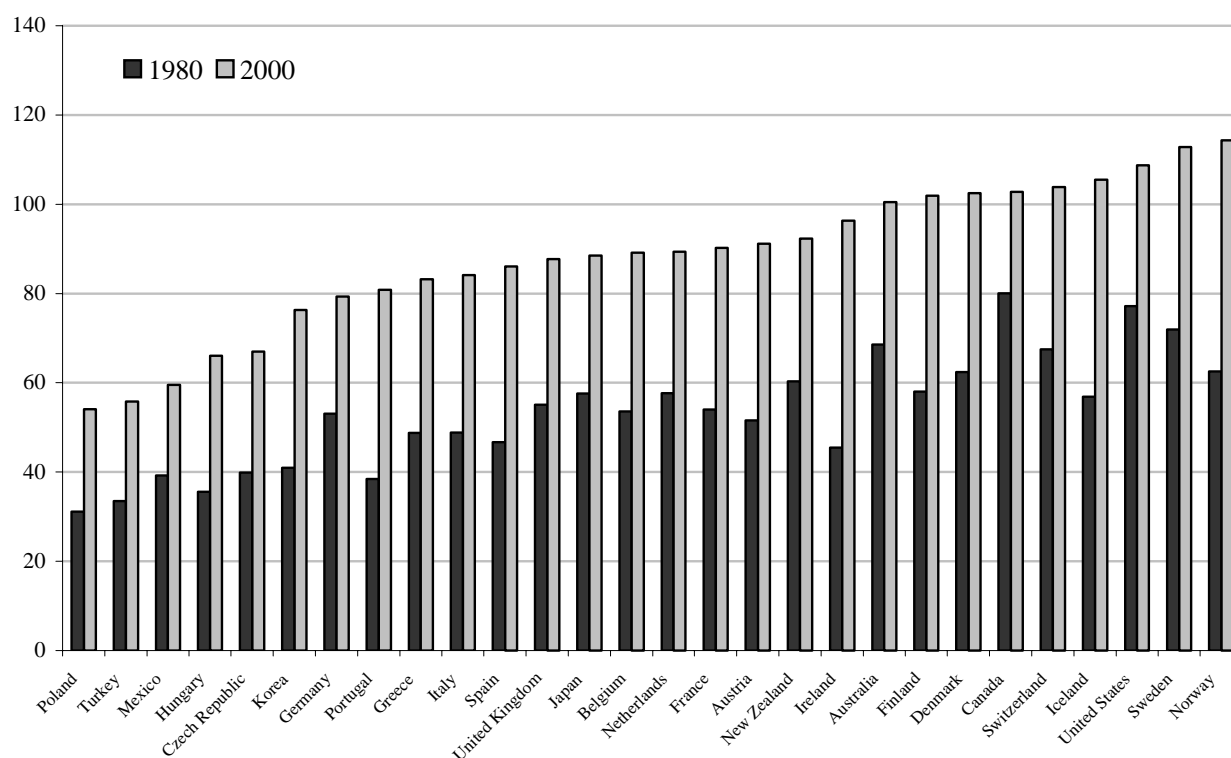
1. Each point shows the combination of regulation and FDI in a given country and period. Some of these country/period contributions are shown for illustrative purposes.

2. Product of the indicator of economy-wide regulation in 1998 and the indicator of barriers to entry in seven non-manufacturing industries over the 1980-1998 period. 0-1 scale from least to most restrictive of competition.

Source: Nicoletti and Scarpetta (2003) and OECD.

Figure 12. **Infrastructure endowments<sup>1</sup>**

United States 1998 = 100

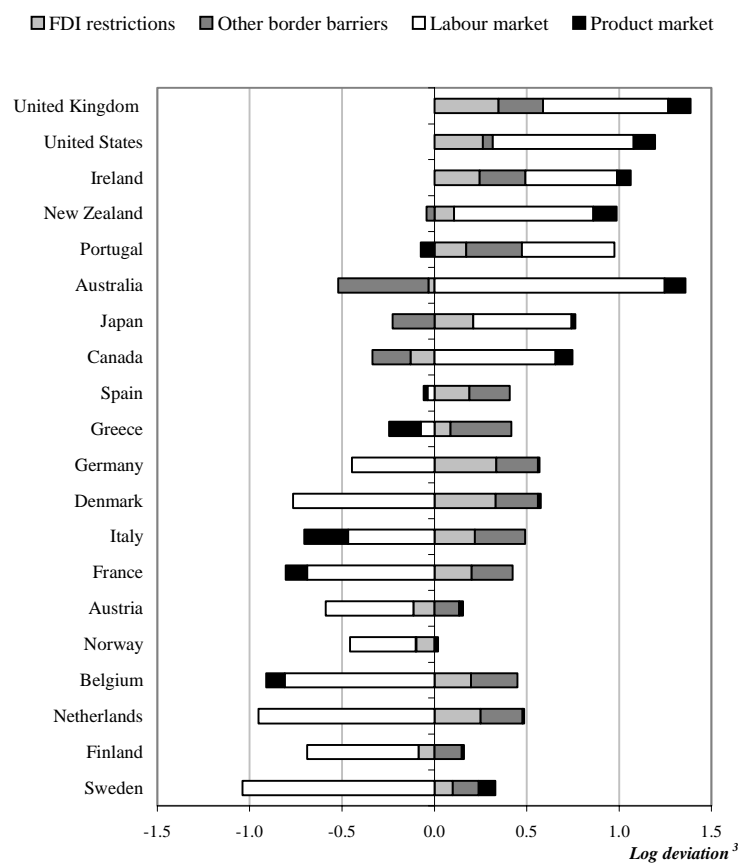


1. The indicator is the crossing of the quality and quantity of infrastructure in transport, telecommunications and electricity. It increases with infrastructure endowments and is expressed relative to the 1998 level of the indicator in the United States.

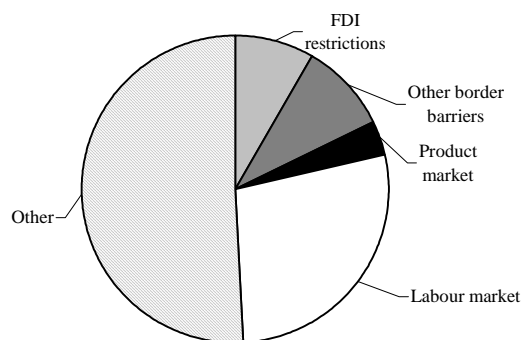
Source: OECD.

Figure 13. Policies and inward FDI positions<sup>1</sup>

Contributions to explaining the deviations from OECD average, 1980-2000<sup>2</sup>



Average contributions (absolute values)



1. *Other border barriers* contains the contribution of tariff and non-tariff barriers of membership in a free-trade area.

*Labour market* contains the contributions of the relative indicator of the tax wedge on labour income and of the relative indicator of employment protection legislation.

*Product market* contains the contribution of the relative level of barriers to entry.

*Other* include the contribution of the structural variables and dummy variables.

2. The contributions are based on coefficients estimated in panel regressions of bilateral outward FDI positions on non-policy factors (distance, transport costs, market size, similarity in size and factor endowments, and other country and time-specific effects) and policy influences (FDI restrictions, tariff and non-tariff barriers, participation in free-trade areas, and product and labour market arrangements). The regressions cover bilateral FDI relationships between 28 OECD countries over the 1980-2000 period.

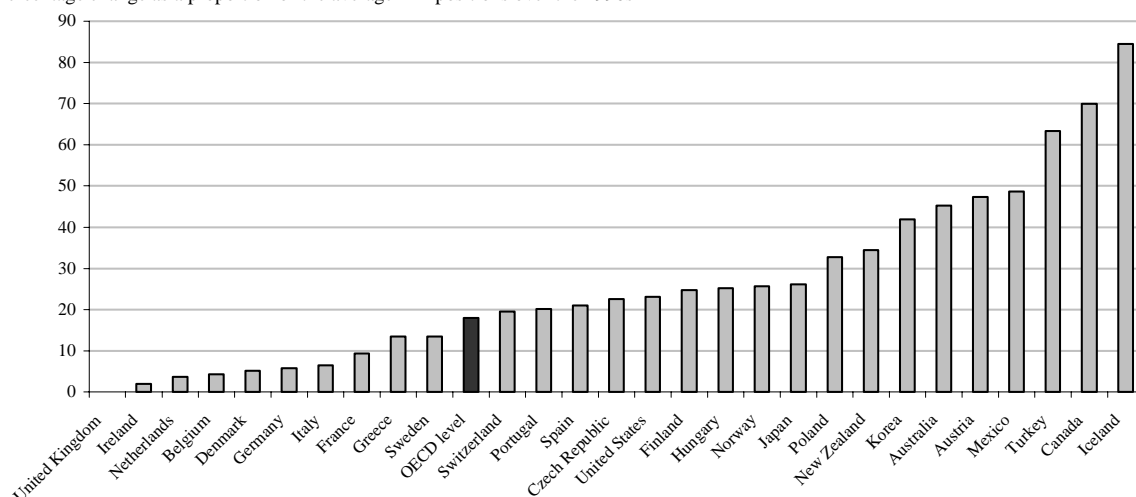
3. Average is computed on countries included in the sample.

Source: OECD.

Figure 14. Policies and inward FDI positions: the scope for further integration<sup>1</sup>

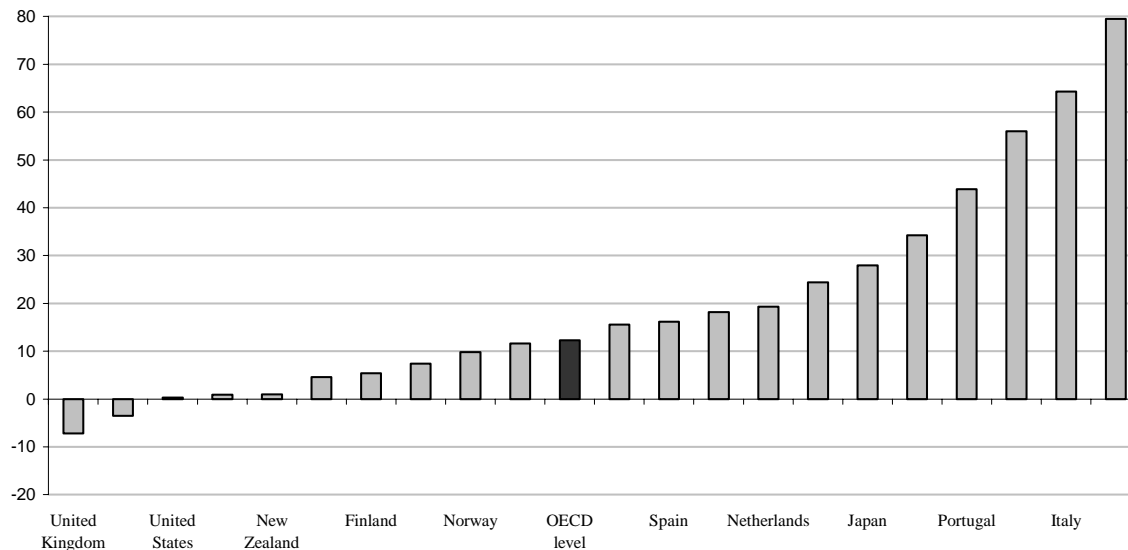
**Panel A: Lifting FDI restrictions**

Percentage change as a proportion of the average FDI positions over the 1990s



**Panel B: Easing product market regulations**

Percentage change as a proportion of the average FDI positions over the



1. The simulations are based on coefficients estimated in panel regressions of bilateral outward FDI positions on non-policy factors (distance, transport costs, market size, similarity in size and factor endowments, and other country and time-specific effects) and policy influences (FDI restrictions, tariff and non-tariff barriers, participation in free-trade areas, and product and labour market arrangements). The regressions cover bilateral FDI relationships between 28 OECD countries over the 1980-2000 period.

Source: OECD.