The internationalisation of production in Europe: Case studies of foreign direct investment in old and new EU member states

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Preface

The internationalisation of production essentially implies that firms produce their goods and services in more than one country, often spreading different stages of production processes across different countries. The last decades saw a rapid increase in the internationalisation of production around the globe, in Europe in particular. Substantial foreign direct investment (FDI) and the associated activities of transnational corporations are the most visible signs of this aspect of globalisation.

Sauli Niinistö
Vice-President

Many factors are driving this process. An important one is that more and more countries have come to realise that the presence of transnational corporations could spur the development of their economies. Consequently, they not only reduced barriers to FDI but also tried to attract it through various policy measures.

Against this background, the contributions to this edition of the *EIB Papers* (Volume 9, Number 2) examine the experience with FDI of selected EU member states – old and new (the companion edition – Volume 9, Number 1 – addresses causes and effects of the internationalisation of production). Reflecting the diversity of countries considered, we should expect experience to vary across countries, not least because some of the factors that make some countries particularly attractive for foreign investors differ across countries and, at the same time, are beyond the control of policy makers. Obvious examples include the domestic market size, geographical location, culture and language.

However, other factors reflect policy decisions – such as taxes, human capital and public infrastructure, and FDI promotion – and they could be designed with a view to attracting and benefiting from FDI. An especially interesting question is whether policies specifically targeting FDI hold more promise than policies that concentrate on creating an environment that is conducive to investment in general – be it foreign or indigenous. To foreshadow some of the insights coming from the case studies presented here, one can argue that avoiding policy mistakes seems to be far more important than trying to find the Holy Grail.

A firm understanding of what FDI and transnational corporations contribute to economic and social developments in EU member states is of paramount interest to the European Investment Bank, given its mandate to contribute to a steady and regionally balanced development of the EU. And as the Bank lends to transnational corporations – small and big – we certainly strive to fully grasp their role in member states' economies. I am convinced that this volume of the *EIB Papers* serves this purpose well, and I am pleased that we can share our findings with those taking an interest in the further development of an enlarged European Union.

The internationalisation of production in Europe:

Case studies of foreign direct investment in old and new EU member states

The 2004 EIB Conference on Economics and Finance, which was held at the EIB headquarters in Luxembourg on January 22, examined the impact of cross-border activities of transnational corporations on economic growth, productivity, employment, and regional development in Europe. Presentations covered theoretical aspects and empirical evidence pertaining to these activities as well as country case studies, reflecting the experience of old and new EU member states.

Speakers included:

Frank BARRY,
of the University College Dublin

Philippe MAYSTADT,
President of the EIB

Gábor HUNYA,
of the WIIW, Vienna

Magdolna SASS,
of the Institute of Economics
of the Hungarian Academy of Sciences

Ari KOKKO,
of the Stockholm School of Economics

Kristian UPPENBERG,
of the EIB

Jozef KONINGS,
of the Katholieke Universiteit, Leuven

Zbigniew ZIMNY,
of the United Nations Conference on Trade
and Development – UNCTAD

Thierry MAYER,
of the Université de Paris Sud

ABSTRACT

Ireland is the most successful EU economy in attracting export-platform foreign direct investment (FDI), and the increased FDI inflows of the 1990s are widely agreed to have been one of the most important factors in generating the remarkable boom that the country experienced over that decade. The present paper considers the confluence of factors – domestic policy changes, fortuitous developments in the European and global economic environment, and the coming to fruition of policy initiatives of earlier eras – that provided the setting for the increased inflows of the period and the changes that they wrought. One of the main findings is that growth-enhancing economic policies –including fiscal prudence, the maintenance of labour-market flexibility and a focus on science-oriented human capital formation – were crucial for Ireland to derive the full benefits of its FDI-attracting low-corporation-tax regime.

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Export-platform foreign direct investment: the Irish experience

1. Introduction

Foreign-owned firms account for almost 50 percent of Irish manufacturing employment. This compares to an average figure of 19 percent for the eleven other EU member states for which OECD (2001) presents data. A higher-than-average share of Ireland's services sector is also under foreign ownership, illustrating the crucial role that foreign transnational corporations (TNCs) play in the Irish economy. This is further confirmed by the value of the stock of foreign direct investment (FDI). Per head of population, the Irish inward FDI stock for 2000 is twice the EU average.

Frank Barry

The foreign firms to which Ireland plays host are highly export oriented and account for the vast bulk of Irish exports. Foreign manufacturing firms export more than 90 percent of gross output, and US firms – the most export oriented – export more than 95 percent. With respect to services, Ireland is reported to be the third largest exporter per capita in the world, after Hong Kong and Singapore, and is the world's largest exporter of software. Foreign-owned services enterprises account for 89 percent of the country's service-sector exports, an even greater proportion than the 86 percent of manufactured exports accounted for by their counterparts in that sector.

The present paper charts the story of Ireland's success as a host location and export platform for foreign TNCs. Section 2 begins by outlining the history of Ireland's FDI-oriented development strategy, which came to fruition only in the 1990s – the so-called 'Celtic Tiger era'. That Ireland had been successful in attracting FDI since the 1960s illustrates that this alone cannot account for the dramatic growth performance of the last 15 years. A multitude of other factors, some exogenous and some driven by changes in Irish policy, were also crucial for Ireland's impressive economic growth. Section 3 considers the range of factors that have been instrumental in making Ireland such an attractive location for FDI. This is followed in Section 4 by a more detailed look at the sectoral destinations of the FDI inflows and the differing characteristics of indigenous and foreign-owned firms in Ireland. Section 5 discusses the impact of foreign-owned firms on Irish indigenous industry and on the Irish economy more generally. Section 6 concludes with a brief discussion of the possible effects of a move towards corporate tax harmonisation on the part of the EU.

2. Irish economic development since the 1950s

2.1 Origins of the FDI-oriented development strategy

Ireland remained protectionist for about a decade after most of the rest of Western Europe had moved towards freer trade. The post-war boom of the 1950s saw Western Europe achieving growth rates of almost 6 percent per annum while protectionist Ireland stagnated with a growth rate of less than 2 percent and an employment growth rate of less than 1 percent. The need to import the more sophisticated capital and consumer goods that the country could not produce for itself led to balance of payments crises and macroeconomic instability, exactly as happened in protectionist Spain at around this time. The depressed economy of the 1950s saw more than 400,000 Irish people emigrate, out of a total population of less than 3 million.

By the end of the 1950s, it was clear that economic policy would need to be completely overhauled. The Anglo-Irish Free Trade Agreement, which aimed to liberalise trade with the country's major trading partner of the time, the United Kingdom, came into force in 1966, and both countries acceded to the then European Economic Community (EEC) in 1973.[1] The move towards openness was accompanied by the introduction of a zero tax rate on profits derived from manufactured exports and a liberalisation of the law on foreign ownership of companies.[2] German and US companies, in particular, were quick to respond to these changes. The total stock of US FDI in Ireland was USD 6 million in 1958, with over 80 percent located in the petroleum sector and none in manufacturing. By the date of accession to the EU, the stock had risen to USD 269 million (in nominal terms), of which 90 percent was in manufacturing, with the bulk of the sector's output being exported.

FDI inflows led to particularly rapid growth in the chemicals sector, whose share of exports grew from less than half a percent at the end of the 1950s to 6 percent at the time of EU entry. Another favoured export sector (at the SITC-1 level) was "manufactured goods classified by material" (primarily textiles, clothing and footwear).

The growth in foreign industry also contributed to a substantial diversification of Irish exports away from the UK market, with the then EU-6 share of manufacturing exports rising by 10 percentage points between the late 1950s and the early 1970s.

2.2 From EU accession to the birth of the Celtic Tiger

EU accession and the development of the Single European Market coincide with the two main booms in foreign direct investment in Ireland.

EU accession and the development of the Single European Market coincide with the two main booms in foreign investment in Ireland. The number of jobs in foreign-owned industry grew by 23 percent between 1973 and 1980 and by almost 50 percent between 1987 and 2000, an era which included the creation of the Single Market and the worldwide high-tech boom. The expansion of the sector is charted in Figure 1, which also displays the path of employment in the indigenous manufacturing sector.

The mixed fortunes of the indigenous manufacturing sector are reflected in the overall pattern of developments in gross national product (GNP) per capita, measured in Figure 2 relative to the EU-15 average.[3]

In contrast to the experiences of the other 'cohesion countries' – Greece, Spain and Portugal – Ireland experienced no gain on the EU-15 average level of income per capita over the 1960-73 period. Its failure to gain on the EU average over the period 1974-86 is replicated across all the cohesion countries, however; while all experienced some convergence over the period since then, none converged as dramatically as Ireland.

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1   The degree of protection is illustrated by the fact that the average effective tariff level before the Anglo-Irish Free Trade Agreement was almost four times that prevailing in the country's trading partners. This had declined to around twice the average level in the run up to EEC entry in 1973; McAleese (1971).

2   As the bulk of the country's exports at that time were agricultural in nature, there was little diminution of the tax base when the concessionary tax rate was adopted.

3   GNP is used rather than GDP for Ireland so as to exclude the substantial profits of foreign-owned companies located there. Irish GDP is about 25 percent higher than GNP.

Figure 1. Employment in indigenous and foreign-owned manufacturing, 1973-2000
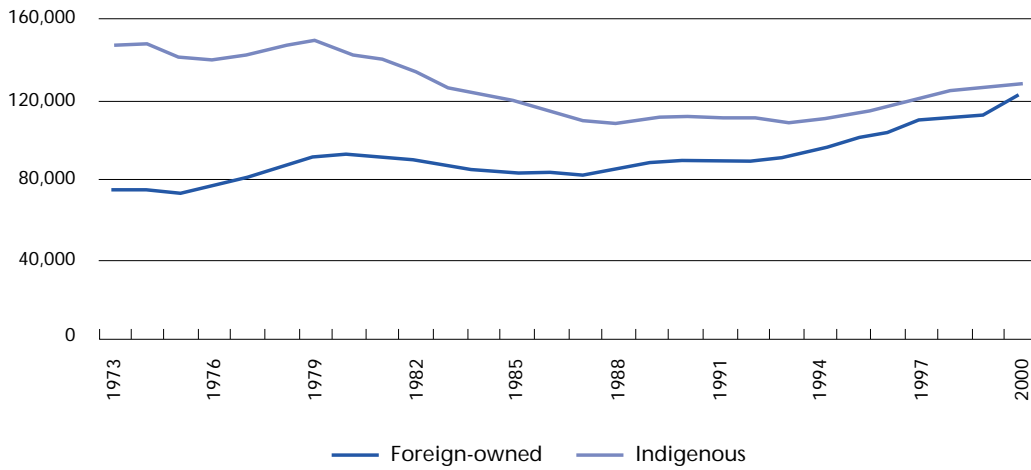
Source: Annual reports of the Irish state agency Forfás.

Figure 2. Irish GNP per capita in percent of EU-15 average, 1960-2002

Notes: National income is measured at purchasing power standards (PPS) rather than market exchange rates.
Source: European Commission AMECO database for GDP per head at PPS, adjusted for the difference between GDP and GNP as given in the quarterly bulletins of the Central Bank of Ireland.
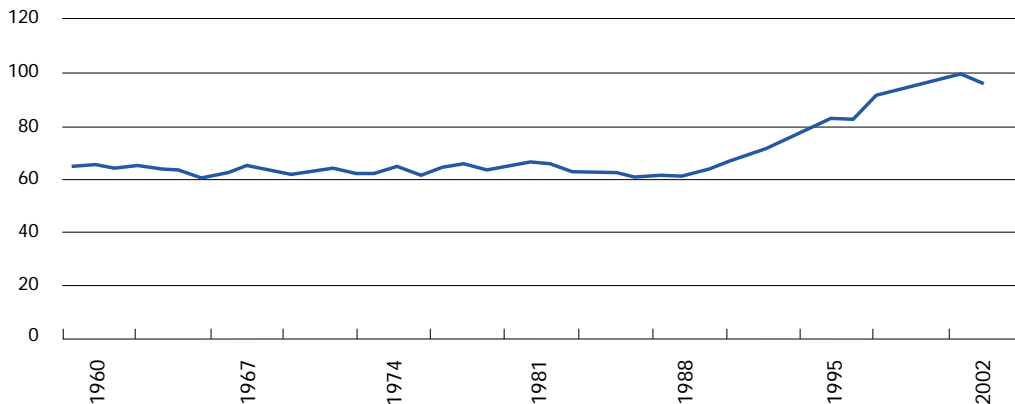
This suggests then that while most economies other than the United Kingdom were less successful than Ireland in capturing FDI over the entire period, as suggested by Table 1, other adverse factors must have been acting to the detriment of Irish economic development. Barry (2003) sets out to try to identify these factors. His analysis of the comparative economic performances of the cohesion countries in the 1960-73 period shows that Irish underperformance at that time cannot be ascribed either to poor macroeconomic policies (which were quite conservative), to the share of agriculture in the economy (which was no higher than for some of the other cohesion economies), or to an excessively prolonged protectionist stance or low educational throughput. What distinguished Ireland from the other cohesion countries over this period was the malfunctioning of its labour market.[4]

The malfunctioning of Ireland's labour market largely explains why Ireland failed to catch up with more advanced countries during 1960-73 despite considerable FDI inflows.

4   Notwithstanding a high unemployment rate and a productivity growth rate below that of the other cohesion countries (and the EU-15), Irish real wages rose much more strongly than elsewhere over this period.

Table 1.   FDI inward stock per capita (USD), 1985-2000

	Ireland	UK	Spain	France	EU-15
1980	1,102	1,119	137	415	546
1985	1,313	1,130	233	594	688
1990	1,569	3,542	1,696	1,720	2,113
1995	3,251	3,408	3,331	3,119	3,029
2000	15,623	8,079	3,567	4,401	6,271

Source: FDI stock from UNCTAD (2001); population data from Eurostat.

Labour market performance deteriorated relative to the EU-15 in both Ireland and Spain over the next period (1974-86), which saw divergence rather than convergence in levels of income per capita for all the cohesion countries. The common factor in the poor performance of the whole group, however, was the decline in the standards of macroeconomic policymaking.

The final period saw all four cohesion economies return to convergence. Common policy changes included a switch to more prudent monetary and fiscal policies, a reduction in state ownership and a strengthening of competition policy. EU aid also increased considerably of course, while wage moderation was promoted in the two traditionally high-unemployment economies: in Ireland by the "social partnership" process that began in 1987, and in Spain by the labour-market reforms of the 1994-97 period.

2.3 Policy reform and the Celtic Tiger era

A series of beneficial shocks, policy- and otherwise induced, created a virtuous circle of economic progress.

While the 1990s saw a general return to convergence among the cohesion economies, the performance of the Irish economy was particularly strong. Over a little more than a decade Irish real national income per capita rose from less than 65 percent of the EU average to achieve rough parity by the end of the 1990s. Unemployment tumbled from a high of 17 percent in 1987 to less than 4 percent in the early years of the new millennium. Employment expanded by more than 50 percent. This section considers, therefore, the series of beneficial shocks – policy-induced and otherwise – to which the economy was subjected in the late 1980s and which created a virtuous circle of economic progress.

The beneficial shocks included a change in fiscal strategy in 1987, which finally resolved the long-running crisis in the country's public finances. This allowed room for future tax reductions, which, in combination with the country's newly developed 'social partnership model' of wage determination, bolstered competitiveness. The doubling of the EU Structural Funds in 1989 made it possible to implement the badly-needed infrastructural projects that had been put on hold as part of the change in fiscal strategy. Airline deregulation, in 1986, facilitated a more than doubling of tourist numbers over the following decade, and, finally, the lead-up to the Single Market saw a huge increase in FDI flows both into and within Europe, of which Ireland captured a sharply increased share.

Consensus has yet to be reached on the relative importance of these various factors. Honohan and Walsh (2002) in their assessment pay little attention to the increase in

FDI inflows, illustrated in Figure 3 (with the UK position included for comparison purposes). Barry (2002) on the other hand – echoing some of the points made by Blanchard in his discussion of the Honohan and Walsh paper – argues that they were crucial.

Figure 3. FDI inflows per capita in Ireland and the United Kingdom, 1987-2002
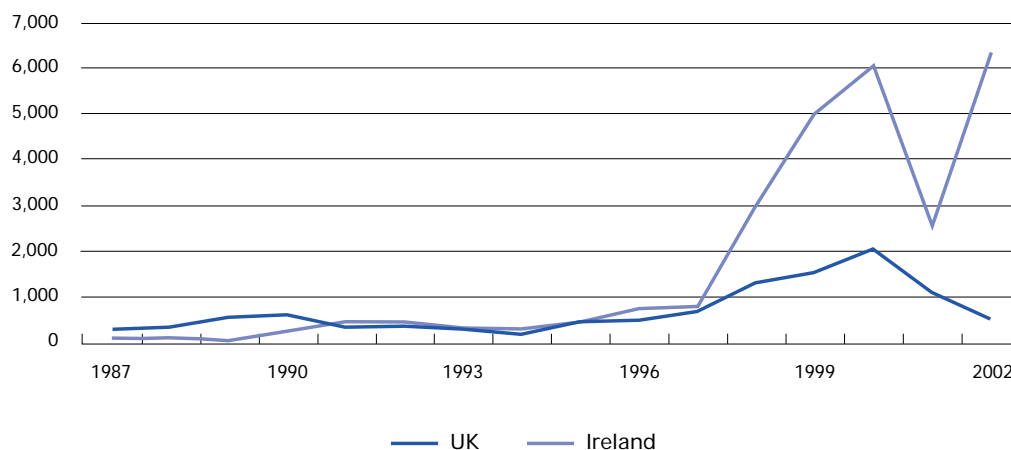
Source: IMF Balance of Payments Statistics Yearbooks (various years); population data from Eurostat.

The only work to attempt an empirical evaluation of a full range of factors including education, industrial strategy, the Single Market, the EU Structural and Cohesion Funds, social partnership and the resolution of the country's fiscal crisis is forced to the conclusion that "the sources of the 'Irish miracle' of the last decade are not entirely clear" (de la Fuente and Vives 1997). In the same spirit, OECD (1999) concludes that

There seems to be no single overriding policy that could be adopted by other countries to emulate the Irish experience.

> "It would seem that there has been no 'silver bullet' – no single overriding policy that could be adopted elsewhere in order to emulate the Irish experience. Rather the breaks in trend, first around 1987 when the deterioration ceased and performance improved, and then around 1994 when the boom began, are attributable to the confluence of a series of favourable changes in the environment and other exogenous factors, as well as prudent planning and a range of policy shifts that lay the foundations for the pickup in growth. Most of the items that have contributed to the improvement are well known to other policy makers, but other countries' situations may not be so propitious as to allow such a strong response, even to fully appropriate incentives and institutional arrangements."

We now provide a brief discussion of the factors that are generally agreed to have been of importance in triggering the era of rapid growth.[5]

To start with fiscal policies, successive Irish governments had struggled throughout the 1980s to overcome the debt crisis that had resulted from inappropriate pro-cyclical fiscal

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5   For a more detailed analysis of the events and policies behind the birth of the Celtic Tiger see Barry (1999) or the
     summary in Barry (2000).

expansion at the end of the previous decade. The attempt to close the deficit via high taxation proved unsuccessful – because it was by necessity pro-cyclical (in a contractionary direction) – while workers responded to the tax increases by raising wage demands.

A new approach was tried in 1987-89, when government expenditure was reined in as an alternative to further tax increases. Rather than being pushed into recession, as many would have predicted, the economy expanded. Barry and Devereux (1995) reject the expansionary-fiscal-contraction hypothesis developed to explain episodes like this, concluding instead that "the factors which were working in the direction of recovery – buoyant world demand, improvements in cost competitiveness and an inflow of foreign investment in the lead-up to the Single European Market – more than outweighed the short-run contractionary effects of fiscal contraction". The competitiveness gains alluded to arose not just from the preceding sharp devaluation of the currency (in 1986) but also from the simultaneous development of the 'social partnership' approach to wage determination.

The social partnership approach brings government, unions and employers together every three years to agree a general path for wages and working conditions over the course of the agreement. Successive governments have used the process to purchase wage moderation via the promise of future tax cuts, and these tax cuts have accounted for about one-third of the rise in real take-home pay since the partnership process began.[6] These income tax cuts have continued for well over a decade, leaving Ireland with one of the lowest shares of tax revenues and government expenditures relative to GDP in the entire EU.

The "social partnership" approach, under which the government, unions, and employers agree on the general path for wages and working conditions, seems to have been key in reducing unemployment.

The partnership approach has been argued by one of its architects to have promoted a shared understanding of key economic mechanisms and relationships between the parties to the agreements, and there can be little doubt, on the strength of the strike activity data presented in Barry (2000), that it helped to promote industrial peace. Baccaro and Simoni (2002) argue furthermore that partnership has changed the wage leadership process. While wage increases in Ireland pre-1987 were driven by the rapid productivity growth of the foreign-owned sector, wage increases in the partnership period have been driven instead by the much slower productivity growth of the indigenous sector, which has led to substantial reductions in overall unit costs.

Turning to the role of Structural and Cohesion Funds, there is no doubt that the level of EU regional aid increased substantially in the 1990s. More specifically, between 1989 and 1999 aid flows to Ireland through the Structural and Cohesion Funds amounted to almost 3 percent of GDP per annum, an amount similar to that accruing through the Common Agricultural Policy. But careful analysis suggests that the direct effects on GDP of these EU regional aid programmes would have been moderate – adding about half of one percentage point per annum to the GDP growth rate of the 1990s.[7]

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6   The standard and top rates of income tax both fell by around 10 percentage points between the late 1980s and the late 1990s, and the thresholds at which they applied were raised in real terms.

7   As the OECD (1999, footnote 32) points out however, even this apparently modest effect nevertheless represents quite a respectable internal rate of return, of 6 to 7 percent per annum, on the funds invested.

EU support may have had indirect beneficial effects, however. One that is widely recognised concerns its impact, through promoting the introduction of rigorous evaluation procedures, on the efficiency of the overall system of public administration.

Another relates to the fortuitous timing of the increased aid flows, allowing the implementation of badly-needed infrastructure projects that had been postponed during the fiscal contraction in 1987-89. Infrastructural constraints would have emerged far earlier in the boom, and would have choked it off, had the new infrastructure not been on stream. Besides expanding the level of FDI inflows that the economy could handle, the aid is likely to have impacted on the type of FDI that Ireland was able to attract. The increasingly high-tech FDI inflows of recent decades rely on ready supplies of skilled labour, to which the human-resource programmes of the Structural Funds contributed.[8] Finally, the aid flows may have facilitated the social partnership agreements by relaxing the government budget constraint through the tax revenues associated with the increased FDI inflows that aid flows made possible.[9]

Figure 4.   Investment by US manufacturing companies in Ireland, 1983-99

Share in EU-15 investments in % (RHS)
US investments in USD million in 1996 prices (LHS)
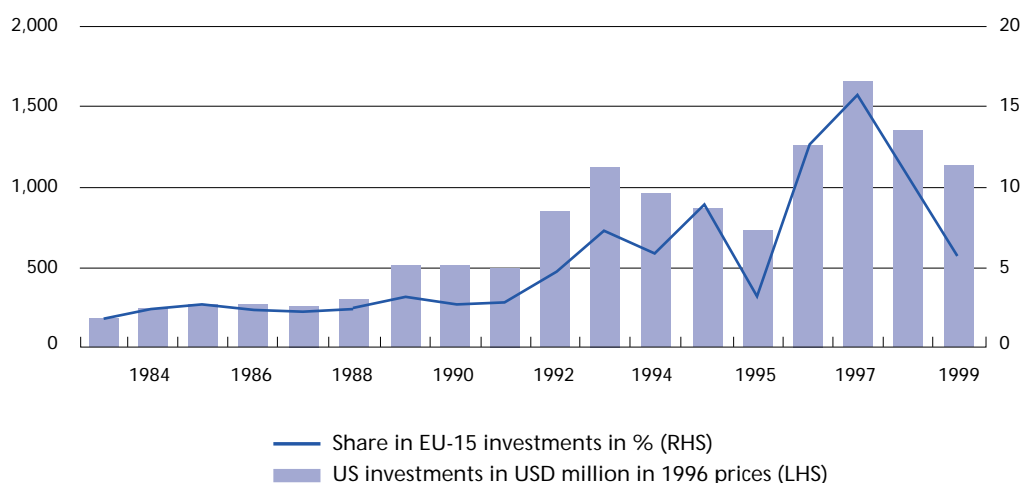
Source: US Department of Commerce, Survey of Current Business (various issues).

This takes us, finally, to the direct role of FDI in the birth of the 'Celtic Tiger'. Arguably, the Irish economy boomed on the back of substantially increased FDI inflows, as the low corporate tax strategy in place since the late 1950s came into its own in the 1990s with the increased globalisation of business and the development of the Single Market.

Ireland's low-corporate-tax strategy, in place since the 1950s, showed its full effect in the 1990s with increased globalisation and the creation of the Single European Market.

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8   It is not clear whether simply increasing educational throughput in an economy with as open a labour market as Ireland's will necessarily lead to industrial development (see, for instance, Markusen 1988). Ferreira and Vanhoudt (2002) argue plausibly that the increased throughput – especially given the vocational/technical slant of the skills provided at third level – and the sectoral (high-tech) composition of the increased FDI inflows were self-reinforcing factors that proved decisive for the Irish boom.

9   It would nevertheless be incorrect to conclude that EU aid generated the Irish boom by facilitating income tax reductions. Corporate taxes are the most important taxes relevant to the country's ability to attract FDI, and this has actually increased over time, from the zero tax rate on profits stemming from manufacturing exports (introduced in the late 1950s) to a standard rate of 12 1/2 percent today.

This period saw US investments in Europe increase substantially, and Ireland captured a growing share of these investments (see Figure 4). MacSharry and White (2000) explain this growth in the Irish share by describing how restrictive public procurement policies on the part of some of the larger EU member states used to offer a strong incentive to transnational corporations to locate there rather than in Ireland. With the outlawing of these practices under the Single Market initiative, the attractiveness of Ireland as a destination for FDI increased.

3. Key factors in attracting FDI to Ireland

Ireland's success in attracting export-platform FDI has been referred to earlier in the introduction. A recent cross-country study by Slaughter (2003) examines the determinants of US FDI in Europe and allows us to pinpoint some key factors behind Ireland's success. He finds geographical proximity to the United States to be a significant determinant of the overall level of FDI attracted, while EU membership is found to be particularly significant for FDI in manufacturing and financial services. Smaller markets unsurprisingly attract export-platform activity rather than production for local markets, and US affiliate production tends to be concentrated in low-tax countries. This section of the paper explores the effects of some of these factors on FDI in Ireland in greater detail. More specifically, we will discuss the role of corporate taxation, the Industrial Development Agency, the skill level of the Irish workforce, and of agglomeration and demonstration effects.

Box 1. The evolution of Ireland's corporation tax regime

1956: Finance Act introduces Export Profits Tax Relief (EPTR), primarily for manufacturing industry, with 50 percent tax remission on profits (increased to 100 percent two years later). The measure provided full relief for 15 years and tapering relief for a further five years.

1969: EPTR extended to 1989-90.

1978: Government abolishes EPTR and replaces it with a special 10 percent rate of corporate profit tax for all manufacturing industry from 1981-2000. Those qualifying for export-tax relief before 1981 continue to benefit until 1990.

1987: Financial Services Act establishes International Financial Services Centre in Dublin. Profits of qualifying activities carried out from the Centre are taxed at 10 percent until 2005.

1990: Government extends the 10 percent corporate profit tax rate to 2010.

1998: Agreement with European Commission on universal $12\frac{1}{2}$ percent corporate tax for all trading companies from 2003. All existing commitments to the 10 percent tax rate for manufacturing industry are to be honoured until 2010. The 28 percent standard rate applying to most services to be reduced by 4 percent annually in 2000-02, and by $3\frac{1}{2}$ percent in 2003, giving a $12\frac{1}{2}$ percent rate at that date.

Source: MacSharry and White (2000).

The importance of Ireland's low corporate tax regime in kick-starting FDI inflows has already been alluded to. The country's corporate tax regime has remained amongst the most generous in Europe since the adoption of the low tax strategy in the late 1950s,

and remains a critical ingredient in the country's development strategy.[10] The tax regime has undergone occasional changes over the years, generally at the behest of the European Commission. The major changes are charted in Box 1. Export Profits Tax Relief, for example, began to be phased out in 1978, to be replaced by a special 10 percent profit tax rate for the manufacturing industry. From 1987, this special rate was extended to qualifying activities carried out at the newly opened International Financial Services Centre in Dublin. Most other market services meanwhile continued to be subject to the standard 32 percent rate that prevailed at that time. In the face of European Commission pressure to harmonise rates across sectors, the government agreed in 1998 on a harmonised rate of $12^1/_2$ percent to be instituted from 2003, resulting in a substantial decline in the tax burden on the services sector.

The decision to harmonise at the low $12^1/_2$ percent rate means that Ireland remains the state with the lowest effective corporate tax rate in the EU. Table 2 is illustrative in this regard. It reports a measure of the average effective corporate tax rates on US overseas investments for 1997 as well as recent standard rates of tax.[11] Ireland's effective rate comes out at a little over 9 percent, compared to an average rate of over 20 percent for the other EU countries shown.

Ireland remains the EU state with the lowest effective corporate tax rate.

Table 2. Effective and standard corporate tax rates in selected EU countries (in%)

	Effective tax rate on US TNCs (1997)	Standard corporate tax rate (2003)
Ireland	9.1	12.5
Netherlands	17.2	29.0
Sweden	20.6	28.0
Spain	24.6	35.0
UK	24.9	30.0
France	29.0	34.3
Germany	33.7	39.6

Sources: Effective tax rates from Desai *et al.* (2002), standard rates from National Competitiveness Council (2003).

Empirical evidence on the importance of corporate taxes in determining FDI flows is presented by Gropp and Kostial (2000), who focus on total FDI inflows and outflows, and Altshuler *et al.* (2001) who concentrate on the location decisions of US firms.[12]

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10 Financial incentives are also available but are being scaled back in line with EU restrictions on state aid. In 2001, state aid to Irish manufacturing came to $1^1/_2$ percent of value added, just slightly above the EU average; http://europa.eu.int/comm/competition/state_aid/scoreboard/. Industrial Development Agency incentive payments in the form of grants and equity came to 0.3 percent of GDP in 2000, down from 0.54 percent in 1990.

11 The effective rate measures the ratio of the sum of profit taxes of foreign-owned firms to the sum of net income and profit taxes of foreign-owned firms in each country. Rates are constructed in this way, rather than as a percent of taxable income, in order to capture the effects of differences in tax base definitions, special investment incentives such as accelerated depreciation and other important aspects of tax systems that are not reflected in statutory tax rate differences. Various other cross-country measures of effective rates are also available. While the rankings of some countries change with the different measures, Ireland invariably comes out with the lowest effective rate in the EU.

12 Though the US authorities levy taxes on the global profits of US firms (i.e. irrespective of where in the world they are generated), low-tax environments are attractive for two reasons. The first arises because US firms are not eligible for a tax rebate from the US authorities when foreign taxes in excess of the US tax rate are levied. Since all foreign income and foreign taxes paid are added together in the computation of the foreign tax credit issued by the US authorities, low-tax environments allow US firms to operate in other foreign high-tax environments without penalty. The second reason arises because foreign profits are taxed in the United States only when repatriated. Firms with tax-haven profits can therefore earn interest on their residual US tax liability for as long as they defer repatriation of these profits (see Hines and Rice 1994).

The estimated tax elasticity of US FDI flows suggests that the stock of US manufacturing investment in Ireland is 70 percent higher than it would have been if Ireland had a tax rate equal to the next lowest EU rate. The effect is even more dramatic compared to the average EU tax rate. Gropp and Kostial (2000) come to a similar dramatic conclusion, suggesting that some 80 percent of Ireland's net FDI inflow would disappear if rates were harmonised at the average EU level.

Besides the low corporate tax regime, another decisive factor in attracting FDI to Ireland has been the Industrial Development Agency (IDA).

Besides the low corporate tax regime, another decisive factor in attracting FDI to Ireland has been the Industrial Development Agency (IDA). In fact, Ireland was one of the first countries in the world to adopt an FDI-based development strategy, and the IDA has consequently amassed a huge amount of experience in this regard. The history of the organisation is related by MacSharry and White (2000) – the authors of which are former Finance Minister and EU Commissioner Ray MacSharry and former IDA Managing Director, Padraic White.

They describe how the organisation in its early days was willing to deal with almost any foreign firm that expressed an interest in coming to Ireland. We saw earlier that many of the early movers were in the textile and clothing sector. This sector, however, could not withstand the cheap imports that later began to flood the European market, while the synthetics segment was devastated by the oil shocks of the 1970s. The IDA began to realise that though job creation would remain crucial, it was necessary to shift the focus to sectors that would be more insulated from competition from lower wage locations, and that jobs might better be created through backward linkages rather than labour-intensive processes.

MacSharry and White (2000, p. 207) summarise the *modus operandi* that ultimately emerged within the IDA as follows. First, the sectors and sub-sectors experiencing international growth – and that were thought to provide a good fit for Ireland's resources and development aims – were identified. To some extent this process of identification, which some might term industrial targeting, is interactive. Having attracted several computer and components firms in the 1970s, for example, and being favourably impressed by their performance *in situ*, electronics and computer software were among the industries listed as meeting these criteria in 1983, when an all-out campaign to develop Ireland as a major European location of such activities began.

In some cases, the identification of niche targets clearly demonstrates the prescience of the policy-makers. In the late 1980s, a policy paper argued that a combination of factors – including global deregulation of financial services and the emergence of an electronic marketplace thanks to improvements in telecommunications – had created an opportunity for a regional location like Ireland to become a player in the international financial services industry. The national advantages were identified as location, language, education and technology. Though the commercial development officer of the Isle of Man, which had created a well-established niche for itself in this sector, cautioned that "Dublin would be better building on its own resources, which do not particularly include financial services", a little over a decade later Dublin's International Financial Services Centre had grown to become one of Europe's largest off-shore financial centres, employing around 8,500 people and managing funds worth over USD 150 billion.

After the identification of target niches, the next step in the IDA process involves identifying the strongest companies in these sub-sectors and approaching them with a view to persuading them to locate in Ireland. Intel, for example, was pursued by the IDA for over a decade before it decided in 1989 to open a plant in Europe, with Ireland ultimately emerging as the chosen location. Moreover, IBM strategists had traditionally shied away from export-platform locations. The IDA, after maintaining contacts with the company for more than two decades, eventually persuaded them that such a move could be beneficial through the success of the Software Development Centre that the company had set up in Ireland to meet its in-house development needs.

The agency of course learns more about an industrial sector once some firms in that sector have located in Ireland. It then assesses whether further processes might be successfully targeted or linkages developed. The key players in the packaged computer software sector in Ireland (including Microsoft, Lotus, Oracle, etc.) first established low-skill software manufacturing facilities in Ireland in the mid-1980s, duplicating and shrink-wrapping simple copies of the software programmes that their parent companies supplied, and arranging for the printing and assembly of manuals. Over time, with the encouragement of the IDA, they added the higher-skilled localisation element (involving translation and reprogramming) and later developed Ireland as their European distribution hub.

It is also worth pointing out that the development agencies (comprising the IDA, Forfás – the research and policy arm, and Enterprise Ireland, which deals with indigenous companies) simultaneously have an influence in the development and upgrading of the human capital and physical infrastructure required to facilitate the country in ascending the ladder of comparative advantage. This brings them into realms not traditionally recognised as lying within the industrial policy remit. In Ireland, they played a major role, for example, in forcing through the modernisation of the country's telecommunications infrastructure in the late 1970s to early 1980s and in convincing the government to use part of its Structural Funds allocations to institute conversion courses to furnish science graduates with electronics qualifications.

The skills and experience of the IDA have come to be widely recognised internationally, and it is frequently commissioned by developing countries to assist them in setting up their own industrial development agencies.

We have just touched upon the skill levels of the Irish workforce, but there is more to note on this matter. Executives of foreign-owned companies rank the availability of appropriate skills as one of Ireland's important advantages. Ireland has been successful in implementing a science-based education strategy that enhances its attractiveness to foreign firms. To illustrate, although still lagging behind the OECD average in terms of the proportion of the cohort group aged between 25 and 34 that has attained at least upper-secondary education, Ireland has converged in terms of attainment of at least a university degree or equivalent, and has surpassed the OECD in terms of the proportion attaining third-level diplomas or their equivalent – a segment of the education market of particular interest to TNCs in Ireland (see OECD 2001). In this context, it should be noted that the extra Irish throughput in tertiary education concentrates in natural sciences and related fields. More specifically, UNESCO (1998) data reveal that 40 percent of Irish tertiary graduates are in natural sciences, agriculture and engineering – which compares to an EU average of only 28 percent.

Executives of foreign-owned firms rank the availability of appropriate skills as one of Ireland's important advantages.

Turning finally to agglomeration and demonstration effects, there is evidence that they have also contributed to Ireland's ability to attract FDI. Barry and Bradley (1997), for example, note that surveys of executives of newly arriving foreign companies in the computer, instrument engineering, pharmaceutical and chemical sectors indicate that the presence of key market players in Ireland strongly influences the location choice of the newcomers. Krugman (1997), focusing on the classic Marshallian external economies, mentions the availability of high-quality specialist services in Ireland and of a pool of workers with requisite skills, and notes the likelihood that technological spillovers have also been important, given the clustering of high-technology industries in the country. Barry *et al.* (2003) provide empirical evidence on the importance of both agglomeration and demonstration effects as determinants of FDI.

To summarise, we have identified Ireland's tax regime, intelligent FDI promotion and support policies – including the development of the labour skills sought by foreign investors – and agglomeration effects as key factors that help explain Ireland's success in attracting foreign investors. But it is clear that non-policy reasons have been important as well. That Ireland and the United Kingdom proved to be particularly attractive locations for US corporations, with the highest levels of US FDI relative to GDP in the EU, was probably also due to strong cultural connections with the United States. Like the United Kingdom, Ireland is English-speaking and represents a geographical bridge between the United States and the EU.[13] Proximity between FDI home and host locations remains a statistically significant determinant of FDI inflows, as seen in gravity models such as that presented by Slaughter (2003) for example. Krugman (1997) emphasises that the reason why distance remains of importance today is likely to arise because of the impediments it places on the speed and ease of communication, meaning that the United Kingdom and Ireland are likely to remain favoured locations for US investors in Europe.

There are other aspects of the general business environment that are also likely to be of importance. These include labour market conditions, the quality of public infrastructure, and the efficiency of the public administration system. Wage costs remain low in Ireland relative to most other EU countries (as seen in Table A1 of the Annex), while the incidence of industrial disputes has fallen to very low levels since the late 1980s, as shown in Barry (2000). Ireland's public infrastructure, which was seriously deficient two decades ago, has also improved substantially with the aid of EU structural funds, particularly in the telecommunications field (see Burnham 1998, for instance).

In closing this section, we shall take a brief look ahead. Given the recent EU enlargement, it is of interest to ask how Ireland fares relative to some of the new EU member states in terms of the international business community's perceptions of the attractiveness of various locations. In this regard, we discuss some data drawn from the work of the Institute for Management Development (IMD). For comparison purposes, data on Portugal and Spain are included as well as on Hungary, the Czech Republic and Poland.

In its 2002 annual report, IMD (2002) assesses 49 countries. Among the countries considered here, Ireland is by far the best positioned across most of these criteria. Exploring the

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13 Kraemer and Dedrick (2002) point out that when Dell Computers first moved into Europe, the company was attracted by locations that were similar to the United Stated in terms of language and business culture.

perception of various aspects of government efficiency, for instance, Ireland ranks among the top quartile with regard to most of the criteria (for details see Table A2 in the Annex), coming out well ahead of the five other EU members considered here. This is also true when looking at human capital as a determinant of FDI (Annex Table A3). This is not the case, however, in terms of the business community's perceptions of the quality of basic infrastructure. As Annex Table A4 shows, Ireland is ranked close to the bottom of the countries surveyed in terms of infrastructure planning. A reason as to why this is so is provided by the May 2003 report of Ireland's National Roads Authority, which records that the cost of the national roads programme had escalated by over 50 percent since 1999, and the expected completion date had shifted to 2010 – four years behind target.

All in all, however, Ireland remains well placed as an attractive destination for FDI. What, though, are the characteristics of the foreign investments that have come to Ireland and for which the country is likely to remain a profitable location in the years to come? This is the next question to be addressed.

4. Characteristics of Ireland's inward FDI

To begin with the sectoral composition of FDI in Ireland, Table 3 shows total employment in each industrial sector as well as sectoral employment in foreign-owned firms. Office and data processing equipment (which in Ireland consists largely of computers), chemicals, and medical and optical equipment record the highest levels of foreign employment in individual sectors, and, in addition, these sectors are almost completely foreign-dominated.

The food, drink and tobacco sector comes next, though domestic firms dominate here. Radio, TV and communications equipment followed by electrical machinery and apparatus appear next in the hierarchy, and these are again strongly foreign-dominated. The table thus reveals the dualistic structure of Irish manufacturing.[14] While the share of total employment in modern, high-tech sectors is high in Ireland relative to most other EU economies, this is seen to be entirely due to the large involvement of foreign direct investors in the country.

Exploring a little further, we note that Ireland's foreign industry includes clusters in information technology, pharmaceuticals, and medical and optical devices. In information technology, for instance, Ireland plays host to world market leaders such as IBM, Intel, Hewlett Packard, Dell and Microsoft. In pharmaceuticals, nine of the top ten companies in the world – including Glaxo, Johnson and Johnson, Pfizer, and Merck – have operations in Ireland, while 13 of the world's top 25 medical devices and diagnostics companies also have bases there.

Ireland's foreign-owned industries include clusters in information technology, pharmaceuticals, and medical and optical devices.

But what explains the precise sectors in which Ireland has been successful in attracting FDI? The answer is likely to reveal a close match between the characteristics of the sectors

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14 In some services sectors, the share of foreign-firm employment is also high. This applies, for instance, to internationally traded services (excluding software), computer software, and financial services; in 2000, employment in these sectors stood at about 18 500, 16 000, and 6 500, respectively.

attracted and the characteristics of the host location, and this is so even if one believes the industrial targeting practices of the IDA have been important. Why so? The first point to note is that even if the IDA had chosen to target a sector with characteristics ill-suited to the Irish environment, it is unlikely that it could have achieved such success as to affect appreciably the sectoral structure of the economy. We will provide examples from the aerospace and motor vehicles industries below that illustrate this. A second point is that – as the stories related above about the transformation of the country's telecommunications infrastructure and the emphasis on science graduates with electronics qualifications reveal – the IDA itself has had an effect on Ireland's factor endowments and hence on its comparative advantage. Lipsey (2003) makes the point that "exports depend not only on the factor endowments and advantages of the country as a geographical entity, but also on the firm-specific advantages of the firms producing there." By attracting such firms, Ireland's comparative advantage has also been transformed. A final point relates to the *modus operandi* of the organisation, as described earlier. Firms were pursued with a view to persuading them to locate in Ireland only if their activities were thought to provide a good fit for Ireland's resources and development aims.

Table 3.   Manufacturing employment (total and in foreign-owned firms) by sector, 2000

	Total employment	Sector share (in %)	Employment in foreign-owned firms	Foreign employment in % of sector total
Food, drink and tobacco	48,102	*18.8*	13,170	*27.4*
Textiles, clothing and footwear	10,989	*4.3*	3,703	*33.7*
Wood and wood products	6,249	*2.4*	1,111	*17.8*
Paper and printing	23,816	*9.3*	7,457	*31.3*
Chemicals	23,198	*9.1*	17,874	*77.0*
Rubber and plastics	10,846	*4.2*	3,951	*36.4*
Non-metallic minerals	11,166	*4.4*	1,584	*14.2*
Metal products	16,884	*6.6*	3,554	*21.0*
Machinery and equipment	14,396	*5.6*	6,436	*44.7*
Office and data processing	20,723	*8.1*	18,303	*88.3*
Electrical machinery and apparatus	15,141	*5.9*	9,438	*62.3*
Radio, TV and communications	14,993	*5.9*	12,785	*85.3*
Medical and optical equipment	18,110	*7.1*	15,335	*84.7*
Transport equipment	9,610	*3.8*	5,365	*55.8*
Miscellaneous	11,421	*4.5*	2,912	*25.5*
Total	255,644	*100.0*	122,978	*48.1*

Source: Irish Census of Industrial Production (2000).

Given these explanations it is not difficult to see why FDI in Ireland should be concentrated in particular sectors. Let us consider the high-tech nature of the predominant sectors first of all. Their classification as high-tech sectors is based on their research and development (R&D) intensity worldwide, not on their R&D intensity in Ireland. Manipulation of transfer prices in order to shift profits to low-tax locations is easiest in R&D- and advertising-intensive sectors because these factors make it difficult to locate the

exact source of value added. According to Davies and Lyons' (1996) categorisation, such advertising and R&D-intensive sectors accounted for over 65 percent of foreign employment in Irish manufacturing in 2000, up from 45 percent of a much smaller base in 1973. This increasing share can be ascribed either to changes in factors other than the tax rate – such as the economy's increasing stock of human capital – or to a possible increase in the elasticity of FDI flows with respect to corporate tax rates, for which Altshuler *et al.* (2001) provide evidence.

Ireland's geographical location on the periphery of Europe is also likely to have impacted on the types of foreign industry that the country could have attracted. Interesting evidence on this comes from a recent study by Midelfart *et al.* (2000). They isolate the 12 industries (out of a total of 36) that were most concentrated in the EU 'core' in the early 1970s (C) and the 12 industries that were most dispersed (D) across the entire EU at that time. They then divide the concentrated sectors into those that retained their concentrated status into the mid-1990s (CC) and those which had become more dispersed (CD), and equivalently divide the dispersed sectors into those that remained amongst the most dispersed in the mid-1990s (DD) and those that had become more concentrated (DC).

The sectors that have remained amongst the most concentrated (CC) include ones that are characterised by strong plant-level economies of scale, such as the motor vehicle and aircraft industries. The dispersed industries that have become more concentrated (DC) tend to be low-skill-intensity sectors such as textiles, clothing and footwear, which have become concentrated in the poorer EU cohesion countries.

The main sectors of interest to us are those that concentrated in the EU core in the early 1970s, but have become more dispersed since then – the CD group. These industries (which include office and computing machinery; professional instruments; radio, TV and communications; and machinery and equipment) all have relatively high skill intensities, medium as opposed to high economies of scale, and relatively low transport costs. This makes them suitable for relocation to high-skill peripheral regions. Ireland has developed particularly successfully into all of these sectors, as seen in Table 4 (as has Finland, with the exception of professional instruments). To illustrate, in 1973-76, sectors that were geographically concentrated (but are now more dispersed) accounted for around 11 percent of manufacturing employment. By 2000, the employment share of these sectors had increased to almost 30 percent. At the same time, the CD group accounted for almost half the jobs in foreign-owned firms, and close to 80 percent of the jobs in the CD sectors were in foreign-owned firms.

High skill-intensity, moderate economies of scale, and low transport costs characterise industries that are suitable for relocation to high-skill peripheral regions such as Ireland.

Targeting by the IDA helped capture these sectors for Ireland rather than having them go elsewhere, and the agency played a crucial role in advertising Ireland's advantages, in convincing potential investors that apparent difficulties could be overcome, and in capturing the important "flagship projects" that are of importance in cluster development. Had the agency instead tried to target sectors such as aerospace and motor vehicles – sectors found not to have become more mobile – the chances of success would have been very much poorer.[15]

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15 The Potez aerospace company represents a case in point. This project was supported for years by the Irish development agencies but never proved successful. Nor did the DeLorean automobile venture in Northern Ireland.

Table 4.   Shares of Irish manufacturing employment, by group of sectors (in %)

Sector group	Employment share of group in total manufacturing employment		Proportion of total "foreign" manufacturing jobs (2000)	Proportion of "foreign" manufacturing jobs in each group (2000)
	1973-76	2000		
CC	9.5	13.5	18.9	67.5
CD	11.1	29.5	47.3	77.5
DC	19.3	6.7	3.9	27.9

Notes: CC = manufacturing industries that were geographically concentrated in the 1970s and remain so today;
CD = manufacturing industries that were concentrated in the 1970s, but are dispersed today;
DC = manufacturing industries that were geographically dispersed in the 1970s, but are concentrated today.
Source: Eurostat Daisie database for 1970s; Irish Census of Industrial Production for 2000.

Is FDI in Ireland of the horizontal or vertical type? To recall, horizontal FDI duplicates the activities in which a firm engages in its home location and is undertaken to gain an advantage in supplying local or regional markets. Vertical FDI on the other hand entails the fragmentation of production, with different parts or components being produced in different locations. Until recently, the consensus has been that most FDI is of the horizontal type, as most FDI flows are between developed countries with relatively similar factor endowments. In practice, however, it is very difficult to distinguish between the two types of FDI. For example, most R&D occurs at the firm's home base and does not need to be replicated elsewhere.

Ireland is an export platform for transnational corporations and attracts both horizontal and vertical FDI.

What can we say of the Irish case? Activities in which US corporations use Ireland as a production base from which to export into the EU should best be regarded as horizontal. In the information technology sector for example, most of the computers produced by Dell and the packaged software products produced by Microsoft at their Irish plants are bound for markets in Europe, the Middle East and Africa. In the case of electronic components however, produced in Ireland by Intel and a number of other firms, the United States is as important an export destination as the EU. Further evidence suggestive of vertical FDI comes from Görg (2000) who focuses on inward processing trade between the United States and Europe. This is a procedure whereby goods can be imported into the EU for processing and subsequent re-export beyond the EU without payment of EU duties. He shows that by the latest date in his analysis, 1994, a full 44 percent of Irish imports from the United States were in this category, by far the largest proportion of any EU country. Thus both types of FDI would appear to be important in the Irish case.

We will close this section with a brief comparison of foreign-owned and indigenous firms.[16] To begin with, the operations of foreign manufacturing plants in Ireland are substantially larger than those of Irish indigenous plants. They employ on average six times as many workers, and have a capital-labour ratio 2.3 times that of indigenous plants.

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16 Because of the paucity of services-sector data we confine ourselves here to a comparison of the characteristics of manufacturing firms.

Furthermore, the average wage paid by foreign firms is 1.3 times that paid by domestic firms. In part, this is due to higher average skill levels. Administrative and technical staff comprise 16 percent of employment across all manufacturing, but account for 25 percent and 20 percent respectively in such foreign-dominated sectors as chemicals and electrical and optical equipment. The average wage of industrial workers in these sectors is 1.3 and 1.9 times the average across all manufacturing industries.[17] In this context, it is also worth pointing out that training expenditures per employee in foreign firms are five times the levels prevailing in indigenous firms while R&D expenditures per employee are one and a half times greater.[18]

Foreign firms are also more globalised in terms of export-orientation and sourcing of inputs. 57 percent of inputs used by foreign industry are imported compared to a figure of only 27 percent for indigenous industry. Foreign firms export on average 92 percent of gross output, compared to the indigenous average of 31 percent.[19] Thus Ireland serves primarily as an export platform for the foreign companies. US firms are the most export-oriented, exporting 96 percent of gross output, while German firms export 92 percent and UK firms only 55 percent.

Finally, while the United Kingdom is more important than continental Europe as a destination for indigenous exports (40 vs. 35 percent of indigenous exports) – and is much more important for UK-owned firms operating in Ireland – the situation is reversed for aggregate foreign industry: only 18 percent of overall foreign-industry exports go to the United Kingdom while almost 50 percent go to the rest of the EU.

In sum, the main characteristics of Irish inward FDI include a high concentration of foreign activities in modern, high-tech, high-skill sectors, with clusters in information technology, pharmaceuticals, and medical and optical devices. But what does all this mean for the performance of the Irish economy? We try to answer this question in the next section.

5. The contribution of FDI to the Irish economy

We have shown earlier the levels of direct employment in foreign-owned industries. If there were a closed and market-clearing labour market, additional employment in foreign-owned sectors would come at the expense of employment losses elsewhere in the economy. The Irish labour market is far from closed, however and, as mentioned above, the prevailing unemployment rate in 1987 was 17 percent. In these circumstances, foreign industry can create further knock-on employment effects through, for instance, backward linkages, spending effects, spillovers to indigenous firms, and increased tax payments. When large enough relative to the economy, as is the case in Ireland, all this can also have discernable effect on economic growth. These are the issues to which we now turn our

In an open labour market, such as Ireland's, foreign industry can create knock-on employment effects through a variety of channels.

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17 However, it is unclear due to data deficiencies whether these differences in skills and wages are related to industry or ownership characteristics.

18 On a sector-by-sector basis, however, R&D expenditures per employee in Ireland are low. It is thought that the low corporate tax environment might inhibit R&D, since R&D costs can be written off against higher tax rates elsewhere.

19 The difference is not so extreme in the case of one of the services sectors – computer software – for which such data are available. In 2002, foreign software firms in Ireland derived 95 percent of their revenues from exports, while the equivalent figure for domestic software firms was 85 percent.

attention, focussing on the impact of inward FDI on indigenous industries, on economic growth and on the corporate tax revenues of the Irish government.

In principle, there can be both positive and negative interactions between indigenous and foreign firms. Foreign presence can have negative implications for indigenous firms when the latter are crowded out of either product or factor markets. Positive interactions can arise when indigenous firms act as sub-suppliers to foreign-owned firms, or when productivity spillovers occur.

There is little product-market competition between indigenous and foreign firms in the Irish case. Firstly, since the foreign-owned sector is almost completely export oriented, there is little product-market competition on the home front. Secondly, the sectoral origins of foreign and domestic exports are quite different. Over 80 percent of foreign-company exports came from the chemicals and electrical equipment sectors, which account for only a little over 10 percent of indigenous exports. Thirdly, the export destinations of foreign and indigenous firms are quite different, with the bulk of foreign-sector exports shipped to EU countries other than the United Kingdom while most indigenous-firm exports go to the United Kingdom. This suggests that the dominant form of crowding out will come through the labour market.

Barry *et al.* (2002) present some indication of such crowding out. They explore the impact of foreign presence on productivity and wages in larger indigenous companies. Since sub-supplying to foreign companies is unlikely to be of great importance to these firms, the main interaction might be expected to operate via the labour market. Consistent with a model in which foreign firms compete against indigenous exporting firms in the market for skilled labour, foreign presence is found to reduce wages and labour productivity in indigenous exporting firms (averaged over skilled and unskilled workers). By contrast, there is no evidence of such a negative effect on wages and labour productivity in indigenous firms producing for the local market, essentially because they primarily employ less skilled labour, which is not in high demand by foreign firms.

Let us now consider possible positive interactions between foreign and indigenous firms. We first look at input-output linkages. The Irish state agency, Forfás, regularly publishes an Irish-economy expenditures survey which distinguishes between indigenous and foreign firms and provides data on wages, Irish materials and services purchased, indigenous-firm profits and the profits tax revenues received from foreign firms.

Based on these data, Barry *et al.* (1999) show that real Irish-economy expenditures per employee rose by around 50 percent between 1983 and 1995 for both types of firms. While Irish-economy expenditures per employee are lower for foreign industry, the employment that the latter creates is estimated to be higher because of the greater share of spending directed towards services – in contrast to the case of indigenous firms for whom the bulk of spending goes on materials. A ballpark estimate is suggested of around one hundred service sector jobs and ten indigenous manufacturing jobs created via backward-linkages per one hundred foreign manufacturing employees.

Of course, these interactions between upstream and downstream sectors can impart an important dynamic to the economy, as Markusen and Venables (1999) suggest. They point

out that foreign TNCs create additional demand for domestically produced intermediates, which – in the presence of scale economies – can lead to a decrease in average costs and an increase in firm entry. The resulting fall in the price of intermediates can, in turn, induce entry into the final-goods sector. Görg and Strobl (2002) provide empirical support for these effects in the Irish case, demonstrating that indigenous-firm entry is positively affected by foreign-firm presence in the same sector and in industries downstream of that sector.

Foreign presence can also give rise to technological spillovers, a topic explored for the Irish case by Görg and Strobl (2003). They posit that technological spillovers reduce the recipient firm's average production costs, yielding a positive effect on the firm's survival rate. Using the equivalent of sectoral dummies to take into account the fact that TNCs tend to locate in high-productivity sectors, they find that foreign presence does indeed have a life-enhancing effect on domestic firms, though only in high-tech sectors. They find no such evidence for domestic low-tech plants, speculating that this may be due to a lack of absorptive capacity on their part.

Evidence for positive spillovers from foreign to indigenous firms in Ireland include an increase in indigenous firms' productivity and the creation of new firms by former employees of foreign-owned firms.

The impact of foreign presence on the entry rate of Irish indigenous manufacturing firms may also be related to their role as "incubators" for new entrepreneurs. A recent study on the Irish indigenous software sector, for example, finds that one-third of entrepreneurs had worked in foreign firms immediately before the start up of the new firm, while two-thirds had worked in foreign firms at some stage in their careers; O'Gorman *et al.* (1997). The study also argues that foreign firms in Ireland have been an important source of demand – with a requirement for high standards – in the early stages of new indigenous start-ups.

But what do all these effects imply for the macroeconomic bottom line, i.e. real economic growth? FitzGerald and Kearney (2000) explore the impact of Ireland's increased FDI inflows with simulations of a macroeconometric model of the Irish economy. Because the bulk of FDI inflows to Ireland comes from the United States, Irish GDP is influenced particularly strongly by US GDP. One way to represent the effects of the increased inflows of the 1990s is to increase the elasticity of Irish GDP with respect to US GDP from 1990 onwards. This econometric specification allows the model to track the improved performance of the Irish economy adequately over that period.[20] To explore the role of the increased FDI inflows in this setting, FitzGerald and Kearney (2000) leave the elasticity of Irish with respect to US GDP unchanged at its 1990 level to generate a picture of how the Irish economy might have looked in the absence of the increased FDI inflows.

This simulation shows a reduction by 1998 of over 17 percent of GDP relative to the benchmark, amounting to a reduction in the annual average growth rate of around two percentage points. Moreover, employment would have been 12 to 15 percent lower by the late 1990s, as would the level of skilled wages. Emigration would have replaced the substantial immigration that actually characterised the period. Unskilled wage rates in the

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20 Of course this might simply be a proxy for omitted variables that are important in explaining the boom. Another criticism is that this approach focuses only on the supply of FDI as influenced by US market conditions and fails to take into account the impact of EU-market conditions on the demand for export-platform FDI. Jarrett (1999), former head of the Ireland desk at the OECD, also concludes however – along with FitzGerald and Kearney (2000) – that the role of FDI in Ireland's employment growth is best proxied by US real growth (and stock market outcomes).

model are fixed by the level of unemployment benefits and, with no unskilled migration, unskilled unemployment would have been almost five percentage points higher by the end of the period.

While it is clear that the specification of FDI is overly simplified in these simulations, they nonetheless serve as an illustration of the possible importance to the Irish economy of the increased FDI inflows.

A positive impact of FDI on economic growth can also be expected to boost tax revenue, Indeed, notwithstanding the low effective corporate tax rate, the high level of profits recorded in Ireland ensures that corporate tax receipts as a proportion of GDP, at 3.8 percent in 2000, is at the same level as the EU average (Figure 5). Furthermore, foreign companies paid some 44 percent of the total corporate tax take in 2001, a figure that is likely to be surpassed today given the decline in the tax rate levied on the domestic services sector, as seen earlier.

Figure 5. Corporate tax revenue (% of GDP) in Ireland and the EU-15, 1965-2000.
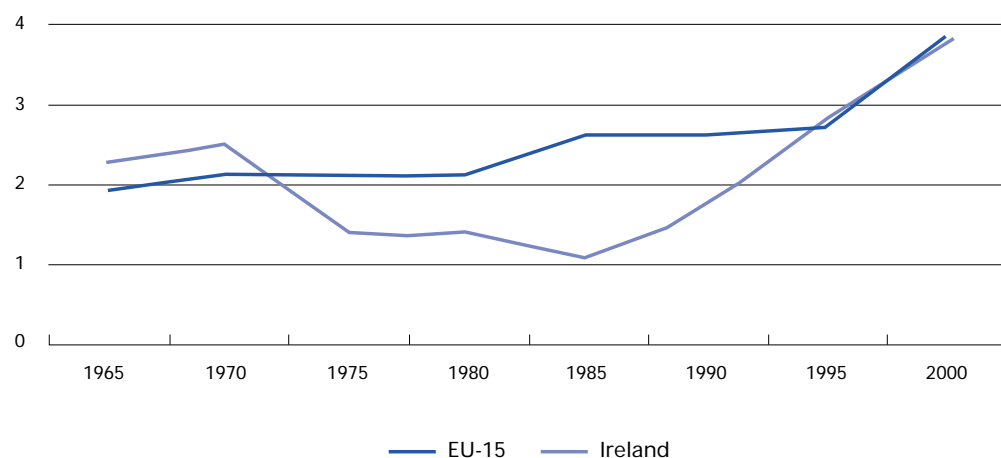
Source: OECD Revenue Statistics, 1965-2001.

6. Concluding comments

The experience of Ireland suggests that attracting FDI must be accompanied by sound economic policies to be fully beneficial.

Ireland was one of the first countries in the world to adopt an FDI-oriented export-platform development strategy. By 1980, if not far earlier, the country's relative success in attracting FDI was apparent. Yet Ireland had barely converged on EU living standards over the previous two decades. Clearly, success in the FDI stakes is insufficient to guarantee real income convergence.

Other adverse factors had inhibited convergence over the decades of the 1960s, the 1970s and most of the 1980s. Irish real wage growth was far more rapid than in the other cohesion countries in the 1960s for example, even though the country exhibited higher

unemployment and lower productivity growth than elsewhere. This experience can be taken as evidence of the corrosive effects of labour-market rigidities on growth and convergence prospects.[21] Poor macroeconomic policymaking in the 1970s and the legacy of debt this left in the 1980s would seem – in line with Fischer's (1993) analysis – to have inhibited convergence still further.

The more benign circumstances of the late 1980s allowed a resolution of these problems. The emergence of a broad political and social consensus against a backdrop of rapid growth in the neighbouring UK economy allowed fiscal cutbacks to be implemented without tipping the economy into recession. Social partnership purchased wage moderation in exchange for the promise of future income tax reductions, after almost a decade of the most rapid tax increases in the OECD. The difficulties were being sorted out just as the pool of FDI expanded in Europe with the advent of the Single Market and the US high-tech boom.

Ireland then found itself in a uniquely favourable position to capture a substantially increased share of these flows. Corporate tax rates remained the lowest in Europe, the country's Industrial Development Agency was vastly experienced in identifying and attracting potential investors, the country itself has a strong track record in hosting increasingly high-tech FDI and its third-level educational system was uniquely geared towards matching the skills of its graduates with the needs of such investors. It is this that caused the OECD in its 1999 report on Ireland to conclude that "most of the items that have contributed to the improvement are well known to other policy makers, but other countries' situations may not be so propitious as to allow such a strong response, even to fully appropriate incentives and institutional arrangements" (OECD 1999, p.10).

Following the economic policy reorientation of the late 1980s, Ireland was in a strong position to capture a substantially increased share of expanding FDI flows to Europe.

What now of the threats on the horizon? Many of the countries of Central and Eastern Europe have kept a sharp eye on Ireland's success and a number of them have followed down the road of low corporate tax rates. It appears at present more likely that these countries will integrate into existing EU production networks – at least in the sectors in which Ireland has achieved such success so far – than that they will divert FDI sharply away from Ireland.

A graver threat is posed by the possibility of EU-wide corporate tax harmonisation, driven by concerns over a "race to the bottom". This argument has most force, however, in the case where countries are symmetric, in the sense that each offers equal attractions – other than tax rates – to transnational corporations. This is not likely to apply in practice. Imagine to the contrary that at harmonised tax rates the attractions of "core" locations – good infrastructure, locations close to the main centres of purchasing power in Europe, strong systems of national innovation etc. – dominate the attractions of the periphery, which consist largely of lower wage costs. Core countries could then exploit these rents via higher corporate tax rates. One could argue that this is exactly the type of equilibrium that prevails today in Europe.

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21 Daveri and Tabellini (2000) present econometric evidence on this, and similar results emerge from the simulations of Barry *et al.* (2003).

What if the EU were to push ahead with tax harmonisation regardless of these considerations? Some estimates were presented earlier of how much FDI Ireland might stand to lose. Adjustment would be very difficult if the country were forced to rely on its own domestic-industry resources. Only 10 percent of indigenous manufacturing employment is in high-tech sectors, compared to 56 percent of jobs in the foreign sector. Indigenous manufacturing firms export less than one-third of their output, which is quite low by EU standards, and are heavily concentrated on the UK market, making them vulnerable to currency fluctuations. They spend little on R&D and the sector has a poor record in developing patentable processes or inventions. Furthermore, Irish-owned TNCs are disproportionately located in non-traded sectors, such as construction and paper and packaging, and do not exhibit the type of "created asset" intensity – derived from R&D and strong product differentiation – that has been found for Korean or Taiwanese TNCs by Dunning *et al.* (2001). If Ireland's foreign industry were to disappear precipitously, much of the economic progress made over the boom period could well disappear along with it.

Annex

Table A.1   Hourly compensation costs for production workers in manufacturing (in USD)

	1975	1980	1985	1990	1995	2000
United States	6.4	9.9	13.0	14.9	17.2	19.7
Austria	4.5	8.9	7.6	17.8	25.3	19.5
Belgium	6.4	13.1	9.0	19.2	27.6	21.6
Denmark	6.3	10.8	8.1	18.0	25.0	21.5
Finland	4.7	8.3	8.3	21.3	24.3	19.5
France	4.5	8.9	7.5	15.5	19.4	15.7
Germany	6.3	12.2	9.5	21.8	30.3	23.0
Greece	1.7	3.7	3.7	6.8	9.1	n.a.
Ireland	3.1	6.0	6.0	11.8	13.8	12.5
Italy	4.7	8.2	7.6	17.5	16.2	14.0
Luxembourg	6.3	11.5	7.5	16.0	23.5	17.7
Netherlands	6.6	12.1	8.8	18.1	24.1	19.1
Portugal	1.6	2.1	1.5	3.8	5.4	4.8
Spain	2.5	5.9	4.7	11.4	12.8	10.8
Sweden	7.2	12.5	9.7	20.9	21.4	20.1
United Kingdom	3.4	7.6	6.3	12.7	13.8	16.5

Notes: West Germany to 1990, thereafter unified Germany.
Source: US Bureau of Labor Statistics (August 2003).

Table A.2   Competitiveness factors: government efficiency (2002)

	Portugal	Spain	Ireland	Hungary	Czech Republic	Poland
The legal framework is not detrimental to competitiveness	3.53 (42)	5.85 (24)	6.91 (12)	5.93 (23)	4.25 (34)	2.91 (46)
Real corporate taxes do not discourage entrepreneurial activity	3.94 (39)	5.73 (19)	7.96 (2)	6.59 (9)	4.50 (32)	2.96 (48)
Economic policies adapt quickly to changes in the economy	2.85 (45)	5.64 (12)	6.53 (4)	5.56 (13)	4.67 (25)	3.13 (42)
Government decisions are effectively implemented	2.70 (46)	5.58 (15)	6.32 (8)	5.56 (16)	4.67 (26)	3.03 (44)
Transparency of government policy	3.07 (46)	5.94 (18)	6.19 (15)	3.41 (43)	4.40 (32)	3.20 (45)
Bureaucracy does not hinder business activity	1.69 (44)	3.82 (21)	5.32 (8)	3.63 (23)	3.00 (26)	1.26 (48)
Personal security and private property are adequately protected	6.48 (23)	6.33 (26)	7.37 (18)	5.70 (32)	5.67 (33)	2.86 (42)
Foreign companies are not discriminated against by domestic legislation	8.44 (16)	8.18 (23)	9.37 (3)	7.93 (27)	8.28 (19)	6.88 (44)
Labour regulations are flexible enough	2.50 (47)	3.82 (33)	6.04 (12)	7.19 (6)	5.44 (16)	2.52 (45)
Access to local capital markets is not restricted for foreign firms	8.85 (12)	8.38 (26)	9.05 (10)	8.52 (21)	8.72 (17)	6.68 (43)
Investment incentives are attractive to foreign investors	6.39 (24)	6.46 (23)	8.60 (2)	7.56 (8)	8.83 (1)	4.60 (40)
Venture capital is easily available for business development	4.58 (28)	4.89 (22)	6.67 (5)	3.48 (35)	3.17 (40)	3.42 (37)
Banking services are widely developed	7.92 (26)	8.03 (25)	8.07 (24)	7.11 (32)	5.89 (41)	6.38 (37)
Stock markets provide adequate financing to firms	4.25 (34)	6.25 (17)	6.04 (22)	3.63 (41)	2.17 (46)	3.97 (37)
Image abroad supports the development of business	4.78 (34)	6.39 (21)	8.32 (3)	6.67 (19)	6.25 (23)	3.82 (39)

Notes: The evaluation ranges from 0 (representing the worst competitive position) to 10 (representing the best); values in brackets represent the ranking in a total of 49 countries.

Source: IMD (2002) and Crespo *et al.* (2004).

Table A.3   Competitiveness factors: human capital (education and sciences) (2002)

	Portugal	Spain	Ireland	Hungary	Czech Republic	Poland
PISA test score (number of points): reading literacy	470 (22)	493 (15)	527 (3)	480 (19)	492 (16)	479 (20)
PISA test score (number of points): scientific literacy	459 (22)	491 (16)	513 (7)	496 (13)	511 (9)	483 (18)
PISA test score (number of points): mathematical literacy	454 (21)	476 (18)	503 (12)	488 (17)	498 (14)	470 (19)
Total public expenditure on education in % of GDP	5.6 (20)	4.5 (28)	6.7 (12)	6.3 (15)	4.2 (30)	5.9 (18)
The educational system meets the needs of a competitive economy	3.03 (44)	4.89 (25)	8.00 (2)	6.67 (10)	5.64 (20)	3.64 (40)
University education meets the needs of a competitive economy	3.89 (45)	5.14 (32)	8.04 (3)	6.96 (13)	6.03 (22)	3.94 (44)
Economic literacy	3.53 (42)	4.77 (30)	7.02 (8)	5.78 (22)	5.11 (28)	2.90 (47)
Qualified engineers are available in labour market	5.53 (42)	6.95 (26)	7.29 (22)	8.30 (4)	7.67 (16)	6.63 (30)
Knowledge transfer between firms and universities	2.86 (45)	3.36 (36)	5.65 (11)	4.44 (25)	4.42 (27)	2.72 (46)
Total expenditure on R&D in % of GDP	0.753 (31)	0.897 (28)	1.608 (20)	0.806 (30)	1.352 (23)	0.700 (33)
Science in schools is adequately taught	3.25 (45)	4.58 (32)	5.09 (25)	7.00 (3)	6.39 (10)	3.79 (40)
Information technology skills are readily available in labour force	6.11 (40)	6.06 (42)	7.93 (10)	7.26 (26)	6.72 (32)	6.59 (33)
Labour relations are generally productive	5.53 (33)	5.88 (30)	7.26 (11)	6.74 (18)	6.17 (27)	4.76 (43)
Worker motivation is high	4.53 (40)	5.42 (32)	7.16 (8)	5.85 (25)	5.56 (30)	3.71 (46)
Skilled labour is available in labour market	5.07 (43)	6.33 (36)	7.05 (26)	7.11 (23)	7.33 (18)	6.38 (34)

Notes: Unless otherwise indicated, the evaluation ranges from 0 (representing the worst competitive position) to 10 (representing the best); PISA results (15 years of age) are from 2000 and cover 23 countries; values in brackets represent the ranking in a total of 23 and 49 countries, respectively.

Source: IMD (2002) and OECD (2001).

Table A.4   Competitiveness factors: basic, technological, health and environment infrastructure (2002)

	Portugal	Spain	Ireland	Hungary	Czech Republic	Poland
Maintenance and development of infrastructure is adequately planned and financed	4.97 (28)	6.12 (18)	4.32 (31)	4.22 (32)	4.97 (28)	2.65 (45)
Quality of air transportation is adequate and efficient	6.82 (27)	6.48 (31)	5.75 (39)	5.93 (38)	7.00 (23)	4.55 (45)
The distribution infrastructure of goods and services is efficient	6.03 (28)	6.15 (26)	3.54 (46)	4.89 (36)	5.67 (30)	3.68 (43)
Energy infrastructure is adequate and efficient	6.28 (30)	5.18 (38)	5.86 (33)	6.69 (26)	7.94 (15)	5.57 (35)
Adequacy of communications (availability, reliability, cost)	6.47 (34)	6.06 (38)	6.48 (33)	7.19 (26)	7.17 (27)	4.93 (47)
New information technology and its implementation meet business requirements	6.64 (33)	5.76 (45)	6.49 (36)	6.81 (30)	7.14 (27)	4.70 (49)
Suitable internet access (availability, speed, cost) is provided	6.92 (34)	6.09 (44)	6.00 (46)	6.07 (45)	6.94 (31)	4.16 (49)
Fixed telephone lines (number of main lines per 1000 inhabitants)*	441 (28)	460 (26)	503 (22)	368 (32)	378 (30)	296 (34)
Mobile telephone (number of subscribers per 1000 inhabitants)*	823.1 (7)	731.4 (14)	753.5 (12)	484.5 (28)	676.4 (21)	258.6 (35)
Number of computers per 1000 people*	178 (31)	231 (27)	461 (14)	176 (32)	179 (30)	122 (34)
Number of internet users per 1000 people*	190 (31)	199.3 (29)	289.5 (24)	168.8 (33)	198.3 (30)	125.5 (35)
Health infrastructure meets the needs of society	3.53 (39)	7.15 (13)	4.63 (30)	2.15 (47)	6.50 (22)	2.38 (46)
Environmental laws and compliance do not hinder the competitiveness of business	6.11 (24)	6.48 (17)	6.56 (14)	6.52 (16)	5.61 (35)	4.41 (48)
Quality of life	6.00 (29)	8.58 (15)	7.93 (19)	5.19 (35)	6.33 (25)	3.51 (44)
National culture is open to foreign ideas	8.00 (11)	6.85 (34)	7.65 (19)	6.89 (32)	6.61 (38)	5.85 (45)
Values of the society support competitiveness	5.64 (39)	5.76 (35)	7.54 (10)	6.59 (25)	5.72 (37)	4.61 (46)
Office rent – total occupation cost (USD per sq. metre per year)*	302 (21)	461 (38)	568 (44)	254 (15)	284 (19)	413 (31)

Notes: Unless otherwise indicated, the evaluation ranges from 0 (representing the worst competitive position) to 10 (representing the best); values in brackets represent the ranking in a total of 23 and 49 countries, respectively.
Source: IMD (2002); * values in 2001.

References

Altshuler, R., Grubert, H. and Newlon, T. S. (2001). "Has US investment abroad become more sensitive to tax rates?", in Hines, J.R. Jr. (ed.), *International taxation and multinational activity*, University of Chicago Press, Chicago, USA.

Baccaro, L. and Simoni, M. (2002). *Irish social partnership and the Celtic Tiger phenomenon, (unpublished)*, International Labour Office, Geneva, Switzerland.

Barry, F. (1999). *Understanding Ireland's economic growth*, Macmillan Press, London, UK and St. Martin's Press, New York, USA.

Barry, F. (2000). "Convergence is not automatic: lessons from Ireland for Central and Eastern Europe". *World Economy*, (23:10), pp. 1379-1394.

Barry, F. (2002). "The Celtic tiger era: delayed convergence or regional boom?". *Economic and Social Research Institute* (Quarterly Economic Commentary), pp. 84-91.

Barry, F. (2003) "Economic integration and convergence processes in the EU cohesion countries". *Journal of Common Market Studies*, (41:5), pp. 897-921.

Barry, F. and Bradley, J. (1997). "FDI and trade: The Irish host-country experience". *Economic Journal*, (107), pp. 1798-1811.

Barry, F., Bradley, J., Kejak, M. and Vavra, D. (2003). "The Czech economic transition: exploring options using a macrosectoral model". *Economics of Transition*, (11:3), pp. 539-567.

Barry, F., Bradley, J. and O'Malley, E. (1999). "Indigenous and foreign industry", in F. Barry (ed.), *Understanding Ireland's economic growth*, Macmillan, London, UK.

Barry, F. and Devereux, M. (1995). "The expansionary fiscal contraction hypothesis: a neo-Keynesian analysis", *Oxford Economic Papers*, (47), pp. 249-264.

Barry, F., Görg, H. and Strobl, E. (2002). *Productivity spillovers and labour-market crowding out: interactions between foreign and domestic firms in Irish manufacturing, (unpublished)*, University College Dublin, Ireland.

Barry, F., Görg, H. and Strobl, E. (2003). "Foreign direct investment, agglomerations and demonstration effects: an empirical investigation". *Weltwirtschaftliches Archiv*, (139:4), pp. 583-600.

Burnham, J. (1998). "Global telecommunications: a revolutionary challenge". *Business and the Contemporary World*, (2), pp. 231-248.

Crespo, N., Fontoura, M. P. and Barry, F. (2004). "Enlargement and the Portuguese economy", *World Economy*, forthcoming.

Daveri, F. and Tabellini, G. (2000). "Unemployment, growth and taxation in industrial countries". *Economic Policy*, (30), pp. 47-104.

Davies, S. and Lyons, B. (1996). *Industrial organisation in the EU*, Clarendon Press, Oxford, UK.

De la Fuente, A. and Vives, X. (1997). "The sources of Irish growth", in Alan Gray (ed.), *International Perspectives on the Irish Economy*, Indecon, Dublin, Ireland. Also available as CEPR Discussion Paper No. 1756.

Desai, M.A., Foley, C. F. and Hines, J. (2002). "Chains of ownership, regional tax competition and foreign direct investment". NBER Working Paper No. 9224.

Dunning, J.H., Kim, C.S. and Lin, J.D. (2001). "Incorporating trade into the industrial development path". *Oxford Development Studies*, (29), pp. 145-154.

Ferreira, L. and Vanhoudt, P. (2002). "Catching the Celtic tiger by its tail". EIB Economic and Financial Report No. 2002/01. Forthcoming in *European Journal of Education*.

Fischer, S. (1993). "The role of macroeconomic factors in growth". *Journal of Monetary Economics*, (32: 3), pp. 485-512.

FitzGerald, J. and Kearney, I. (2000). "Convergence in living standards in Ireland: the role of the new economy". Economic and Social Research Institute Seminar Paper No. 134.

Görg, H. (2000). "Fragmentation and trade: US inward processing trade in the EU", *Weltwirtschaftliches Archiv*, (136: 3), pp. 403-422.

Görg, H. and Strobl, E. (2002). "Multinational companies and indigenous development: an empirical analysis". *European Economic Review*, (46:7), pp. 1305-1322.

Görg, H. and Strobl, E. (2003). "Multinational companies, technology spillovers and plant survival: evidence for Irish manufacturing". *Scandinavian Journal of Economics, forthcoming.*

Gropp, R. and Kostial, K. (2000). "The disappearing tax base: is foreign direct investment eroding corporate income taxes?". ECB Working Paper No. 31.

Honohan, P., and Walsh, B. (2002). "Catching up with the leaders: the Irish hare", *Brookings Papers on Economic Activity*, (1), pp. 1-57.

Hines, J.R. and Rice E.M. (1994). "Fiscal paradise: foreign tax havens and American business". *Quarterly Journal of Economics*, (109:1), pp. 149-82.

IMD (2002). World *competitiveness yearbook*, Institute for Management Development Lausanne, Switzerland.

Jarrett, P. (1999). "Review of understanding Ireland's economic growth". *Economic and Social Review*, (30:2), pp. 197-200.

Kraemer, K., and Dedrick, J. (2002). Dell Computer: *organisation of a global production network*, Center for Research on Information Technology and Organizations, University of California, Irvine, USA.

Krugman, P. (1997) "Good news from Ireland: a geographical perspective", in Alan Gray (ed.), *International perspectives on the Irish economy*, Indecon, Dublin, Ireland.

Lipsey, R. (2003). "Discussion of 'EU Accession and Prospective FDI Flows to CEE Countries", in Herrmann, H. and Lipsey, R. (eds.), *Foreign direct investment in the real and financial sector of industrial countries*. Springer, Berlin, Germany.

MacSharry, R. and White, P. (2000). *The making of the Celtic tiger: the inside story of Ireland's booming economy*, Mercier Press, Dublin, Ireland.

Markusen, J. (1988). "Production, trade and migration with differentiated, skilled workers". *Canadian Journal of Economics*, (21:3), pp. 492-506.

Markusen, J. and Venables, A. (1999). "Foreign direct investment as a catalyst for industrial development". *European Economic Review*, (43), pp. 335-356.

McAleese, D. (1971). "Effective tariffs and the structure of industrial protection in Ireland". Economic and Social Research Institute Paper No. 62.

Midelfart, K-H., Overman, H., Redding, S. and Venables, A. (2000). "The location of European industry". European Commission Economic Papers No. 142.

National Competitiveness Council (2003). *Annual Competitiveness Report*, Forfás, Dublin, Ireland.

OECD (1999). *Economic survey of Ireland*, OECD, Paris, France.

OECD (2001). *Science, technology and industry scoreboard*, OECD, Paris, France.

O'Gorman, C., O'Malley, E. and Mooney, J. (1997). "The Irish indigenous software industry: an application of Porter's cluster analysis", National Economic and Social Council Research Paper No. 3.

Slaughter, M. (2003). "Host-country determinants of US foreign direct investment into Europe", in Herrmann, H. and Lipsey, R. (eds.), *Foreign direct investment in the real and financial sector of industrial countries.* Springer, Berlin, Germany.

UNCTAD (2001). *World Investment Report*, UNCTAD, Geneva, Switzerland.

UNESCO (1998). *World Education Report.* UNESCO, Paris, France.

ABSTRACT

This paper studies the determinants of individual location choices of manufacturing production units by foreign affiliates. It concentrates on the specific case of FDI location in France over the period from 1985 to 1995 and evaluates, in particular, how regional policies in favour of French regions by both national and EU authorities compare to other determinants of the location choice. It is shown that foreign investors are, to a large extent, not sensitive to public investment incentives, and are primarily driven by conventional forces such as the market potential, labour costs and agglomeration effects in the region considered for investment. Proximity to the home country of the investor also has a robust positive effect on location choice.*

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Where do foreign firms locate in France and why?

1. Introduction

There has recently been an important renewal of academic interest in the impact of regional policies. This surge of interest was at first theoretical and followed the renewal of the analysis of the causes and dynamics of agglomeration patterns in the field of the "New Economic Geography". In light of models predicting endogenous, self-reinforcing, and possibly catastrophic clustering behaviour by firms in the manufacturing industry, economists reorganised their understanding of regional policies aimed at promoting spatial equity. After questioning both their overall welfare impact (in particular, possibly adverse effects of spatial equity on efficiency and growth) and the validity of the instruments used (with measures like investment in transport infrastructure possibly exacerbating spatial inequity), economists have now a richer view of the issues related to regional policy in a world characterised by imperfect competition, capital mobility and – despite ongoing integration – persistent frictions in the trade of goods and services (see Baldwin *et al*. 2003 for a good overview).

Some empirical work was conducted on the effects of regional policy. Two recent studies have expressed doubts about the achievements of regional policies implemented in Europe. Boldrin and Canova (2001) reach rather negative results, failing to find any impact of EU structural funds on regional growth. Midelfart and Overman (2002) evaluate the impact of national and EU policies, and find no effect of national policies. Regarding EU policies, the impact of structural funds is estimated to be positive, but has mostly the effect of changing the location pattern of research and development (R&D)-intensive industries, driving them to regions with low endowments of skilled labour and, therefore, initial comparative disadvantage in those industries. Martin (1998) finds that the level of public infrastructure in regions does not promote regional convergence within a country, but might have a small impact on cross-country convergence. This is bad news for the impact of regional policies because financing such public infrastructure is one of their main objectives. The only type of public infrastructure that seems to help convergence at both the national and regional levels is the development of telecommunication networks. This is instructive and seems to confirm recent theoretical conclusions that facilitating the exchange of information with peripheral regions might be a better idea than concentrating the efforts on transport infrastructure. It is, however, fair to recognise (as often done in this kind of empirical work) that estimating a precise and separate effect of regional policies on complex phenomena like regional growth and the spatial distribution of manufacturing industry is a difficult task, raising numerous methodological issues and probably leaving not much chance to detect the effect of policies in the data.

The approach taken in this paper, i.e. studying the locational pattern of foreign direct investment (FDI), is less vulnerable to some of these methodological problems. This is, first, because foreign investors mostly make their choice with no "history" in the country and the production sites of transnational corporations (TNCs) are more footloose than local industries, the latter presumably reacting with more inertia to changes in economic conditions or public interventions, such as investment subsidies. Second, looking at

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the impact of regional policies on location choices means looking directly at the mechanism through which the policy measure is supposed to achieve its ultimate goal, i.e. promoting growth and economic convergence by attracting new firms to a depressed area. Third, investment by TNCs is becoming an increasingly important part of overall investment, and capital investments are increasingly mobile. This makes regional growth more dependent on FDI, and FDI, in turn, more sensitive to financial incentives such as differences in corporate tax rates and investment subsidies.

The empirical literature on the link between the choice of location by foreign direct investors and public policies shows mixed results.

The empirical literature on the choice of FDI location and public policies shows mixed results, depending on the public policy and the geographical zone investigated. One of the seemingly consistent finding of the literature is the significant negative impact of high corporate taxation on location choices. Mooij and Ederveen (2001) survey the literature, covering both FDI flows and stocks, and find that a one-percentage point rise in the corporate taxation rate reduces, on average, the amount of inward FDI by about 5 percent. The impact of subsidies granted through regional policies has also been studied. Ferrer (1998), for instance, finds that European structural funds have very little and sometimes even a negative impact on location choices of French TNCs in Europe. From an economic policy perspective, the economic significance and statistical robustness of these results are important. In terms of robustness, it is particularly important to model correctly the location decision of firms in order not to infer an impact of taxes or regional policies from a mis-specified model. The empirical work thus needs to be grounded in theory. In terms of economic significance, one has to compare the impact of those policies to other determinants such as demand, production costs, and agglomeration effects. Devereux and Griffith (1998) and Head *et al.* (1999) underline that agglomeration forces are important determinants of the location choices of transnational corporations and that policy-related incentives need to be very large to overcome those agglomeration effects. Investigating the case of Italy, Roberto (2004) brings out this point very clearly:

> "…a small improvement in the public infrastructure stock does not affect the regional distribution of FDIs. Only a very strong leap forward in Southern infrastructures might allow a significant reallocation of foreign capital towards Southern regions. This finding is very important, since each year the actual expenditure for public works systematically falls short of the planned figure."

This paper concentrates on the specific case of FDI location in France and evaluates how regional policies allocated to French regions by both national and EU authorities compare to other determinants of the location choice. It is shown that foreign investors are, to a large extent, not sensitive to investment incentives stemming from public policy, and are primarily driven by conventional forces such as the market potential, labour costs and agglomeration effects.

The remainder of the paper is organised as follows: Section 2 describes the overall pattern of FDI in France, in terms of the total stock received and its industry distribution and regional allocation. Section 3 is the main part of the paper, discussing the theoretical determinants of location choice, the data used for the empirical analysis, and the empirical results. Section 4 concludes.

2. Key features of inward FDI in France

2.1 The importance of France as a host country

France is a major recipient of FDI worldwide. Banque de France (2004) estimates for 2002 suggest an inward FDI stock of EUR 383 billion, which is equivalent to 25 percent of GDP (at market prices, the same stock is estimated at EUR 522 billion or 34 percent of GDP). This puts France fifth in the ranking of total inward stocks for 2002 – behind the United States, the United Kingdom, Germany and China (see Figure 1).

France is a major recipient of FDI worldwide.

Figure 1. Inward FDI stock, in EUR billion
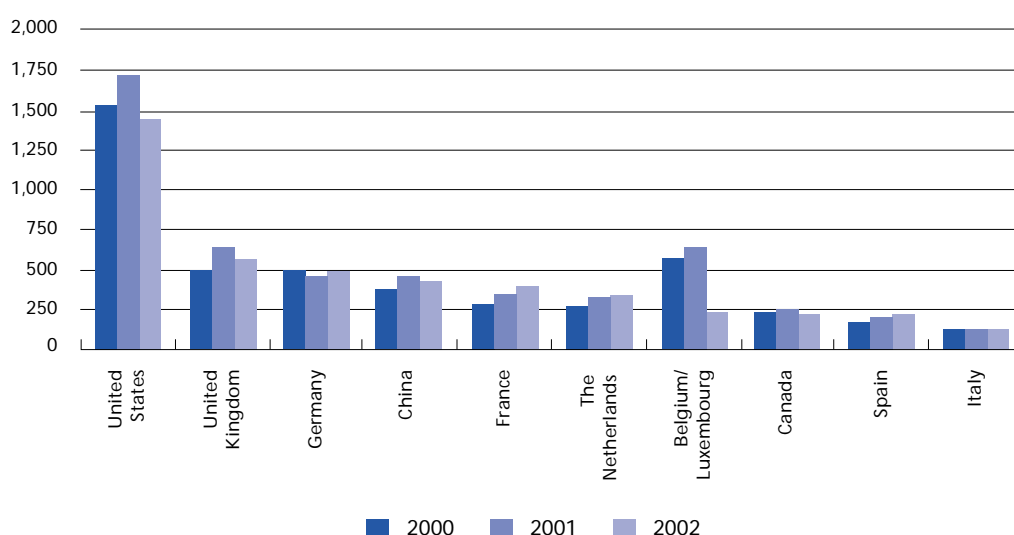
Source: Banque de France (2004).

Using *World Investment Report* data (UNCTAD 2003), Table 1 shows the importance of France as a recipient of FDI over a longer time period. Contrary to frequently expressed fears, there does not seem to be an overall fall in the attractiveness of France as an FDI destination.

Table 1. Inward FDI stock by region, 1980-2002

Host region/country	1980	1985	1990	1995	2000	2002
			(in billions of US dollar)			
World	699	978	1,954	3,002	6,147	7,123
Developed countries	392	571	1,400	2,041	3,988	4,595
EU countries	217	268	749	1,136	2,241	2,624
France	26	37	87	191	260	401
			(in percent)			
France as a share of world	3.7	3.8	4.5	6.4	4.2	5.6
France as a share of developed countries	6.6	6.5	6.2	9.4	6.5	8.7
France as a share of EU countries	12.0	13.8	11.6	16.8	11.6	15.3

Source: UNCTAD (2003).

The share of world inward FDI attracted by France has in fact increased quite importantly over the last decades, despite a temporary fall between 1995 and 2000. The share of France in inward FDI of EU countries has also increased markedly over the period. Again, the drop in market share towards the end of the 1990s has reversed since 2000.

Regarding the origin of foreign direct investors in France, Banque de France (2003) estimates that investors from the eurozone account for the majority of the inward FDI stock (56 percent in 2001). EU-15 countries from outside the eurozone represent about 18 percent and other European countries 6$^{1}/_{2}$ percent. Investors from the Netherlands, United States, United Kingdom, Germany and Belgium hold more than two-thirds of the inward FDI stock. The large shares of FDI from Belgium and the Netherlands have to be qualified, however, as they reflect the country of immediate origin. This means that an investment by a Dutch affiliate of an American firm is attributed to the Netherlands, not to the United States.[1]

Figure 2. **Bilateral FDI stock-to-GDP ratio in France and distance to all origin countries (2000)**
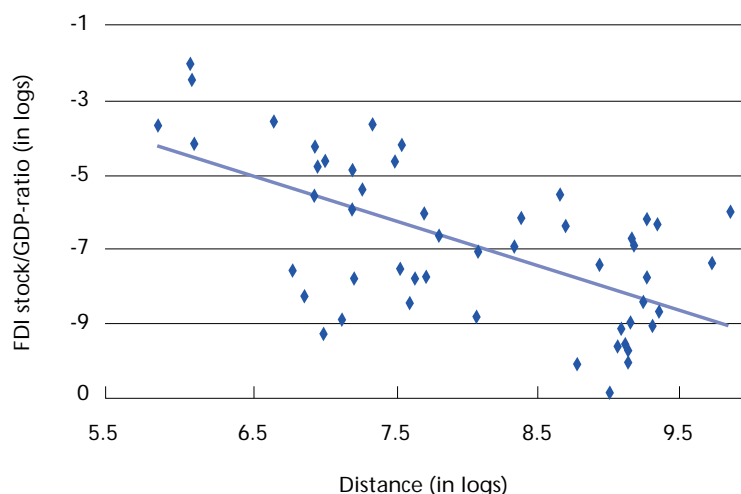
Notes: The vertical axis measures the ratio of inward FDI stock to GDP (expressed in logs); the horizontal axis measures distance from France (also in logs); each point represents one country that is a source of FDI in France; the line is a fitted regression line (coefficient = -1.17; R^2 = 0.372).
Sources: World Bank, OECD and CEPII (Paris).

Bearing in mind such problems with bilateral FDI data, we shall briefly discuss what determines the amount of a country's foreign direct investment in France. It has been shown in the empirical literature (see, for example, Wei 2000; Stein and Daude 2001) that

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[1] In the data used in the econometric work of this paper, the country of origin is the one where the final owner of the firm locates. Using this data, FDI flows to France in 1985-95 by country of origin were as follows: United States 21$^{1}/_{2}$ percent, Germany 16$^{1}/_{2}$ percent, the Netherlands, Italy, the United Kingdom and Switzerland each about 10-11 percent, Belgium 6$^{1}/_{2}$ percent, and Japan some 2$^{1}/_{2}$ percent.

bilateral FDI is well described by a simple gravity equation, linking the stock of bilateral FDI to the GDP of the two countries concerned and the simplest measure of bilateral transaction costs: distance. Applying this simple framework to OECD data on bilateral FDI stocks in 2000, World Bank GDP data and CEPII (Paris) data on bilateral distances, it turns out that distance and GDP explain almost half the variance in bilateral FDI stocks. Bilateral distance has a surprisingly strong influence on FDI stocks, very much in line with its influence on trade flows (see Disdier and Head 2003) for a quantitative assessment of the impact of distance on trade flows). Figure 2 illustrates the importance of distance for bilateral FDI in France.

2.2 Sector composition of inward FDI

Concerning the composition of inward FDI in France by sector, we observe that investments concentrate in the services sector, particularly in financial services. This is in line with other developed countries. More specifically, in 2001, financial holdings, banking, real estate and distribution services accounted for two-thirds of France's inward FDI stock. The most striking recent evolution in terms of sectoral composition is the rapid rise in the share of FDI in financial holdings (from 26 percent of the overall stock in 1993 to 35 percent in 2001) accompanied by a symmetric fall in the share of manufacturing (34 percent in 1993 and 20 percent of the inward FDI stock in 2001). Table 2 provides more information on how manufacturing FDI breaks down by sector. We can see that chemicals were the main destination for manufacturing FDI in 2001, followed by the food industries, editing and publishing, and the car industry. The remainder of this paper will focus on the location choices of foreign direct investors in France in manufacturing industries. By way of introducing the topic, we present next some descriptive statistics on the location of FDI in France. The data that will be used to describe location patterns in France will also be used in the econometric work of section 3.

As in other advanced economies, in France, the bulk of FDI is in services sectors.

Table 2.   Inward FDI stock in the manufacturing sector of France

	1993		2001	
	EUR billion	Share (in %)	EUR billion	Share (in %)
Total	**41.2**	*100.0*	**64.4**	*100.0*
Chemicals	9.4	*22.9*	14.6	*22.6*
Food processing	6.4	*15.5*	6.3	*9.7*
Wood, editing and publishing	2.8	*6.8*	5.3	*8.3*
Cars	3.5	*8.4*	4.0	*6.2*
Machinery	2.3	*5.5*	3.8	*5.9*
Radio, TV and communication	1.1	*2.7*	3.7	*5.7*
Metal	1.8	*4.3*	3.6	*5.5*
Oil refineries	4.1	*9.9*	3.4	*5.2*
Rubber and plastic	1.1	*2.8*	2.1	*3.3*
Other transport	0.9	*2.1*	2.0	*3.1*
Office machinery	1.2	*3.0*	1.2	*1.8*
Textile and apparel	0.9	*2.1*	0.7	*1.1*

Note: Numbers do not add up because of unreported miscellaneous industries.
Source: Banque de France (2003).

2.3 Location of inward FDI

Figure 3 shows the number of FDI investment received by each French region together with the GDP of the region.[2] While local market size clearly matters for the location of FDI in France, other determinants are important as well. One of them is the distance from the country of origin to the destination region in France – a link we have already seen more generally in Figure 2. To illustrate the point, Figure 4 shows the importance of distance for the location of German FDI in France. It shows a clear negative relationship between the GDP-weighted number of German FDI investments in each French region and the distance to Germany. It is reasonable to hypothesise that the existence of similarities in culture, language, tastes, and distribution networks – to name a few – between regions of a country, on the one hand, and bordering countries on the other hand raises the attractiveness of those regions for investors from these countries. This intuition seems, however, only relevant for very proximate countries. Indeed, while proximity to Switzerland, for instance, might be an advantage for a French region for attracting Swiss investors, this seems most implausible in the case of, say, American investors and French most western regions. The econometric work that follows will confirm that proximity of a region to the home country of the foreign investor is an important determinant of location choice of foreign investors.

Figure 3. Number of FDI investments in France by region and economic size of regions

Number of investments (log scale), 1985-95   GDP in 1995 in EUR bn (log scale)
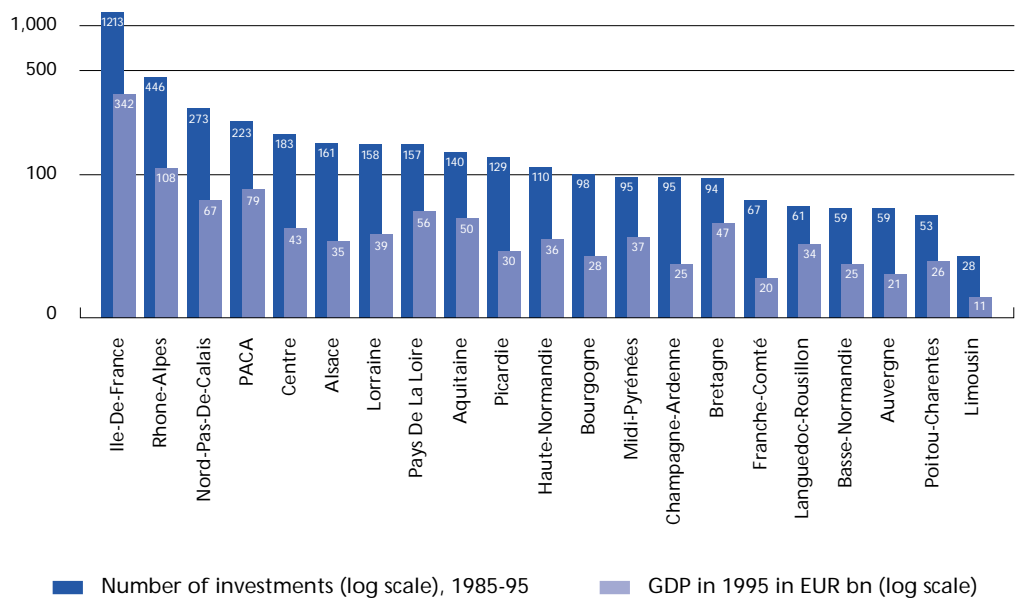
Source: French Ministry of Finance.

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2 We use the NUTS 2 geographical detail level here in order to ease presentation; NUTS 3 level will be used in the econometric analysis.

Figure 4. GDP-weighted number of German FDI investments in French regions vs. distance to Germany
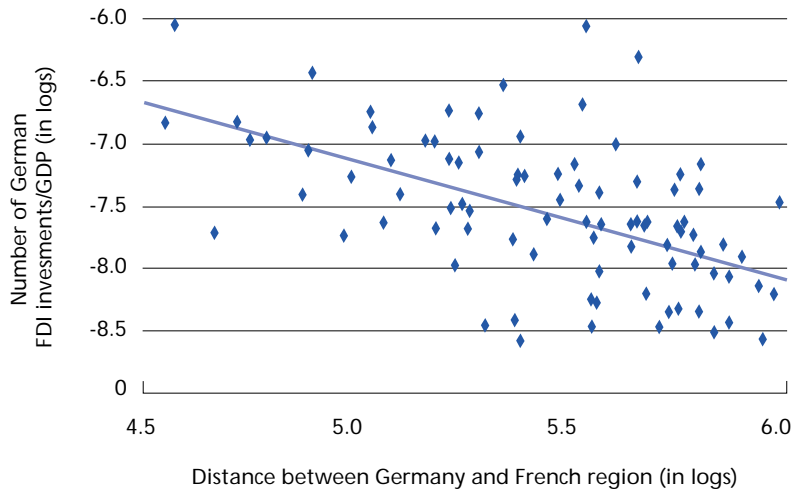
Notes: The line is a fitted regression line (coefficient = -0.96; R^2 = 0.336).
Sources: French Ministry of Finance.

3. Determinants of location choice of foreign investors in France

The key question to investigate in this section is: what determines the location choice of a transnational corporation investing in France? To guide and structure the analysis, we will first consider what economic theory suggests with regard to this choice and how to model it empirically. We will then discuss the data used for the empirical analysis before, finally, presenting the empirical results.

3.1 The theory

The determinants of the location choice that economic theory suggests can be broadly grouped in four categories: (1) the demand for the TNC's output in or close to alternative possible locations, (2) the production costs, (3) the intensity of competition, and (4) the public policies designed to influence the choice of location, in particular regional policies. Obviously, the cost of trade between locations will crucially affect the importance of most of these determinants.

Consider first demand: in a perfectly integrated economy with no trade cost, choosing a region rather than another has no effect on the level of demand faced by the TNC. This is because distance and borders, more generally – space, do not matter for trade flows. In these circumstances, alternative locations do not offer different characteristics in terms of demand and, thus, demand does not influence the location choice. At the other extreme, if trade costs are very high, demand is a decisive factor, determining the choice between isolated, quasi-autarkic locations. In practice, trade costs lie somewhere between these extremes, and modelling the influence of demand on the choice of location needs to account for spatial issues that may make a difference between demand in remote locations and demand in highly integrated locations. This is known as the "market potential approach", initiated by geographers (Harris 1954), rediscovered recently and worked out more formally in theoretical and empirical work by economic geographers (notably Krugman 1992, Hanson 1998, Fujita *et al*. 1999).

Economic theory suggests four key determinants of location choice in a given country: demand, production costs, degree of competition, and investment incentives.

The reasoning is very similar for the intensity of competition faced in each alternative location for a TNC affiliate. In the absence of trade costs, space is meaningless: each firm faces the same level of competition in all locations, and the number of competitors in anyone location is irrelevant for the location choice. With positive trade costs, competition in alternative locations matters. All other things being equal, this means that firms will try to avoid locations with a large number of competitors. This tendency to avoid proximity to competitors has been recognised for a long time in location theory (see Fujita and Thisse 2002 for an overview) and is often called the "market crowding effect". There is new, overwhelming empirical evidence that space, and distance in particular, still matters a lot in trade flows even in countries as integrated as the United States or France (see, for instance, Wolf 2000 and Combes *et al.* 2003). It is therefore crucial to model demand and competition forces in a correct way, using appropriate market potential and market crowding concepts.

In core regions, positive agglomeration effects mitigate the adverse impact of high labour costs.

Turning to production cost as a determinant of location choice, it is obvious that labour costs are crucial in this respect. The model developed in this paper will control for the cost of labour and other cost factors considered in the literature. For instance, an increasingly popular hypothesis is that TNC affiliates benefit from technological spillovers when locating near other affiliates in the same industry. If such spillovers exist, they can be expected to raise the attractiveness of locations where the number of firms in the same industry is important. A case in point is when proximity to competitors reduces the cost of research and development (R&D) due to the positive knowledge spillovers from neighbouring firms. It is worth noting again that such forces can be at work only if space matters because proximity to knowledge producers is valuable only if knowledge is hard to acquire over space. Distance-related frictions to knowledge transfers have been documented empirically in the literature using notably the location of patents' citation: Jaffe *et al.* (1993) and Peri (2004) showed that such frictions are large. Knowledge spillovers will therefore push firms to cluster in the same locations. This incentive will counterbalance the aforementioned market crowding effect through which proximity intensifies competition and therefore reduces profits. An additional feature of the market crowding effect and knowledge spillovers is that their intensity might depend upon the nationality of the surrounding competitors. For instance, competition might be tougher between TNCs from the same country due to higher substitutability of the varieties produced. We investigate this possibility in the econometric analysis.

The final set of variables influencing the location choice comprises a plethora of public policies. Indeed, regional policies can take the form of direct production subsidies for targeted regions, as is the case in France with the *Prime d'Aménagement du Territoire* (see below for a description). EU regional policy usually does not take the form of direct subsidies, but indirect subsidies to investors can have a similar effect on the choice of location. In fact, a large share of structural funds is used to finance public transport and communication infrastructure in peripheral areas, which might lead to a reduction in transport and production costs, thus influencing the location choice of foreign investors.

We can now fix ideas more formally. The expected profit of a TNC from locating in region r will be a function of the market potential of that region (mp_r), the number of indigenous and foreign firms in that region and surrounding ones (n_r), and cost components (c_r), consisting of labour costs, in particular, and subsidies granted under

regional policies. Market potential is expected to have a positive impact on profits and, thus, the probability that a specific location will be chosen, while high cost will have a negative influence on that probability. The influence of the number of firms is more complicated and is the result of the aforementioned trade-off between agglomeration and dispersion forces. Papers dealing more formally with theoretical determinants have shown that those factors enter the profit function in a log linear way (see, for instance, Head and Mayer 2004).

Of course, the set of determinants just outlined is not exhaustive and it seems difficult to capture accurately all cost-related variables, for instance. Fortunately, an easy way to deal with this problem, first proposed by Head $et\ al.$ (1995), is to use fixed effects (α_r) for each alternative region r in the location choice set. This ensures that all time-invariant characteristics of a region that make it attractive but are unobserved are nevertheless controlled for (for instance, the difference in skill composition of the labour force and the price of other inputs such as land). All in all, the expected profit of a TNC affiliate a in location r can be described as:

(1) $\pi_r(a) = \alpha_r + \beta_1 \ln mp_r(a) + \beta_2 \ln_r(a) + \beta_3 \ln c_r(a)$

The core of the empirical analysis presented below will estimate the influence of proxies for each of the right-hand side variables, using the individual firm location choice decision to estimate the relevant coefficients in equation 1 with logit regressions (see Box 1 for a brief explanation of the logit model). But before discussing the results of these regressions and the data used, some basic exploratory analysis should be helpful.

Equation (1) gives the respective profitability of each French region for a prospective foreign investor in France. This expression is a function of the share of firms in each location. With free entry, the location choices of firms will result in an equalisation of profits over all locations, and the equilibrium share of firms is therefore implicitly defined by setting equation (1) to an equal level (possibly zero) for all locations. The empirical literature then usually invokes the important Helpman and Krugman (1985) simplifications by assuming that there are no technological spillovers, the absence of public policy, and equal production costs. This leads to a very simple linear relationship between the share of firms in a given location (the numbers of firms in region r being denoted by n_r) and its share of demand, which is often approximated by the share of regional GDP in total GDP (GDP of region r being denoted Y_r):

(2) $\dfrac{n_r}{\displaystyle\sum_r n_r} = \lambda + \delta\ \dfrac{Y_r}{\displaystyle\sum_r Y_r}\ ,\qquad \lambda < 0 \text{ and } \delta > 1$

To illustrate, with only two regions, the underlying theoretical framework predicts that regions of equal size receive equal shares of firms, but that an increase in the share of regional demand in total demand generates a more than proportional increase in the share of firms ($\delta > 1$). We will start our empirical analysis by regressions of this type for all FDI investors in France. This type of simple analysis, however, relies on very restrictive assumptions that make it impossible to estimate more interesting location choice parameters at the individual level. Therefore, we also consider more complex models.

Box 1. Modelling FDI location choice

The basic model

We assume that firms maximise a profit function subject to uncertainty when choosing a location. The profit function consists of a deterministic component and a random component. Equation (1) synthesises the deterministic part, i.e. the attributes influencing the profitability of an affiliate in a particular location. The random component consists of maximisation errors, unobserved characteristics of choices, measurement errors, and unobserved "tastes" of investors for particular locations. The underlying level of profits expected to accrue to an affiliate in each possible region (the variable at the left-hand side of equation (1)) is not observed; what is observed is the actual location choice of each firm for its affiliate and the characteristics of alternative regions. Among a set R ($R = 1,..,n$) of possible location sites, location r offers a profit $\Pi_r(a)$ to affiliate a according to observable components of the profit function (described at the right-hand side of equation (1)) and an unobservable error term $\varepsilon_r(a)$:

(B1) $\Pi_r(a) = \pi_r(a) + \varepsilon_r(a).$

It is assumed that an investor will choose location r if it yields higher profits than any other possible choice. The probability that affiliate a will be located in region r is thus:

$$P_r(a) = \text{Prob}(\Pi_r(a) > \Pi_j(a)) \ \forall \ j \neq r.$$

This probability of choosing location r was shown by McFadden (1984) to take the following form under a type I extreme value distribution of the error term:

(B2) $P_r(a) = \dfrac{e^{\pi_r(a)}}{\sum_{i \in R} e^{\pi_i(a)}} = \exp\left[\pi_r(a) - IV_R(a)\right]$

where $IV_R(a) = \ln \sum_{i \in R} e^{\pi_i(a)}$ is termed the "inclusive value" for the entire set of regions R. McFadden calls equation (B2) the conditional logit model. The coefficients of the variables on the right-hand side of equation (1), i.e. the equation for $\pi_r(a)$, are estimated by maximising the log-likelihood function associated with equation (B2).

Interpretation of coefficients

There are two ways of interpreting the coefficients in a conditional logit model. First, it is straightforward to show that the estimated coefficients in a conditional logit model closely relate to the elasticity of the probability of a given location being chosen with respect to the considered variable. When all variables are taken in logs, as is the case here, the elasticity of the probability

of choosing region j is $E_j = \dfrac{\partial \ln P_j}{\partial \ln X_j} = \beta \, (1 - P_j)$, with β the coefficients obtained on the

explanatory variables X. Hence, $\beta = \dfrac{E_j}{1 - P_j}$ .On average, the probability of choosing location

j is $1/n$. When the number of locations in the choice set is large, each coefficient in β is thus a slight overestimate of the average "direct" elasticity. The elasticity interpretation of those coefficients

is useful because one can compare the effects of, say, a 10-percent rise in each of the variables on the probability of location choice. However, this method does not tell us whether a 10-percent rise occurs frequently for each of the variables in the sample under consideration. It is therefore also instructive to gauge the impact of a one-standard-deviation change in the average of each variable in X. Consider a hypothetical region that would have the average level of variable X in the sample. Suppose further that we want to assess the impact of a one-standard-deviation rise in this variable. To keep matters simple, suppose that the increase in X comes from a redistribution of that variable across locations such that the inclusive values IV remain constant. Then, denoting $\overline{P}_j$ and $\overline{P}'_j$ the respective initial and post-reallocation probabilities of choosing region region j, we obtain:

$$\frac{\overline{P}'_j}{\overline{P}_j} = \exp(\beta[\ln(\text{mean}(X_j) + \text{stdev}(X_j)) - \ln(\text{mean}(X_j))]) = [1 + \text{cv}(X_j)]^\beta,$$

where $\text{cv}(X_j) = \text{stdev}(X_j)/\text{mean}(X_j)$ is the coefficient of variation of variable X, which can be easily calculated.

Nested model

An important feature of the conditional logit model apparent in equation (B2) is the independence of irrelevant alternatives (IIA), which implies that the probability of choosing one location relative to the probability of choosing another is independent of the characteristics of a third location. To put it differently, locations in one group should not be more substitutable with or without the inclusion of locations in another group. This is most likely not to be verified in samples with a large number of small alternative locations as in our sample. McFadden has provided a solution to this issue with the nested logit model, which separates choices in different sets within which IIA is supposed to hold. The researcher has to first define those sets, and then estimate the model taking into account the nested nature of the choice tree. A natural concern in our case is whether substitutability is not largely determined by an upper level choice between the Paris region (including Paris and its surrounding regions) and the rest of the country. More formally, let R now denote the set of N locations in France excluding Paris. Note $\pi_R(a)$ the part of the profit function that does not vary across regions inside R, and $\pi_r(a)$ the part of the profit function which may vary across the $r \in R$ regions. The probability that affiliate a chooses region r is equal to the probability that a chooses not to be in the Paris region times the conditional probability that a chooses r (given that a chooses among regions in R); it can now be written as:

$$\text{(B3)} \quad P_r(a) = P_{r|R}(a)P_R(a) = \frac{e^{\pi_r(a)/\lambda}}{e^{IV_R(a)}} \frac{e^{\pi_R(a)+\lambda IV_R(a)}}{\sum_{R=1}^{N} e^{\pi_R(a)+\lambda IV_R(a)}} \exp\left[\frac{\pi_r(a)}{\lambda} + \pi_R(a) - (1-\lambda)IV_r(a) - IV^\star(a)\right],$$

with $IV^\star(a) = \ln\sum_{R=1}^{N} e^{\pi_R(a)+\lambda IV_R}$. Parameter λ measures the degree of independence in unobserved profitability among the alternatives in each nest. Its estimate should be between 0 and 1, with a value of one yielding full independence in the error terms associated with regions of each nest and, in this case, a collapse of the nested logit model to the simple conditional logit model (B2). For more details on this type of econometric modelling see Train (2003).

3.2 The data

To study location choices of TNCs investing in France, this paper essentially uses the same data as Crozet *et al.* (2004). Box 2 sets out key features of the database. Suffice it to note here that our final sample contains 3,902 (partly) foreign-owned affiliates in 92 regions of France and more than 200 manufacturing industries. In what follows, we describe data concerning the variables that enter the right-hand side of equation (1).

Box 2.   Data on foreign-owned affiliates in France

Our database contains information on the location choice of foreign-owned affiliates in all French regions, the nationality of shareholders of the affiliate, date of investment, and type of industry. In fact, it is even possible to know the city where the affiliate is located, but it is very difficult to get data for explanatory variables at this level of detail. In addition, the number of alternative locations in the logit model would then cause computational problems. Even with modern computing power, logit estimation at the regional level is not trivial once location-specific fixed effects are included. The sample used for the logit regressions hence includes only 92 regions. The main source of information comes from *the Direction du Trésor*, a division of the French Ministry of Finance. The 1996 version of the database is used. The sample is restricted to investments that took place from 1985 to 1995, mainly because of data limitations concerning the right-hand side variables of equation (1). Moreover, the sample is restricted to manufacturing firms excluding food industries, again because of lack of data on the explanatory variables for this industry. For each firm, the database reports the nationality of shareholders and the share of capital owned. Those shares are summed by country of origin, and only the firms for which investors of a single foreign country hold more than 10 percent of capital are kept in the sample. The firm is then fully attributed to the first country of ownership in terms of nationality of investors. At this stage, only the location of the French headquarters of the firm is known. This is an important issue because many headquarters are in Paris or its immediate neighbouring regions, whereas the actual production takes place in one or several establishments owned by the firm but located in another part of France. Using the official identification number of the firm, it is however possible to search for the producing units belonging to each foreign-owned firm and obtain the precise regions where they are located. This procedure uses a different database made available by the French Ministry of Industry. The final database incorporates all producing units owned by foreign-owned firms. To focus on greenfield investment, which have presumably different location determinants than mergers and acquisitions, we restrict the sample to producing units that were set up during or following the year the FDI was recorded. A producing unit is assumed to exist as from the first year the Ministry of Industry reports its activity. The final sample contains 3,902 greenfield affiliates in 92 regions of France and more than 200 manufacturing industries.

To start with demand and production cost, we use the following proxy for the market potential of region *r*:

$$(3) \qquad mp_r = GDP_r + \sum_{s \neq r} \left[\frac{GDP_s}{d_{rs}} \right],$$

where d_{rs} is the distance between region *r* and region *s*. The source of the regional GDP data is REGIO, the Eurostat regional database. This variable is, of course, only a proxy for the real demand perceived by firms. Another important simplifications is that it omits

foreign demand, thus reflecting the implicit assumption that FDI in France is mostly market seeking rather than export oriented. This assumption seems reasonable for a large proportion of the industries in the sample, and the results seem to confirm this intuition. The proxy for production costs is the average annual wage per worker at the region and 4-digit industry level. This is calculated using data on producing units operating in each region, dividing the overall wage bill of the industry in the region by the total number of workers. This is again admittedly an imprecise proxy for overall production costs faced by foreign investors in each location. Nevertheless, the econometric work includes estimations of models with fixed effects for each region. Those fixed effects will capture the attractiveness of each location to the average investor, therefore accounting for all characteristics with little variance over time, such as the average skill level of the local labour force or the price of land. The omitted production costs variables will therefore be at least partly captured by those fixed effects. The same argument holds for omitted elements of perceived demand. The expected sign of the coefficient of the market potential variable is positive while that of the production cost variable is negative.

Regarding the clustering of firms in a region and, thus, the possible impact of competition and knowledge spillovers on the choice of location, we follow Head *et al.* (1995). Specifically, we calculate the number of firms belonging to the same industry – but not owned by the same parent company – and located in each region a year before the considered investment. As noted above, there are good reasons to believe that the underlying theoretical determinants of the location choice (competition and spillovers) vary according to the nationality of the firms involved in the calculation of those variables. From the perspective of a TNC choosing a location for its affiliate, three groups of firms can be distinguished: (i) firms in the region that are owned by foreign direct investors from the same home country as the said TNC, (ii) firms in the region that are owned by foreign direct investors from countries other than the country of the said TNC, and (iii) firms in the region that are owned by French investors. There will therefore be three counts of firm variables representing n_r in equation (1): n_r^h, n_r^o, and n_r^f. But to properly account for competition and possible knowledge spillovers, we have to do more than simply counting the number of firms in a particular region. We also need to account for the number of firms in other regions and the distance between these regions and the region that the TNC considers a possible location. In addition, we need to model that competition forces and the scope for spillovers fall with distance. All in all, the following functional form for n_r^h, n_r^o, and n_r^f is chosen:

<div style="text-align: right;">*The degree to which competition and spillovers affect the location choice of a foreign firm is likely to depend on the nationality of other firms in a possible location.*</div>

$n_r^h =$ number of firms in region *r* owned by foreign investors from the same home country $+ \sum_{s \neq r}$ number of firms in region *s* owned by foreign investors from the same home country$/d_{rs}$

$n_r^o =$ number of firms in region *r* owned by foreign investors not from the same home country $+ \sum_{s \neq r}$ number of firms in region *s* owned by foreign investors not from the same home country$/d_{rs}$

$n_r^f =$ number of firms in region *r* owned by French investors $+ \sum_{s \neq r}$ number of firms in region *s* owned by French investors$/d_{rs}$

For each of those variables, the sign and magnitude of the coefficient depends on the relative strengths of the competition effect and knowledge spilllovers.

Regional policy has been high on the political agenda in France for a long time. The econometric analysis presented here accounts for national and EU support for lagging regions.

This finally takes us to the discussion of regional policies. There are two types of regional policy instruments used in the empirical analysis that follows. First, the subsidies given by the national government and, second, the funds granted by the European Commission for economically less developed regions (structural funds). Regional policy has been ranking high on the political agenda in France for a long time, and several instruments have been used with the objective of promoting the redistribution of economic activity in favour of lagging regions in general and diverting activity from the region around Paris in particular. The main instrument of regional policy used by the French government is called the *Prime d'Aménagement du Territoire* (PAT) and mostly consists of labour related grants for creating or maintaining jobs in lagging regions, which are home to about one-third of the French population. Both French and foreign investments are eligible for these grants. In practice, roughly half the annual funding goes to foreign investors. To be eligible, investors must, at present, create at least 15 jobs and invest at least EUR 2.3 million. The top subsidy rate on the initial investment is 23 percent for large firms and 33 percent for small and medium-sized enterprises, with a ceiling of EUR 8 million and EUR 11 million, respectively. It should be noted that state aid is subject to EU competition rules, and investment subsidies are in general forbidden unless they aim at promoting regional development. The scope for investment subsidies in the context of regional development policies has been streamlined over time, notably in 1998 when both the spatial coverage and subsidy rate of the PAT was reduced. Nevertheless, PAT remains an important instrument directly aiming at attracting productive investment, FDI in particular, to less developed regions. The amount of PAT received by all companies in a region, in the year the investment took place, is introduced in the estimated equation. The data comes from annual reports of DATAR,[3] the official body in charge of regional policy in France.

Some French regions are also eligible for structural funds of the European Commission. This policy involves grants – sometimes used directly to attract FDI, but most of the time more generally granted in the context of larger projects intended to improve economic conditions, with an expected indirect effect on attractiveness of grant-receiving regions. Structural funds are used, in particular, to improve or create ambitious transport infrastructure. In the period considered in this paper, structural funds were available for three objectives. Objective 1 aimed at promoting the development and structural adjustment in lagging regions (defined as those with a GDP per capita below 75 percent of the EU average). No French region considered in this paper was an Objective-1 region given that we have not included Corsica or overseas regions. Objective 2 (OBJ2) aimed at promoting the conversion of areas affected by industrial decline. Objective 5 (more precisely OBJ5B) aimed at promoting the development of rural areas. There were numerous French regions receiving grants under the latter two objectives, but the two main beneficiaries were Nord-Pas-de-Calais and Lorraine. In the empirical analysis, we also take into account funds provided under "Community Initiatives" (HOBJ). The corresponding variables are the grants given to each region, labelled OBJ2, OBJ5B, and HOBJ, respectively, in the econometric analysis and subsequent tables. All three variables

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3   *Délégation à l'aménagement du territoire et à l'action régionale.*

are expected to have a positive impact on location choice. Interestingly enough, the data published by the European Commission are rather scarce. Data on grants by Objective and region in France are available for 1989, 1990-91, and 1994-95. It is important to bear in mind that these years include the period 1989-1991 when FDI in France was at its peak.[4] Overall, the number of observations is sufficiently high to enable reliable estimations.[5]

3.3 The empirical evidence

We start with an empirical analysis of equation (2), which – to recall – simply looks at the possible impact of the market size of a region (right-hand side of the equation) on the relative number of foreign affiliates in a region. More precisely, the share of foreign affiliates in a region in the total number of foreign firms in all regions is regressed on the share of regional GDP; all this is done on the basis of 1995 data. Most "new trade theory" models suggest a relationship between the share of foreign affiliates and the share of regional GDP that can be pictured as a kinked curve with two flat parts at both ends. This means that if regional GDP is below a certain threshold, the region is too small in terms of regional demand to attract any foreign affiliates. Conversely, if the regional market size (relative to the national market) exceeds an upper bound, this region attracts all foreign affiliates. For regional market shares that fall between the two bounds, any increase in the regional market share is expected to concur with a gradual increase in the share of foreign affiliates, and *vice versa*.

The kinked curve with flat parts at each end corresponds to a censoring of the data. If the industry classification is sufficiently detailed and the number of alternative locations is sufficiently high, there will be a large number of observations with no affiliate despite positive demand in the region. As a consequence, ordinary-least-square (OLS) regression would yield downward biased estimates of the slope parameter. By contrast, a Tobit regression accounts for the fact that there will be no affiliates in some regions and yields unbiased estimates. Our Tobit regression estimate for δ in equation (2) is 2.5, with a standard error of 0.11. Therefore, the coefficient showing the effect of market size on the share of foreign affiliates in the total number of firms in a region has the expected sign and is highly significant.[6] Hence, in line with theoretical reasoning, we find a strong relationship between market size and the number of foreign affiliates.

The empirical analysis supports a priori reasoning: regional market size and the number of foreign firms in a region are positively correlated.

The Tobit regression shows the importance of one specific determinant of location choice, namely market size. Its appeal stems from the simplicity of the approach. However, the simplifying assumptions underlying this regression are an important drawback. Therefore, we now turn to a more complex model that takes into account more factors. Moreover, we will use information at firm level instead of aggregates at regional level.

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4   More specifically, the number of investment decisions was 247 in 1985 (i.e. the first year considered here), peaked at 533 in 1989, and amounted to 408 in 1995 (i.e. the last year included in our sample).

5   It should be added that for all EU regional subsidies, data are only available at the NUTS-2 level, while regions are defined at the NUTS-3 finer spatial level of aggregation. This means that the variable used to report structural funds in region r also shows structural funds of neighbouring regions. Unfortunately there is no way of correcting this measurement error.

6   The results are based on a sample of 7,452 observations, covering 81 different manufacturing industries in France. R^2 of the regression is 0.26.

The models that we now apply – they have been explained in detail in Box 1 – are logit regressions that measure the impact of the determinants of location choice of foreign investors in France; these determinants have been introduced in section 3.2. We start with Table 3, which presents results for the conditional logit regression, whereas the results for the nested logit regression will be discussed later in this section.

Table 3.   Conditional logit regression estimates of location model

Model specification	1	2	3	4	5	6
Market potential	0.35***	0.44***	0.46***	2.83***	2.84***	0.62
Wage	-0.43***	-0.24**	-0.58***	-0.16	-0.16	-0.38***
Distance	-0.75***	-0.71***	-0.64***	-0.78***	-0.78***	-0.69***
Number of home country firms (n_r^h)	0.22***	0.23***	0.12	0.27***	0.27***	0.20**
Number of other foreign firms (n_r^O)	0.35***	0.34***	0.41***	0.47***	0.47***	0.53***
Number of French firms (n_r^f)	0.89***	0.89***	0.88***	1.03***	1.03***	1.01***
PAT		0.03***			0.00	
Objective-2 funds (OBJ2)			0.00			0.00
Objective-5b funds (OBJ5B)			0.01			0.00
Community initiatives' funds (HOBJ)			0.02**			0.00
Number of observations	3,902	3,902	2,044	3,902	3,902	2,044
Fixed effects for regions (NUTS3 level)	No	No	No	Yes	Yes	Yes
Pseudo R-sq	0.16	0.17	0.17	0.19	0.19	0.19

Notes: (i) all explanatory variables are in logs; (ii) *** (**) [*] indicates that the coefficient is significant at the 1% (5%) [10%] confidence level; (iii) columns (1) to (3) do not include fixed effects for each region, while the other columns do; (iv) columns (3) and (6) exclude investments in years for which EU funds data are missing (1985-88 and 1992-93).

The empirical results point to a negative impact of wage costs and home-country distance on the regional location choice of foreign direct investors in France…

The conditional logit results shown in Table 3 reveal that all coefficients on market potential (row 1) and costs determinants (row 2) have the expected signs. The estimations in column 1 yield a significantly positive influence of market potential, a significantly negative influence of wages, and a significantly negative impact of distance to the home country on the choice of a TNC to locate in a particular region. As stated in Box 1, the coefficients are very close approximations to elasticities of the probability of choosing a location with respect to a change in the underlying explanatory variable. For instance, the parameter estimate of –0.43 corresponding to the wage variable (expressed in logs) in column 1 means that a 10 percent increase in the wage of a region reduces the probability of the region being chosen by around 4 percent.

Moving on to the number of competitors (rows 3 to 6), Table 3 presents for virtually all cases large positive and highly significant coefficients for each of the three variables. This means that, on average, centripetal forces dominate centrifugal forces, and this finding can be interpreted as revealing the importance of spillovers both between foreign affiliates and between foreign affiliates and local firms. It is noteworthy that the agglomeration effect revealed by the size of the coefficients is much higher for French firms than for foreign firms, and this is true irrespective of whether foreign firms are from the same or another country as the TNC considering the location choice. The sign and

magnitude of the coefficient on each of those variables is the result of a trade off between competition strengthening (which in itself has a negative influence) and knowledge spillovers resulting from spatial proximity. The results thus suggest that competition faced by a foreign investor in France is more intense with other foreign firms than with French firms. Another explanation is that the benefits from clustering taking the form of informal communication or inter-firm mobility of skilled workers are substantially larger between foreign-owned and French firms than among foreign-owned firms. The strong attraction of locations with a high concentration of French firms in the industry can also result from informational externalities. If, as is likely, French firms are better informed than foreign companies on the "true" comparative attractiveness of French regions, their choice of location conveys more information than the choice of foreign firms to the prospective investor. As a consequence, foreign investors should try to replicate French firms' choices rather than those made by other TNCs, which might not have any better information than a TNC in the process of deciding where to locate in France. But there is a counter-argument to this observation if the characteristics that make a location attractive deteriorate over time. If a location becomes less attractive relative to other regions, it is quite likely that installed firms will not move immediately because of the sunk cost they have incurred in setting up production facilities and because of other sources of rigidity, such as migration costs of the workers currently employed. The spatial distribution of French firms will reflect this inertia. More generally, the location of French firms is more influenced by past regional characteristics than the location of foreign firms, simply because the latter have chosen their location more recently.

Turning to the impact of regional policies (columns 2 and 3 in Table 3), a key feature of the results is the low value and weak significance of the regional policy variables. Only PAT and Community Initiatives funding are statistically significant, but the coefficients of these policy variables are considerably lower than the coefficients on non-policy related variables. For instance, the coefficient on PAT in column 2 indicates that it requires a doubling of the support for a region to increase by 3 percent the probability of being chosen by TNCs. For comparison, the same increase in the probability would result from a 10-percent rise in the number of foreign firms. These results cast considerable doubt on the scope for regional policy to actually change the location patterns of FDI. However, to be more complete, one has to take into account the respective variance of all variables, because it is possible that, in the sample, a doubling of PAT support is more frequent than a 10-percent rise in the number of foreign firms in a location. As described in Box 1, it is natural to ask how a one-standard-deviation increase of an explanatory variable would increase the probability of a region being chosen.

The answer to this question is shown in the last column of Table 4, which also gives summary statistics and repeats (from columns 2 and 3, respectively, of Table 3) estimated coefficients for each variable. The last column clearly shows that the overwhelming determinant of location choice of foreign firms in France is the location of existing French firms. Market potential is also an important motivation for choosing a region, as well as distance to the home country. The location of competitors from the same home country has a relatively small influence given the very small variance in the number of home country firms. Although wages and regional policies are significant statistically, they have only a marginal impact on the choice of location.

... and they also suggest that foreign investors are attracted by the presence of other firms in the location, with the presence of French firms being more important than the presence of other foreign firms.

Table 4. Summary statistics and impact of a one-standard-deviation increase in explanatory variables on the probability of choosing a particular location

Variable (in logs)	Summary statistics				Change in probability (in %)
	Mean value	Std. deviation	Coefficient of variation	Estimated coefficient	
Market potential	13,713	14,603	1.13	0.44	39
Wage	125	34	0.07	-0.24	-2
Distance	948	1,141	1.45	-0.71	-47
Number of other foreign firms	1.6	1.6	1.03	0.34	27
Number of home country firms	1.1	0.4	0.13	0.23	3
Number of French firms	5.8	17.4	9.10	0.89	683
PAT	32,335	50,272	2.42	0.03	4
Objective 2 funds (OBJ2)	6,698	9,738	2.11	0.00	0
Objective 5 funds (OBJ5B)	3,596	4,580	1.62	0.01	1
Community initiatives funds (HOBJ)	1,719	2,934	2.91	0.02	3

Notes: The column "Estimated coefficient" shows the figures from column 2 of Table 3, except for EU regional support variables, which are taken from column 3 of Table 3.

The empirical results provide no evidence for an important effect of regional policies on the location choice of foreign direct investors in France ...

Regarding the regional policy variables, the main finding so far is that both the underlying regression coefficients and the increase in the probability of a region being chosen as a result of a one-standard-deviation increase in the regional policy variables are small. But is it possible that reverse causality explains this result? The reasoning could be as follows: economically depressed regions receive funding because they fail to attract economic activity in general and FDI in particular. If the regional policies are triggered by a lack of FDI in a region, the econometric analysis could even find a negative relationship between FDI and regional support. While this concern is important in cross-section analyses, it is still true that – all other things being equal – an increase in PAT and EU structural funds is expected to attract foreign investors. With our panel data, which includes both cross-section and time-series data, we can control for time-invariant unobserved characteristics of each region by including fixed effects. All characteristics that do not evolve over time, or evolve only slowly, like the skill composition of the labour force and GDP per capita, are then controlled for. For all remaining variables in the estimation, the coefficients therefore mainly show the impact of a change in these variables over time.[7] Columns 4 to 6 in Table 3 show these fixed-effects estimates. The main point to learn here is that the regional policy variables remain economically and statistically insignificant and, hence, for our sample, the reverse causality argument is unlikely to explain the result that a rise in grants given to a poor region in France does not attract foreign investors.

7 This is true provided that these variables actually change sufficiently over time.

But there remains another reason why the results developed so far may fail to show an impact of regional policies: if investors consider, for a variety of reasons, the Ile-de-France (Paris) region a particularly attractive location (as Figure 3 suggests), the simple conditional logit estimates shown in Tables 3 and 4 could be biased.[8] To address this problem, we conduct nested logit regression analyses. The nested logit regression analysis divides the location choice in two steps: an upper-level choice, where the Paris region is distinguished from the rest of France, and a lower-level choice, where the choice of regions inside each nest (i.e. all regions except the Paris region) is considered. In essence, nested logit estimates show the influence of each explanatory variable inside a tree structure, where the first choice is the Paris region vs. the rest of France and the second choice is between regions outside the Paris region. As set out in Box 1, making this distinction is important if there are reasons to believe that the probability of choosing one region (rather than another) depends on the classification of nests. The role of the Paris region in the economic and political geography of France makes such a distinction particularly relevant. Indeed, Paris is the richest French region and is therefore systematically excluded from all regional policy funding (except for special recent European programmes for some suburban cities surrounding Paris). The fact that subsidies do not succeed in luring FDI away from the Paris region does not necessarily mean that regional policies completely fail in meeting their objectives. Most important, they might be effective in directing FDI towards the poorest areas within the non-Paris group of regions. But are they?

... even when econometrically accounting for the particular attraction of the Paris region as a possible destination of foreign direct investment.

Table 5.   Nested logit regression estimates of the location model

Model specification	1	2	3	4
Market potential	0.31***	0.31***	1.79**	1.76**
Wage	-0.01	-0.01	-0.07	-0.07
Distance	-0.61***	-0.61***	-0.74***	-0.74***
Number of home country firms (n_r^h)	0.15*	0.15*	0.21***	0.21***
Number of other foreign firms (n_r^o)	0.48***	0.48***	0.52***	0.52***
Number of French firms (n_r^f)	1.20***	1.20***	1.25***	1.25***
PAT		0.00		-0.01
Number of observations	235,580	235,580	235,580	235,580
Fixed effects for regions (NUTS3 level)	No	No	Yes	Yes
Pseudo R-sq	0.16	0.16	0.17	0.17

Notes: (i) all explanatory variables are in logs; (ii) *** (**) [*] indicates that the coefficient is significant at the 1% (5%) [10%] confidence level; (iii) columns (1) and (2) do not include fixed effects for each region, while the other columns do; (iv) the number of observations is determined by the number of options to choose from (*départements*) and the number of affiliates that choose. In the sample, there are 3,902 affiliates that can choose among 92 *départements*. Out of those 3,902 affiliates, 1,213 chose to locate in one of the 8 *Ile-de-France départements* (yielding 9,704 observations) and 2,689 chose to locate in the 84 remaining *départements* in France (yielding 225,876 observations).

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8   In the terminology of the model described in Box 1: the assumption of independence of irrelevant alternatives (IIA) does not hold.

The results of the nested logit regressions summarised in Table 5 leave considerable doubt. Columns 2 and 4 include PAT, i.e. the national regional policy variable.[9] PAT is not a significant determinant of location choice when considering the nest of regions comprising the whole of France, except for the Paris region. Furthermore, compared to the conditional logit regression, wages completely lose statistical significance. This underlines that wage differences are only relevant for the investors when comparing Paris with the rest of France. This is very intuitive given the wide wage gap between the two nests. Moreover, agglomeration variables (n_r^h, n_r^o, n_r^f) and market size dominate the location choice inside each nest, and these findings are robust to the inclusion of fixed effects (column 4 in Table 5).

The lack of empirical evidence for a positive effect of regional support on the location choice of foreign direct investors is disappointing from a regional policy viewpoint.

To summarise our empirical findings, we note that regional support – whether from the European Commission or the French government – does not seem to have an impact on where foreign direct investors invest in France. These results are particularly disappointing from the perspective of PAT support because it has the sole objective of attracting firms to economically less developed regions. EU structural funds, by contrast, pursue broader and more long-term regional development objectives. To account for the long-term aspect of structural funds, one can try to assess the influence of past regional policy on present location choices. Over an extended period of time, structural funds might improve the attractiveness of a targeted region and investors might eventually be enticed to locate in this region. Given this possibility, we have also estimated the impact of the cumulated funds received by French regions in 1989-91 on the location choices by TNCs in 1992-95. The results (not reported here) are strikingly similar to those discussed above. The regression coefficients on structural funds are almost never significant, and when they are, they enter with a negative sign.

4. Conclusion

France is highly successful in attracting inward FDI. Relatively little is known about what determines the distribution of FDI across different French regions. Do the investments cluster in specific regions? Is the Paris region as dominant in FDI attraction as it is in other economic activities? Does proximity to a foreign country make a region more attractive for FDI from that country? Are regional policies effective in influencing the location of production units within France?

Reflecting these questions, this paper has analysed the factors that determine where foreign investors in France locate and why. Most important, the paper has tried to assess the impact of French and European regional policies on the location of greenfield investments of transnational corporations in France. One of our main empirical findings suggests rather disappointing conclusions from the viewpoint of regional policies: national and EU support, including regional investment grants, does not influence the location choice of TNCs. By contrast, economies of agglomeration seem to be very important, and

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9   Table 5 reports only the results for the French regional policy variable, i.e. PAT, for which data are available for all years and which showed the highest (although weak) influence on location choice in Tables 3 and 4. Results with European funds, not reported here, are very similar.

we observe, in particular, that foreign investors have a very strong tendency to follow the location choices of French firms in the same industry.

Obviously, our empirical findings are influenced by the availability and quality of the underlying data. At present, it still seems difficult to obtain information on public grants over a large number of years and for a reasonable number of regions defined at a sufficiently detailed geographical level. And then, the findings for France may not necessarily apply to other countries. Overall, there is thus scope for fruitful research in the years to come.

References

Baldwin, R., Forslid, R., Martin, P., Ottaviano, G. and Robert-Nicoud, F. (2003). *Public policies and economic geography*. Princeton University Press, Princeton, USA.

Banque de France (2003). "Le stock des investissements directs étrangers en France au 31 décembre 2001", *Bulletin de la Banque de France* No. 115.

Banque de France (2004). "Flux et stocks d'investissements directs, comparaisons internationales". Preliminary estimates from *Bulletin de la Banque de France* (forthcoming).

Boldrin, M. and Canova, F. (2001). "Inequality and convergence in Europe's regions: reconsidering European regional policies." *Economic Policy Review*, (32), pp. 205–253.

Combes, P.P., Lafourcade, M. and Mayer, T. (2003). "Can business and social network explain the border puzzle?". CEPR Discussion Paper No. 3750.

Crozet M., Mayer, T. and Mucchielli, J-L. (2004). "How do firms agglomerate? A study of FDI in France". *Regional Science and Urban Economics*, (34:1). pp 27-54

Devereux, M. and Griffith, R. (1998). "Taxes and the location of production: evidence from a panel of US multinationals". *Journal of Public Economic*, (68:3), pp. 335-367.

Disdier, A-C. and Head, K. (2003). "Exaggerated reports of the death of distance: lessons from a meta-analysis". University of British Columbia mimeo.

Ferrer, C. (1998). "Patterns and determinants of location decisions by French multinationals in European regions", in Mucchielli, J.-L. (ed.), *Multinational location strategy: economics, geography, management and policy*, JAI Press,Greenwich, Connecticut, USA.

Fujita, M., Krugman, P. and Venables, A. (1999). *The spatial economy: cities, regions, and international trade*, MIT Press, Cambridge, UK.

Fujita , M., and Thisse, J-F. (2002). *Economics of agglomeration; cities, industrial location and regional growth*, Cambridge University Press, Cambridge, UK.

Hanson, G. (1998). "Market potential, increasing returns, and geographic concentration". NBER Working Paper No. 6429.

Harris, C. (1954). "The market as a factor in the localization of industry in the United States". *Annals of the Association of American Geographers*, (64), pp. 315–348.

Head, K. and Mayer, T. (2004). "The empirics of agglomeration and trade." *Handbook of Regional and Urban Economics*, (4). Forthcoming.

Head, K., Ries, J. and Swenson, D. (1995). "'Agglomeration benefits and location choice: evidence from Japanese manufacturing investment in the United States". *Journal of International Economics*, (38), pp. 223-247.

Head K., Ries, J. and Swenson, D. (1999). "Attracting foreign manufacturing: investment promotion and agglomeration". *Regional Science and Urban Economics*, (29), pp. 197-218.

Helpman, E. and Krugman, P. (1985). *Market structure and foreign trade*, MIT Press, Cambridge, UK.

Jaffe, A.B., Trajtenberg, M., Henderson, R. (1993). "Geographic localization of knowledge spillovers as evidenced by patent citations". *Quarterly Journal of Economics*, (108:3), pp. 577-598.

Krugman, P. (1992). "A dynamic spatial model". NBER Working Paper No. 4219.

McFadden, D. (1984). "Econometric analysis of qualitative response models". *Handbook of Econometrics* (2).

Martin P. (1998). "Can regional policies affect growth and geography in Europe?". *World Economy*, (21:6), pp. 757-774.

Midelfart, K-H. and Overman, H. (2002). "Delocation and European integration: is structural spending justified?" *Economic Policy Review*, (35), pp.321-359.

Mooij, R.A. and Ederveen, S. (2001). "Taxation and foreign direct investment. A synthesis of empirical research". CPB Discussion Paper No. 003.

Peri, G. (2004). "Determinants of knowledge flows and their effects on innovation" mimeo UC Davis.

Roberto B. (2004). "Acquisition versus greenfield investment: the location of foreign manufacturers in Italy". *Regional Science and Urban Economics*, (34:1), pp 2-25.

Stein, E. and Daude, C. (2001) "Institutions, integration and the location of foreign direct investment". Inter-American Development Bank mimeo.

Train, K. (2003). *Discrete choice methods with simulation*, Cambridge University Press, Cambridge, UK.

UNCTAD (2003). *World Investment Report*, United Nations, Geneva, Switzerland.

Wei, S-J. (2000). "How taxing is corruption on international investors ?" *Review of Economics and Statistics*, (82:1), pp. 1-11.

Wolf, H.C. (2000). "Intranational home bias in trade". *Review of Economics and Statistics*, (82:4), pp. 555–563.

ABSTRACT

Presenting a case study of FDI in Hungary, this paper first reviews the characteristics of FDI in Hungary since the outset of transition. It then examines the determinants of FDI in Hungary, finding that early and comprehensive privatisation and the creation of a generally business-friendly policy environment played key roles in making Hungary an early leader in FDI flows to countries in Central and Eastern Europe. But the paper also observes that some of Hungary's first-mover advantage has been eroded in recent years as other countries have provided increasingly friendly environments for FDI, often combined with lower labour costs. The paper then proceeds to assess the influence of FDI on Hungary's economy. It concludes that FDI has had, on balance, a positive impact on economic performance although hard evidence of spillovers to indigenous firms is difficult to find.

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FDI in Hungary – the first mover's advantage and disadvantage

Magdolna Sass

1. Introduction

Hungary – a small economy by global standards, but one of the largest in Central and Eastern Europe (CEE) – was among the first CEE countries to start rebuilding its market economy after more than 40 years of socialism. From the outset, foreign direct investment (FDI) was considered a key element in Hungary's transition from plan to market. In the first half of the 1990s, Hungary enjoyed the largest FDI inflows (initially in absolute terms but later only in per capita terms) of all the (former) transition economies. More recently, however, Hungary seems to have lost this position, with a decline in FDI inflows that started in 2002 and has continued since then.

Notwithstanding the recent slowdown in FDI flows, Hungary accumulated a substantial inward FDI stock. Given the early start of this accumulation, there is a good database for a deeper analysis of the characteristics and impacts of FDI inflows to Hungary. Having been a first mover in attracting FDI resulted in numerous advantages and disadvantages for the country. The paper has a double aim: first, to show the main characteristics, motivations and impacts of FDI in Hungary, second, to illustrate the advantages and disadvantages of being a first mover.

The remainder of the paper is structured as follows. The next section presents key facts about FDI in Hungary, stressing – among other things – the difference in the coverage of Hungarian FDI data and that of other CEE economies. Section 3 discusses the main factors that attracted FDI to Hungary, and Section 4 examines the effects of FDI on the Hungarian economy. Section 5 concludes and highlights the advantages and disadvantages of having been first among CEE countries in embarking on an FDI-based transition and development strategy.

2. Key facts about FDI in Hungary

2.1 The importance of FDI in the Hungarian economy

Hungary is one of most successful CEE countries in attracting FDI. In 2001, it was home to around 20 percent of the inward FDI stock of new EU members from CEE and 12 percent of the FDI stock of all (former) transition economies (including the former Soviet Union).[1] The country has attracted a significant amount of FDI relative to the size of the economy and its participation in world trade. The inflow of FDI constituted a high share of gross fixed capital formation even by international standards, and the stock of FDI in percentage of GDP has been similarly high.

As a result, foreign-owned firms now play an important role in the Hungarian economy, and – as Figure 1 shows – their contribution to economic activity has increased over time.[2]

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1   Own calculations based on UNCTAD data.
2   For the purpose of this paper, foreign-owned firms are defined as those firms that have a foreign participation of at least 10 percent. It is important to note that transfer-pricing practices make the comparison of the performance of domestic enterprises with foreign-owned firms problematic.

For instance, the 26,000 companies with foreign participation operating in Hungary in 2001 accounted for about 80 percent of international trade, half of gross fixed capital formation, and some 25 percent of employment. Overall, the contribution of foreign-owned firms to economic activity is substantial by international standards. But one needs to bear in mind that the importance of foreign-owned firms in the Hungarian economy is not only due to considerable FDI inflows. Another factor that has contributed to the increasing share of foreign-owned firms is the large incidence of bankruptcy among indigenous firms. In fact, Barta (2002) observes that only 20-25 percent of indigenous firms have survived since the beginning of transition and the gross fixed capital formation of the survivors was moderate. In essence, the disappearing indigenous firms provided room for foreign-owned companies to expand.

Figure 1. Share of foreign-owned firms in the Hungarian economy (in %), 1990-2001

In the 1990s, Hungary experienced substantial FDI inflows, resulting in a share of foreign-owned firms in economic activity that is large by international standards …
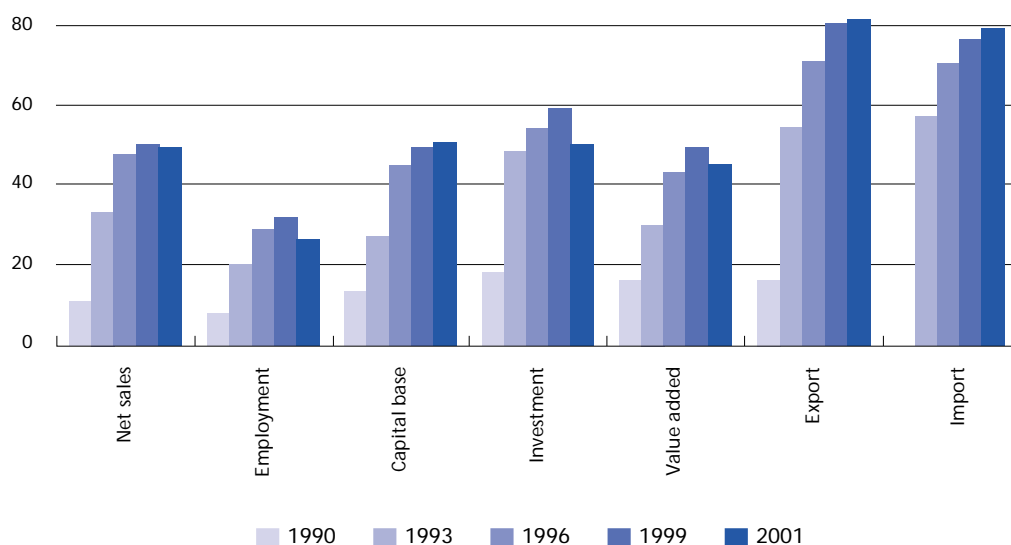
Notes: Foreign-owned firms are firms with a foreign participation of least 10 percent; the vertical axis shows the share of foreign-owned firms (in %) in the respective economic activity.
Sources: Hungarian Central Statistical Office.

FDI flows to Hungary have not spread evenly over time since transition began, however. In fact, one may ask whether the first mover of the region stagnates. Balance of payments statistics for Hungary suggest very high FDI inflows in the first half of the 1990s (notably in 1993 and 1995 due to considerable privatisation deals) and in 2001, but a considerable drop in 2002-03 (see Figure 2). Remarkably, FDI flows to Hungary declined sharply not only relative to earlier inflows to Hungary but also compared to competitor countries in the region, especially the Czech Republic, Poland and Slovakia. More specifically, Hungary's share in FDI flows to all CEE countries[4] fell rapidly – from 35 percent in 1995 to almost 5 percent in 2002. Anecdotal evidence seems to confirm the relative decline of Hungary

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3   Pula (2003) and data provided by the Central Statistical Office suggest a share of FDI in the total capital stock of the Hungarian economy of 34 percent (2001 figure). Using the estimated value for the stock of FDI including reinvested earnings, the ratio probably surpasses 40 percent.

4   This includes the eight new EU member states from CEE, Bulgaria, and Romania.

as a destination for FDI. For instance, in recent years, large greenfield-investors (especially in the automotive sector) have almost always chosen a location in the other three large CEE countries rather than in Hungary (Sass 2003c). Is it possible that the stock of FDI in Hungary has reached an upper limit where FDI flows start to stabilise at a lower level? Or are there other reasons for the apparent decline in inflows? These questions merit a closer look at the underlying FDI data.

Figure 2. Balance of payments data on FDI flows to Hungary (in millions of EUR), 1990-2003
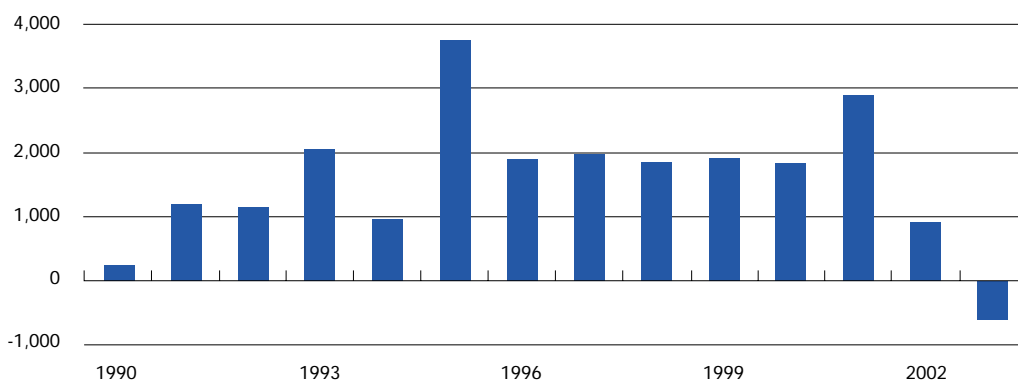
... but over the last two years, FDI inflows seem to haven fallen considerably.

Notes: 2003 data for the period through October.
Sources: Hungarian National Bank.

2.2 Explaining the recent decline in FDI inflows

With regard to the question whether the stock of FDI has possibly reached an upper limit, the evidence is inconclusive. On the one hand, the penetration of foreign firms in Hungary is among the highest in the world, which could imply that an upper limit was reached. The large presence of foreign investors in many domestic-market-oriented activities leaves room for other investors only if the economy is growing rapidly for an extended period of time. In Hungary, many investors could not find further scope for profitably extending their activities and, thus, they started to invest in neighbouring countries, which from 1997 on even led to a considerable increase in outward FDI. Moreover, cost-reducing, export-oriented projects tend to choose other countries in the region with cheaper and more abundant (unskilled or semi-skilled) labour. On the other hand, there are numerous unused resources in the country. For example, besides the low labour force participation rate, the availability of unused pools of skilled labour in many regions of Hungary points at yet unexploited foreign investment opportunities.

A more fundamental observation is, however, that the decline in FDI inflows is not as strong as balance of payments data imply. In examining the FDI data for Hungary, it is important to note, first, that the underlying balance of payments statistics comprise only two out of three FDI components. FDI inflows ought to comprise equity investments, inter-company loans, and reinvested earnings. Hungarian balance of payments statistics comprise equity investments and, as from 1995, inter-company loans, but they omit reinvested earnings. This makes the comparison of flows and stocks across countries

difficult and distorts the picture that we get when comparing Hungary to its main CEE competitor countries, whose balance of payments data comprise all three FDI components (Sass 2003c).

To get a more accurate picture of FDI in Hungary, we complement balance of payments figures with data on reinvested earnings available from national accounts statistics. While these statistics are believed to understate the true size of reinvested earnings of foreign-owned firms, they clearly show that such earnings are far from negligible. More specifically, in 1995-2001 – the period for which national accounts data on reinvested earnings are available – reinvested earnings are estimated to have ranged from 2 to 4 percent of GDP, implying considerably higher FDI flows and stocks than what balance of payments data suggest.[5]

This obviously has implications for the comparison of Hungary with other CEE countries. Figure 3 shows FDI flows to Poland, the Czech Republic, and Hungary – for the latter FDI flows are based on official balance of payments as well as those including estimated reinvested earnings. Two key messages transpire from Figure 3. One is that during 1995-2001 annual average FDI flows to Hungary may have been some EUR 1 billion higher than officially recorded. The other is that while other countries have indeed gained ground relative to Hungary, the relative decline in Hungary's position does not seem to be as pronounced as balance of payments statistics imply.

Figure 3. FDI flows to the Czech Republic, Poland, and Hungary (in millions of USD), 1995-2001
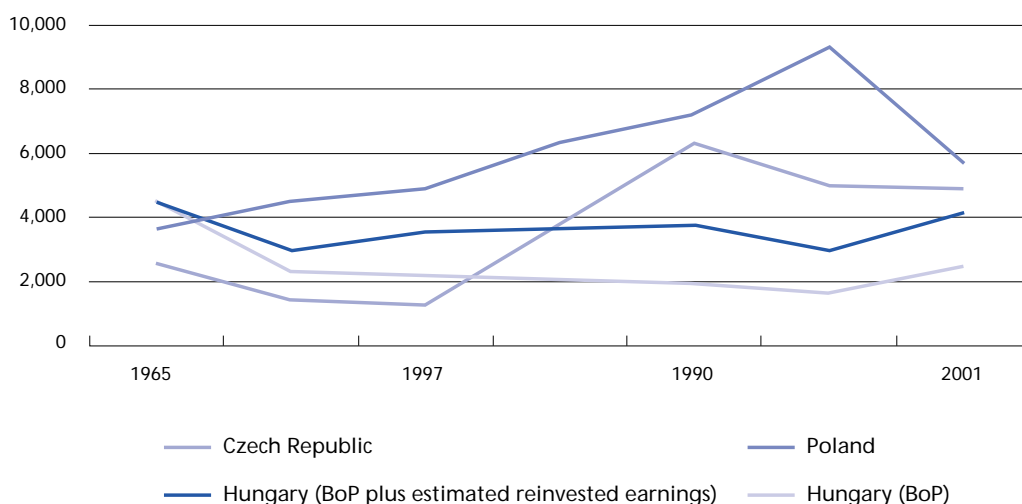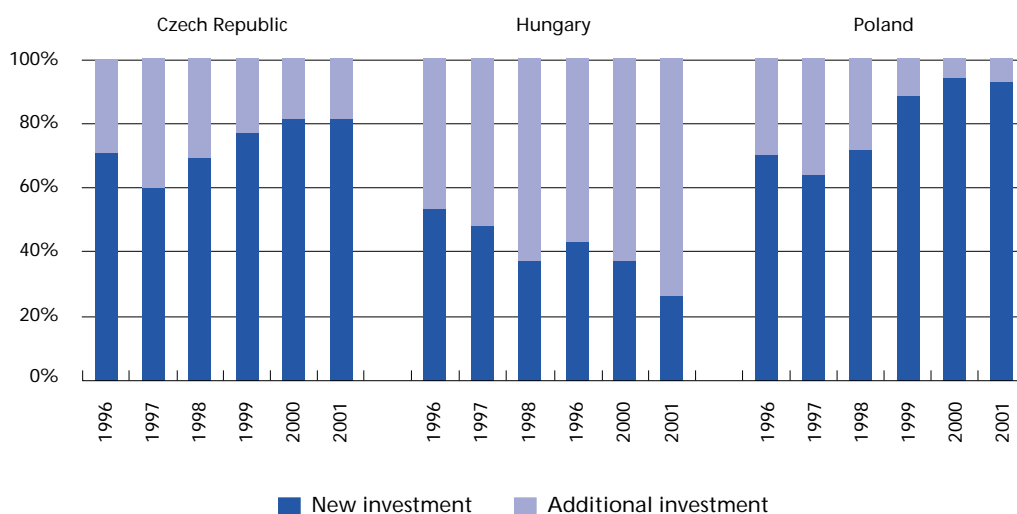

Sources: Balance of payments data provided by respective national banks.

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5   As a result, the stock of FDI may exceed officially published data of close to EUR25 billion in 2002 by about EUR10 billion. The Hungarian National Bank presented full FDI data (with all the three FDI components) in March 2004 for the first time. These data indicate that our estimation of the size of the omitted component (reinvested earnings) was very close to what the Hungarian National Bank now reports.

The problems and distortions arising from omitting reinvested earnings in FDI data are getting bigger the more mature a country becomes as an FDI destination. With the stock of FDI gradually building up and eventually approaching some upper limit (relative to the size of the economy), the importance of reinvested earnings and inter-company loans can be expected to increase compared to equity investments. In essence, reinvested earnings and inter-company loans will become increasingly important in countries that already have a significant stock of FDI. By implication, first movers, such as Hungary, with a head start in attracting FDI are likely to experience sooner a change in the structure of FDI away from equity investments than latecomers. This can be clearly seen from Figure 4, which shows for Hungary, Poland, and the Czech Republic how total FDI inflows break down into "new" FDI (i.e. equity investments) and "additional" FDI (i.e. reinvested earnings and inter-company loans). Hungary has experienced a fall in the share of equity investments since 1996, and estimated reinvested earnings and inter-company loans have accounted for more than half of total FDI inflows. By contrast, in the Czech Republic and Poland, new (equity) investments still represent the bulk of annual inflows.

... resulting in a distortion of data that can be significant in countries like Hungary that have already accumulated a large stock of FDI.

Figure 4.   The structure of FDI in the Czech Republic, Hungary, and Poland (1996-2001)

Notes: New investment is defined here as equity inflows; additional investment comprise the remaining components of FDI, i.e. inter-company loans and reinvested earnings.
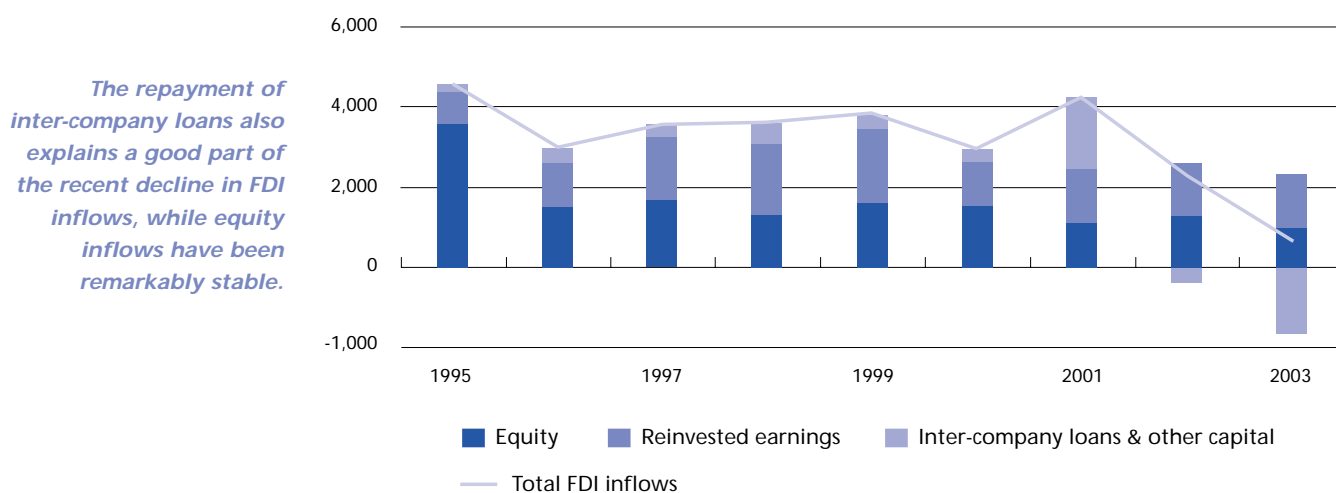Sources: Balance of payments data, provided by respective national banks; estimates of reinvested earnings for Hungary: national accounts data published by the Hungarian Central Statistical Office.

In trying to understand trends in FDI flows to Hungary, we also need to look at developments in inter-company loans. In general, this FDI component is a more important source of financing the extension of capacities and additional investments in a host country with a relatively large stock of FDI. However, international experience shows that inter-company loans can be very volatile, and a small number of large transactions can conceal underlying developments in FDI. To illustrate this in the case of Hungary, one inter-company loan of more than EUR 1 billion occurred in 2001, but the same loan was being repaid in subsequent years, causing large annual fluctuations in recorded FDI flows.[6]

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6   This loan did not finance capital formation. It was provided by a German parent company to its affiliate, and the affiliate used the loan to buy out its US partner in a common project.

More generally, inter-company loans are also a means used by parent companies to withdraw capital during a recession. Figure 5 shows the effect of volatile inter-company loans on FDI in Hungary: it is clear that the large outflows of inter-company loans in 2002-03 go a long way in explaining the dramatic fall in FDI. That said, Figure 5 pictures that the more stable FDI components (i.e. equity investments and reinvested profits) have been on a downward path since 1999: annual inflows of equity and reinvested earnings gradually diminished from close to EUR 3 1/2 billion in 1999 to EUR 2 1/2 billion in 2002. Whether this is just a temporary phenomenon or a permanent trend remains to be seen, however.[7]

The repayment of inter-company loans also explains a good part of the recent decline in FDI inflows, while equity inflows have been remarkably stable.

Figure 5.   FDI inflows in Hungary, by component (in millions of EUR), 1995-2003

Notes: 2003 data for the period through October.
Sources: Hungarian National Bank; estimates of reinvested earnings for Hungary: national accounts data published by the Hungarian Central Statistical Office; reinvested earnings for 2002 and 2003 are proxied by 2001 data

A reason why it could be a permanent trend is the decline in privatisation-related FDI. In Hungary, privatisation and FDI were closely linked during the period of transition (Kalotay and Hunya 2000), and a substantial amount of FDI came into the country as a result of privatising state-owned enterprises to strategic foreign investors. This distinguishes Hungary from many other CEE countries that chose different modes of privatisation or turned to cash sales to foreign investors only at a later stage. Obviously, once privatisation was coming to an end, the share of privatisation-related FDI declined substantially. In fact, 1997 was the last year a significant amount was registered in that respect.[8] In contrast, in Poland and the Czech Republic privatisation-related FDI increased only in the second half of the 1990s and still accounts for a significant amount of FDI flows to these countries.

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7   In this context, it is probably worth pointing out that contrary to a widespread claim equity investments have not ceased but continue to flow into the country, averaging some EUR 1 1/4 billion a year since 1996.

8   Following a 5-year break, the privatisation process resumed in 2003, covering state-owned banks and other companies.

To summarise, data shortcomings and temporary effects help explain the decline in FDI flows to Hungary. That said, it is still true that privatisation-related inflows have largely run their course and that the attractiveness of Hungary as a destination for FDI has gradually diminished – compared to both the 1990s and other countries in the region. This is mainly due to the emergence of powerful competitors. Hungary lost its first-mover position as other countries in the region realised the potential benefits of FDI and followed Hungary in establishing a functioning regulatory environment, liberalisation, privatisation to foreigners, introducing FDI incentives, etc. But more recently, adverse economic policy developments have to take part of the blame for a decline in Hungary's attractiveness as a destination for FDI. Noteworthy are substantial real wage increases, uncoordinated fiscal and monetary policies, and the postponement of public expenditure reforms.

2.3. Sources, sectoral composition, and regional distribution of FDI

Like in other CEE countries, foreign investors from the EU-15 account for the bulk (around 75 percent) of Hungary's inward FDI stock. Obviously, geographical proximity and historical links explain the dominance of European investors. Among them, Germany (35 percent of the FDI stock) is by far the most important source country, followed by the Netherlands (15 percent), Austria (11 percent) and France (6 percent). The United States is not only the largest non-European source country (9 percent), but also plays a more important role than most European countries. Japanese investments account for less than 2 percent.[9] It is worth noting that geographical and cultural proximity is a particularly important factor for the investment decisions of small to medium-sized investors from Austria. German, Dutch and especially US investors, however, are usually large transnational corporations (TNCs).

Like in other countries of Central and Eastern Europe, foreign investors from the EU-15 account for the bulk of Hungary's inward FDI stock, with Germany being the largest source country.

With respect to the strategy of foreign investors, we note that foreign investors targeting domestic or regional markets often prefer the presence of a domestic partner because knowledge of the domestic market matters. In contrast, cost-reducing, export-oriented investors prefer to be the sole owner of the company they acquire or establish. Looking at the structure of ownership over time, this implies foreign investors may favour minority ownership during the early stages of FDI inflows, i.e. when the market-seeking motive dominates and companies attach a higher risk to the unknown location. Majority or wholly foreign-owned companies become more widespread, however, as and when the country starts to be considered less risky and cost reduction becomes a stronger investment motive. Such a pattern can be observed in Hungary: while the share of majority or wholly foreign-owned companies in the total number of TNC affiliates amounted to 63 percent in 1993, it had increased to 83 percent by 2001.

There has also been a change in the sector composition of FDI. At the beginning of the 1990s, the manufacturing sector was the main target of foreign investors. As from 1995,

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9   This rank still holds if we take into account that registered countries of origin do not always correspond to the country of the parent of the transnational corporation because in many cases foreign affiliates realise the investments due to tax, strategic, geographical or cultural reasons. This is the case for some important Hungarian investments (e.g. Siemens invested through its Austrian subsidiary, General Motors and IBM through its German affiliate and the Italian Feruzzi through its Belgian or French affiliate). Accordingly, official statistics may underestimate the share of those countries that are registered homes of big transnational corporations.

however, services became more important. This was mainly due to the sequencing of privatisation, which started with manufacturing and then extended to public services. As in other CEE countries, the automotive industry is one of the main sectors of the Hungarian economy that attracted FDI, and foreign investors almost completely control the sector, holding some 95 percent of the sector's equity. It is also true that foreign investors have a rather low presence in relatively low-tech processing industries, such as clothing, textile and footwear.

However, the sector composition of the Hungarian FDI stock reveals more differences than similarities compared to other countries in the region. In Hungary, FDI spreads more evenly across sectors than in other CEE countries (Hunya 2001). This is mainly due to Hungary's early and comprehensive privatisation of state-owned enterprises. As Miczkiewicz *et al.* (2000) have pointed out, a relatively diverse structure of FDI has the advantage of spreading the benefits of FDI, e.g. employment creation and rising productivity, more evenly across the economy.

The share of services in general, and of specific services in particular, in total FDI reflects mainly two factors: for one thing, the timing and sequencing of privatising public services, state-owned banks and other financial institutions and, for another, the prices achieved in privatising these assets. As Hungary privatised such services earlier than other CEE countries, one would expect an earlier build-up in the share of services in FDI. However, since prices fetched for these assets were relatively low, the share of services in Hungary's inward FDI stock was still lower than in other CEE countries in 2001.

Switching the perspective from the question of how FDI spreads across sectors, we can also enquire about the importance of FDI in specific sectors. A noteworthy feature here is that the electronics industry has an exceptionally large share of foreign investors. The dynamic growth of the sector is mostly due to investments of IBM, Flextronics, Nokia, Philips and Samsung. Moreover, as Kalotay (2003) emphasises, in the period to 2001, Hungary attracted more than 60 percent of electronics suppliers (contract electronics manufacturing) that invested in CEE. As a result, the share of foreign ownership in Hungary's electronics sector reached 84 percent in 2001. The strong presence of a high-tech industry is arguably an asset, but it is important to note that the sector copes with overcapacities worldwide and there is a tendency to relocate production to Asia (Kalotay 2003). Similarly, Hungary's traditionally strong pharmaceutical sector also has a higher share of foreign investments compared to other CEE countries. Finally, among the Hungarian services sectors, FDI is of particular importance in trade, banking and other financial services.

However, in the food sector, Hungary has a share of FDI that is lower than elsewhere in CEE. This may reflect the relative strength and resistance of domestic owners to foreign investors in the Hungarian food industry, which was set up as the main supplier of other socialist countries in the CMEA-era.[10] The share of FDI in sectors with structural difficulties (for example, steel and fabricated metal products) is also low. For comparison, in the Czech and Slovak Republics these sectors have a strong industrial tradition and they have attracted considerably more interest from foreign direct investors.

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10 Council for Mutual Economic Assistance.

It is also interesting to observe that the nationality of the investor influences the choice of sectors. An analysis of Hungary's inward FDI stock reveals that investors from the EU-15 (especially Germany, the Netherlands, Austria, France and the United Kingdom) share their activities almost equally between manufacturing and services, while investors from outside the EU tend to prefer manufacturing: almost all US and Japanese foreign direct investments are in the manufacturing sector. Furthermore, there seems to be a match between the technological characteristics of the sectors where foreign investors invest in and their country of origin. Using the method applied in Resmini (2000), we find that scale-intensive sectors (e.g. manufacture of sugar, chemicals, and motor vehicles) are the dominant recipients of FDI (more than half of the FDI stock in 2000) – though their share in FDI has been decreasing. This is mostly due to large inflows from the EU-15. Traditional sectors (e.g. food, beverages and tobacco; textile, clothing and leather; and wood and furniture) are the other important targets of EU-15 investors, accounting for about one-third of the total FDI stock. Their importance has been rising over time. At the same time, non-European investors (mostly from the United States and Japan) invested in high-technology, science-based sectors such as pharmaceuticals, office machinery, computers and precision instruments. One reason for this is that FDI from these countries concentrates on a few large higher-technology projects.

The nationality of investors seems to have influenced their choices, with EU investors investing in both manufacturing and services and non-European investors concentrating on high-tech manufacturing.

The regional distribution of FDI in a country is usually determined by geographical considerations, labour endowment and the presence of adequate infrastructure. These are also the factors that are relevant in Hungary. Given that foreign investors prefer geographical proximity to their home countries, companies with foreign participation are – in addition to the capital region[11] – concentrated in the western part of the country along the Austrian border and in the north-western part of the country, especially in the town of Székesfehérvár. These regions are well endowed with skilled and relatively cheap labour (Barta 2002) and have good access to transport infrastructure, telecommunication facilities, and financial services. Overall, the regional distribution of FDI in Hungary changed little between 1993-2001, with the Budapest region currently accounting for around 54 percent of all FDI, followed by Pest (11 percent) and Győr-Moson-Sopron (9 percent).

3. Main determinants of FDI in Hungary

3.1 Economic fundamentals

When analysing determinants of FDI, two questions stand out: why do firms invest abroad and what makes them choose a specific location rather than another? In trying to answer these questions, Dunning (1993) combines insights from the industrial organisation literature with comparative advantage considerations of the trade literature. In a nutshell, industrial organisation explains why firms venture abroad and trade theory describes which location (country or region) they pick. Uppenberg and Riess (this volume) discuss the determinants of FDI in greater detail.

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11 Data are somewhat distorted, however, because many companies have their headquarters registered in Budapest, but operate plant(s) located in the countryside.

Specifically in the context of transition economies, most studies (as reviewed, for instance, in Holland *et al.* 2000) find the following host-country characteristics as particularly important determinants of FDI: market size and growth, relative factor costs (especially relative labour costs), skills and qualification of the workforce, trade barriers and access to markets, country risks, investment incentives (though there is less conclusive evidence for the importance of this factor), the scope and method of privatisation, and the share of the private sector in the economy. Many of these factors relate to the speed and rigour with which transition economies embarked on structural reforms to create a functioning market economy. As investors could choose among a number of CEE countries, they based their decision on the success of potential host countries in creating such an economy. The link between reform policies and FDI was especially significant in the case of governments' approach to liberalisation, privatisation, and regulatory and institutional reforms of the economy (see, for instance, Lankes and Venables 1996, Holland and Pain 1998, and Resmini 2000). Specifically, Altomonte (2000) argued that the design of an efficient, transparent, and enforceable legal and institutional framework is a crucial determinant of FDI. He also emphasised that the timing of reform is important. In this respect, Hungary certainly had a head start: foreign participation in joint ventures was made possible in 1972, and, in 1988, the country established rules for governing FDI; other CEE countries took similar steps only after 1990. Kalotay and Hunya (2000) demonstrate the determining effect of privatisation to foreigners on FDI inflows. Hungary already opted for this mode of privatisation at the beginning of the 1990s while competitor countries started to take this route some four to five years later. Overall, Hungary's first-mover advantage had translated into FDI inflows that were high compared to FDI flows to other countries. As the transition and transformation process advanced in the region, and countries became more and more similar to each other in that respect, the relative importance of structural reforms diminished in favour of other factors.

One of them is the quality and quantity of infrastructure. In transition economies both were clearly behind advanced-economy standards, but Hungary was among those CEE countries that had a relatively developed infrastructure, giving it an early advantage over other transition economies. The early privatisation of some services (especially telecom) to strategic foreign investors resulted in massive investments, considerably improving Hungary's infrastructure. Other areas of infrastructure (especially transport) received less attention, and here the involvement of private capital (in terms of concessionary agreements) did not bring success. The adverse effects of initial bottlenecks in the transport infrastructure become clear when we look at what happened after such bottlenecks diminished. For instance, the extension of motorways to remote regions proved to be a fairly powerful tool in attracting FDI to regions with a pool of suitably skilled, but relatively cheap workers. More generally, the extension and upgrading of motorways served as a means of reducing the distance of potential FDI locations from EU borders, thereby improving Hungary's attractiveness as a destination for FDI (Bartha and Klauber 2000).

Human capital is arguably another important determinant of FDI. Compared to countries with a similar per capita GDP, Hungary (and other transition economies) had, and still has, a relatively skilled and cheap labour force. This is true even after accounting for differences in labour productivity, and for a long time productivity growth exceeded real wage growth. However, starting in 2002, this trend was reversed, reflecting a huge nominal

wage increase in the public sector (some 50 percent), which had repercussions on the wages of the private sector as well. Because other CEE countries did not experience similar wage increases, Hungary is liable to have lost competitiveness and part of its attractiveness as a destination for FDI.

Since the beginning of transition, Hungary has also experienced a significant decline in the labour force participation rate. Standing at 56 percent (2002), the rate is now low by international standards (Fazekas 2003b). While official unemployment would be higher had the labour force participation rate not fallen, more and more foreign investors encountered problems recently in finding a suitably skilled workforce in the more developed regions of the country. In principle, labour mobility across regions could alleviate this situation, boosting overall employment. However, like in many other countries of the enlarged European Union, there is relatively little labour mobility across different regions in Hungary. The high cost of moving and commuting are partly responsible for this and, in fact, when commuting takes place, the employers of four-fifths of the commuters finance at least part of the costs of commuting (Bartus 2003).

Agglomeration effects are another force that has stimulated FDI flows to Hungary. In essence, a growing stock of FDI in itself attracts further investment (Csáki *et al.* 1996). In particular, in a first-mover country like Hungary the FDI stock could quickly reach a critical mass, influencing the decisions of other potential foreign investors. So what are the channels of further investments? First, competitors follow each other; second, smaller, more risk-averse and financially more vulnerable companies follow bigger ones; third, major investors are followed by their suppliers and service providers. Csáki (2001) also emphasises that a larger stock of FDI results in larger reinvested earnings and that investors are inclined to establish their regional headquarters, services, production or logistics centres in the first-mover country.

... but during the advanced stages of transition, factors such as the quality and quantity of public infrastructure and human capital, labour and transport costs, and agglomeration effects became more important.

So far, we have put together a long list of FDI determinants without considering the type of potential investment. A crucial distinction to make is that between market-seeking (horizontal) FDI and cost-reducing (vertical) FDI. Lankes and Venables (1996), for transition economies in general, and Éltető and Sass (1998), for Hungary in particular, have shown that differentiating between these two types of investments allows for a better identification of FDI determinants. For market-seeking investors, the size of the market and growth prospects are the most important and, in connection with these factors, macroeconomic stability (Éltető and Sass 1998). For export-oriented, cost-reducing investments, the most important factors are relative factors prices (especially labour costs) and transport costs.

In trying to understand the pattern and determinants of FDI, we also need to bear in mind that in transition economies scope for market-seeking FDI emerged earlier than the potential for cost-reducing (vertical) FDI. Indeed, many studies found that at the beginning of the transition process, investors were almost exclusively driven by market-seeking motives. Studies on transition countries, including Hungary, reaching this conclusion include Lankes and Venables (1996), Pye (1998), and Resmini (2000), for example. Lankes and Venables (1996) emphasised that the advantage for companies that moved fast was more important for market-seeking investors than for cost-reducing, export-oriented ones. This explains the rapid flow of market-seeking investments to Hungary. Within the group

of market-seeking investors of the early 1990s, some were motivated by tariff jumping, e.g. in the food sector and the automotive industry.

As the move to a market economy progressed, the interest of foreign investors expanded from market-seeking to export-oriented investment.

As the transition to a market economy progressed, export-oriented projects appeared, eventually dominating annual FDI inflows. Csáki *et al.* (1996) and Hunya and Stankovsky (1999) provide evidence for this shift towards export-oriented FDI in the case of Hungary. In line with the sequencing of horizontal and vertical FDI, export-oriented projects appeared first in the most advanced transition countries, notably in Hungary, which was relatively well positioned compared to other CEE countries due to its proximity to Western Europe; openness to international trade and investment; a large pool of low-cost, skilled labour; the existence of a functioning legal and regulatory framework; and, last but not least, an investment-friendly business environment, including favourable foreign investment regulations and incentives.

To elaborate further on the need to distinguish between market-seeking and export-oriented FDI, it is worth noting that they are usually of different size: market-seeking investments tend to be smaller than cost-reducing, export-oriented ones. What it is more, export-oriented investments are normally more labour intensive, which implies that they are footloose compared to the market-seeking investments – looking for greener pastures in the event of unfavourable changes in relative labour costs. In the case of Hungary, a few export-oriented investments have indeed moved on, mainly to China. In a sense, the flip side of being a first mover in attracting FDI is that once living standards and, thus, wages in the first-mover country increase, some foreign firms move on to countries that are still further down the value added chain.

In addition to factors that generally make a favourable economic environment (economic and political stability, judicial effectiveness, market size, geography and relative factor endowment), there are often direct government incentives aimed at attracting FDI by enhancing the financial return to foreign investors or reducing the risk of the underlying investment. The FDI-enhancing role of such incentives has been widely discussed in the empirical literature, which – all in all – does not point to conclusive results regarding the impact of incentives on FDI flows. Most authors are of the view that incentives cannot compensate for an unfavourable economic environment, but incentives can play a role in the choice of location among similarly attractive countries or regions. This consideration may be increasingly valid for the most advanced CEE economies, which have more or less completed the transition process. Thus, more generous incentives may influence the choice of FDI among similar locations in Central and Eastern Europe. It is against this background that we now briefly review FDI incentives in Hungary.

3.2 The changing nature of FDI incentives

A key point to make here is that the relative generosity of FDI incentives in Hungary has changed over time. The Hungarian government has been offering such incentives since the beginning of the 1990s, and three periods can be distinguished: the first running through about 1996, the second covering the years 1996-2002, and the third starting in 2003. The three periods are characterised by different economic and political circumstances, policy aims, FDI policies, and/or impacts of other policies on FDI inflows. However, all three periods can be characterised by a complex set of incentives, including fiscal incentives

Box 1. A very brief history of Hungary's industrial free trade zones [12]

Industrial free trade zones (IFTZs) were introduced in 1982 with the objective of attracting export-oriented, high-technology FDI to Hungary. International examples of similar schemes are the export processing zones of developing countries and the customs free zones of Ireland and the United States. Another objective was to integrate the companies operating in IFTZs as much as possible into the host economy and, thereby, reduce the risk of a dual economy evolving.

The regulation of Hungary's IFTZs was unique. Any company could set up its own zone without geographical restrictions of any kind under license by the customs and finance authorities. IFTZs were considered extra-territorial for purposes of duties, foreign exchange regulations and other legislation. The dutiable goods and means of production (excluding building and auxiliary material) were not subject to customs duties and value-added tax.

Why was the regulation especially attractive for (export-oriented) greenfield investors? As from 1996, contribution-in-kind for investments in IFTZs could be transferred to the country duty- and VAT-free. For large investments, paying the duties and VAT would have meant high additional costs (here it is important to note that in the EU investment goods can be imported duty-free.) Another reason for the growing number of companies in IFTZs was that companies operating there needed a special permit to buy their inputs from the domestic economy and could do so only up to a certain amount. Thus, their traditional suppliers followed them to Hungary and established their affiliates in an IFTZ as well.

An IFTZ could be set up in any area inside Hungary after fulfilling the conditions required by the regulation. Main conditions were as follows: firms had to (i) produce for exports, largely based on imports, (ii) cover an area of at least 2,000 square meters, (iii) allow customs control, and (iv) pay the customs deposit. A company could set up more than one IFTZ. This was an extremely attractive regulation for assembly companies using only local labour, as it enabled them to bring in high-value equipment duty-free for their own use.

Starting in 1990, the number of IFTZs established in Hungary increased rapidly. First, a number of transnational corporations carried out greenfield investment (for example General Motors, Suzuki, and Philips). Later their competitors and/or suppliers followed, establishing their Hungarian affiliate in an IFTZ (e.g. Ford, Audi, IBM, Nokia, LEAR Corp., United Technologies, Sony, Zollner). But there were also companies like Benetton, which identified CEE as an attractive investment location.

At the end of 2001, more than a hundred IFTZs existed. Philips operated more than one IFTZ (e.g. one for computer monitors and another for telecommunication products), so did the LEAR Corp. (car seats, other car parts). Estimates (based on company interviews) suggest that out of the 115 IFTZs operating in Hungary at that time about 70-75 were established through a greenfield investment; the share of foreign capital in the total capital of IFTZ companies was estimated to have exceeded 90 percent.

With the accession of Hungary to the EU, all companies operating in IFTZs have become part of the customs territory of Hungary.

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12   Box 1 follows Antalóczy and Sass (2003a).

(tax holidays and tax reductions, deductions of certain costs from the tax base, and – until 1993 –exemption of import duties on imported capital), financial incentives (grants supporting R&D, job creation, environment protection, and the construction of infrastructure as well as preferential credits) and other incentives (institutional support, industrial free trade zones – IFTZs, explained in more detail in Box 1 – and industrial parks). As far as the relative importance of the three groups of incentives is concerned, Hungary has relied more on fiscal (and on other) incentives than on financial ones and, in that sense, its policy has been more akin to that of developing rather than developed countries (Antalóczy and Sass 2003a).

In the first period, a particular goal of the FDI incentive system was to attract a few blue chip companies. To this end, individual bargains were struck with foreign investors, sometimes assuring them of monopoly positions or at least fairly strong market positions. Overall, in this period, the FDI incentive system was generous by the standards of the CEE region (Sass 2003a).

The nature of FDI incentives offered by the Hungarian government changed over time, gradually becoming less generous, more transparent, and performance-linked.

In the second period, besides attracting foreign investors, the policy aim was to increase the benefits of FDI for the host economy. Furthermore, FDI was also increasingly considered a means of achieving other policy objectives (e.g. industrial and regional development, strengthening the country's trade balance, the promotion of R&D, and job creation). In particular, FDI incentives targeted export-oriented, large investments in manufacturing and aimed at increasing backward linkages with local companies. At the same time, the incentive system became more transparent and less generous compared to both the previous period and the incentive schemes of other CEE countries. Fiscal incentives (notably tax allowances) and other incentives (especially the IFTZs) remained the main FDI policy tools. In order to reap the benefits of FDI more fully for the host economy, performance requirements got stricter, demanding foreign investors to invest in particular regions, sectors, and activities and meet certain employment creation and sales targets in order to qualify for more generous incentives. To illustrate, a special programme was initiated that aimed at increasing domestic suppliers' share in the production of TNCs. Another noteworthy feature of the second period was that the system essentially gave preference to large investments, evidenced by the fact that less than 50 enterprises enjoy the maximum benefit of a zero-percent company tax rate.

The third period is marked by the very final stages of the accession process and EU accession itself. EU membership called for a complete restructuring of the incentive system. This applies especially to the IFTZs, which have been basically abolished. In addition, tax allowances have been made compatible with EU regulations governing state aid. Given that there is incentive competition between CEE countries (if not across the enlarged EU), the need to comply with EU regulations will result in a more level playing field, which should be beneficial for Hungary given that the country has been offering less generous incentives than other CEE countries since about 1998. That said, one of the unique features of the Hungarian system (i.e. the IFTZs), which other CEE countries were not able to catch up with, will be lost.

To summarise, the key determinants of FDI in Hungary are largely consistent with broader international evidence on FDI determinants. Generally speaking, this means that in Hungary too FDI has primarily been attracted by the local market's growth prospects,

by the presence of skilled labour, adequate infrastructure, privatisation and a generally business-friendly economic policy and regulatory environment.

But attracting FDI and benefiting from it is not necessarily the same thing, and we thus need to investigate what FDI has brought to the Hungarian economy.

4. The impact of FDI on the Hungarian economy

4.1 The particular role of FDI in transition economies

In general, FDI has considerable potential to promote economic development. A key channel in the case of countries that lack national savings is the acceleration of capital formation made possible by the inflow of FDI. In addition, by transferring management skills and technology, FDI can contribute substantially to raising the productivity and competitiveness of the host country. In the case of transition countries, FDI can be expected to have been of particular importance, essentially accelerating the transition from a planned to a market economy. This is because it helps speed up industrial restructuring and the development of markets and market-oriented behaviour of economic agents. In fact, as Lankes and Venables (1996) have pointed out, FDI has often been viewed as a potential catalyst for the transition from plan to market.

However, the growth-enhancing and transition-accelerating impact of FDI is not automatic. Companies with foreign participation may form a separate island in the economy, having very limited links with local enterprises. They may preserve the technological backwardness of the host country by transferring low value-added activities. They may lead the host country to overspecialise on a few products, thus exposing it to the business cycles of the world economy. They may raise political issues as well. But which factors determine whether or not the benefits of FDI materialise? In what follows we try to give an answer for the Hungarian case, focussing on five topics: how the type for FDI shapes its effect, the linkages between the foreign-owned and indigenous firms, the transfer of technology and the scope for spillovers, the role of FDI for the export performance of the Hungarian economy, and – finally – the effect of FDI on employment, wages and regional disparities.

While FDI has considerable potential to foster host countries' economic performance, the growth-enhancing and transition-accelerating effect of FDI is not automatic.

4.2 The type of FDI shapes its effects

Different types of FDI have different effects on the host economy. Distinguishing between greenfield investment, privatisation-related investment, and cross-border mergers and acquisitions, we note first that by establishing a new plant, greenfield investments contribute more to gross fixed capital formation than both privatisation-related FDI and M&As. Greenfield investments immediately create new jobs; they are usually more export-oriented than other investments, use more advanced production technologies (thereby creating opportunities for technological spillovers), and they concentrate in certain sectors, e.g. in the electronics sector and the automotive sector. The setting up of new production plants by a foreign TNC also often entices foreign suppliers of the TNC to invest in the country as well, thereby enabling the TNC to start operating more rapidly to its own standards. This helps TNCs to become more efficient, but it slows down the creation of

networks of indigenous suppliers – an issue to which we will come back below. The share of greenfield FDI in Hungary's total inward FDI stock is estimated to amount to 25-30 percent (Antalóczy and Sass 2001 and Csáki 2001), which is similar to that in other CEE countries. [13]

In principle, greenfield investment contribute more to capital formation and employment than privatisation-related FDI; in transition economies, the difference seems to be smaller.

But in a transition economy, the difference between the impact of greenfield investments and other types of FDI is not so straightforward, as Antalóczy and Sass (2001) argue in a study on Hungary. Reflecting the results of company interviews, the authors show that foreign investors who have acquired a Hungarian company through privatisation carry out upgrading and restructuring investments that are a very similar to greenfield investments. This is because many privatised enterprises essentially have to be rebuilt from scratch. Moreover, subsequent to – or in connection with – rehabilitating existing plants, production capacities are extended to allow for a higher output.

Hungary has seen few cross-border M&As so far, but their number has been increasing recently – a trend that could continue with accession to the EU. The M&As that occurred seem to have improved the competitiveness of the merged companies without decreasing the overall level of competition significantly (Csáki *et al.* 2001).

A final observation concerning the link between the type of FDI and its impact on the economy: while cost-reducing, export-oriented investments are more footloose than market-seeking investment, they are more likely to transfer technology, know-how, quality control, marketing and management skills to host countries. In Hungary, many investments of this type have been located in IFTZs. They export the majority of their production, and many of them produce high-tech products (see section 4.5); some of them (the most notorious case was that of IBM) left the country when their incentives expired and their costs (especially labour costs) started to rise.

4.3 Linkages between TNCs and the indigenous economy

One of the channels through which indigenous enterprises are expected to benefit from the inflow of FDI (in terms of increased productivity and competitiveness) is their link as suppliers to foreign-owned companies. However, such backward linkages have remained below expectations in Hungary. Table 1 shows backward linkages for selected TNC affiliates. Overall, the share of indigenous supplies in total supplies to TNC affiliates is higher than in developing countries, but lower than in more advanced economies (Szanyi 2001).

One reason for the limited input-output linkages are large differences in the characteristics of foreign-owned firms, on the one hand, and indigenous firms on the other hand (Hunya 2001). In general, in an environment where the two groups of companies form separate segments inside an economy, the evolution of forward and backward linkages may be hindered. However, this obstacle to linkages may wither over time as companies

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13 In the Czech Republic, according to Zemplinerova and Jarolim (2001), this share amounts to at least 20 percent. For Poland, the Polish Investment Agency (PAIZ) estimates that greenfield FDI accounts for more than 30 percent of the total FDI stock.

with foreign participation become more established and more familiar with the functioning of the economy and as the performance of indigenous companies improves.

In Hungary, both groups of firms continue to differ considerably, notably in terms of company performance (profitability, competitiveness, and export-orientation, for instance). A narrowing of these differences could boost the development of linkages, but empirical evidence is inconclusive as to whether differences in performances have narrowed. For example, Novák (2002) finds no evidence of a decrease in the difference, while Hamar (2001) argues that the performance of both groups became more similar towards the end of the 1990s.

But it should be noted that the degree of linkages varies across sectors and seems to be influenced by the type of FDI. Sass (1997) finds for privatisation-related FDI that privatised companies retained their original domestic suppliers after restructuring, particularly if they focussed mainly on the domestic market. For example, in the case of Tungsram (an investment by General Electric to produce light bulbs), the share of local suppliers exceeds 60 percent (Table 1). The share of indigenous suppliers is similarly high in the output of TNC affiliates in the food sector.

Privatisation-related FDI is more likely to result in linkages between foreign-owned firms and indigenous ones than greenfield investment.

Table 1.   Share of indigenous supply in total supply to foreign-owned firms (in %)

Company	Type of investment	Share of local supplies
Audi	Greenfield	< 10
Ford	Greenfield	>20
GM	Greenfield	10-20
Philips	Greenfield	about 10
Suzuki	Greenfield	about 40
GE-Tungsram	Privatisation	60-70
Electrolux	Privatisation	40-50
Sony	Greenfield	< 5
Opel cars	Greenfield	7
Opel gears	Greenfield	40-45
Rába	Publicly traded	40-45
Lear Corp/United Technologies Automotive	Greenfield	about 10

Note: Rába was privatised through the stock exchange.
Source: Szanyi (2001, p. 14) and author's own estimate.

In contrast, in the case of greenfield investments, it can take considerable time to build up a local network of suppliers. Barta (2002) finds evidence that new networks created by greenfield investors in the Hungarian economy have indeed emerged over time. There are also signs of agglomeration effects, with clusters of suppliers developing around foreign-owned firms in the Northern Transdanubia and the Budapest region (Buzás 2000, Grosz 2000, Barta 2002). These networks belong to international networks of TNCs; they concentrate in regions where most of the FDI stock is located and consist mainly of

companies with foreign participation (TNCs' traditional suppliers that followed their main customer to Hungary). Indeed, many of the greenfield investors have a limited number of indigenous suppliers, although in most cases the share of indigenous suppliers increased over time. In the case of Audi (automotive industry), for example, the share of indigenous suppliers has increased from less than 1 percent to around 10 percent today.

The degree of linkages between foreign and indigenous firms also differs across sectors and tends to be weaker in the case of TNC affiliates that are tightly controlled by their parents.

The degree of linkages between foreign-owned and indigenous firms also differs across sectors. Some sectors involve local suppliers more than others. A case in point is the machinery industry, especially the automotive and electronics sectors. However, according to Meyer (1998) even these industries operate more and more in the production networks of international partners. One strong partner usually dominates these international networks, which essentially replaces integrated TNCs. Long-term supply contracts characterise these networks, making it difficult for indigenous firms to make inroads into them. Overall, the key challenge for indigenous industries in a transition economy is to become part of these production networks. Box 2 sketches to what extent indigenous firms in Hungary have successfully integrated with the foreign-owned automotive industry.

Box 2. Supplier contacts in Hungary's automotive industry

Numerous foreign car producers have established production facilities in Hungary, mostly through greenfield investments (e.g. Suzuki, Opel/GM, Audi, and Ford). Unlike other CEE countries, Hungary did not have a passenger car industry before the collapse of communism (the country produced busses only), but there were companies producing spare parts and components. Production networks around the affiliates of foreign car producers evolved relatively rapidly. These networks include mainly foreign suppliers that followed car manufacturers to Hungary and only few indigenous suppliers. Indigenous firms that serve as first-tier suppliers are usually relatively large, while indigenous small and medium-sized firms are engaged in the network only as second-tier suppliers. Second-tier suppliers are involved to a lesser extent in the development of a component and they usually specialise on relatively low-tech products, which curbs the transfer of technology. Second-tier suppliers are in a weaker position than first-tier suppliers, and usually they are not exclusively linked to one major customer. The difficulty indigenous firms have in becoming part of the production network for cars essentially reflects the head start of foreign-owned suppliers in terms of producing components on time, of the right quality, and at the right price.

The extent of local linkages also depends on the affiliate's position vis à vis its parent firm (Vince 2001). Two groups of affiliates can be distinguished. The first comprises majority foreign-owned affiliates that are tightly controlled by large TNCs. Many greenfield investments belong to this group. In this case, inputs and outputs are traded inside the TNC, and the share of indigenous suppliers is low and often limited to providing services. The second group consists of affiliates that belong to moderately sized TNCs. These affiliates were mainly acquired through privatisation rather than created as greenfield investment. There is evidence, in part reflected in Table 1, that this type of affiliate relies more on indigenous suppliers.

The special regulation of IFTZs had also an impact on the formation of local linkages. On the one hand, given the uniqueness of the regulation, companies operating in IFTZs are more spread geographically in Hungary than in other countries. This may have facilitated

building up local contacts with indigenous firms. On the other hand, technical and customs barriers still existed between companies in customs territories and affiliates in IFTZs. Large, greenfield, export-oriented IFTZ investors (as for example Audi, GM, and Philips; see Table 1) have few linkages with indigenous suppliers and, instead, receive inputs from companies with foreign participation, which followed their traditional partner to Hungary and set up their own IFTZ.

4.4 Technology transfers and spillovers

FDI has the potential of transferring modern technologies to the host economy, not only directly to TNC affiliates but also indirectly as and when modern technology and knowledge spills over to the economy at large. The empirical evidence of direct technology transfers and spillovers in transition economies is mixed, however. For instance, Damijan *et al.* (2003) found that only direct effects of FDI have a significant productivity impact on host-country economies in CEE; Konings (2001) arrived at similar conclusions. Specifically discussing the case of Hungary, Novák (2003) argued that the introduction of new technologies in the economy had only a negligible impact on the performance of indigenous firms. That said, he observed that enhanced competition and backward linkages resulting from the presence of TNC affiliates had a significant impact on the performance of indigenous firms. Along similar lines, Schoors and van der Tol (2002) concluded that the increasing density of companies with foreign participation in Hungary had a significant positive effect on the productivity of indigenous firms. But it should be noted as well that some studies have found negative rather than positive spillovers (e.g. Djankov and Hoekman 1998).

The empirical evidence of technology transfers and spillovers is mixed, but it is encouraging that many TNCs have transferred part of their R&D activities to Hungary.

There has also been some interest in the role of FDI on activities in research and development (R&D) in the Hungarian economy. Again, the results seem to be inconclusive. On the one hand, the R&D centres of firms acquired by foreign investors were closed down in most cases (but one should not forget that the effectiveness and marketability of R&D carried out in these centres during the socialist era was probably questionable). Nevertheless, surveys show that the R&D intensity of companies with foreign participation is much higher than that of indigenous companies; furthermore, the R&D expenditures of the former are growing much faster than that of the latter. At the same time, there is little scope for spillovers because of the limited R&D cooperation between foreign-owned companies and indigenous ones (Inzelt 1998, 2000, and Szalavetz 1999). That said, cooperation in this field seems to be rising (see Csáki 2001 and Sass 2003b), spreading to sectors as diverse as electronics, telecom equipment, pharmaceuticals, and food processing.

On the other hand, since the mid-1990s, many TNCs operating in Hungary have transferred parts of their R&D activities to Hungary. For example, firms like Ericsson, Nokia, Siemens, Compaq and Knorr-Bremse enlarged existing R&D units or opened new ones. This bodes well for the future as it indicates that Hungary has the capability to attract high-value-added foreign direct investment.

4.5 Spectacular growth and change of exports

The type of foreign direct investment also influences the trade balance. Export-oriented investors have a positive impact on the balance of trade. In Hungary, some 15-20 percent

of the total stock of FDI and 35-50 percent of manufacturing FDI are estimated to be export-oriented (Antalóczy and Sass 2003b). The production of export-oriented TNC affiliates resulted in high export growth rates but also triggered a rapid increase in imports (Darvas and Sass 2002). In fact, Hungarian exports have more than tripled since 1992, and in the second half of the 1990s, Hungary experienced the most rapid export growth of all OECD countries, gaining considerable market share.

Table 2.   Hungary's top ten export products (2002)

Product	Share in total exports (in %)		Exporting company with foreign participation?	High-tech product?
	2002	1992		
Telecom. appliances	7.8	0.1	Partly	Yes
Reciprocating piston engines	6.2	0.0	Yes	No
Cars	4.3	0.2	Yes	No
Input or output units	2.2	0.0	Partly	Yes
Parts for TV, radio	2.1	0.3	Yes	No
Storage units for computers	1.6	0.0	Yes	Yes
Television receivers	1.6	0.2	Yes	No
Video recording appliances	1.5	0.1	Yes	Yes
Parts for automatic data processing machines	1.5	0.1	Partly	Yes
Electric conductors	1.3	0.4	Partly	No

Source: Antalóczy and Sass (2003b).

The activities of foreign-owned firms have radically changed the composition of Hungary's exports and have led to a significant increase in exports of high-tech products...

The activities of TNCs have also led to a radical change in the composition of exports. As Table 2 shows, the share of what are now Hungary's top three export products (telecom appliances, reciprocating piston engines, and cars) has increased from virtually zero in 1992 to around 18 percent ten years later. During the same period, the share of high-tech products in total exports has grown significantly and is now among the highest in CEE (about 22 percent). It is also worth noting that many of the top ten exporters export virtually all of their output (Table 3).

Table 3.   Hungary's top ten exporters (2002)

| Rank	Company	With foreign participation?	Exports in % of total sales
1	Audi	Yes (greenfield)	99
2	Flextronics International	Yes (greenfield)	99
3	Philips Hungary	Yes (greenfield)	98
4	GE Hungary	Yes (privatisation)	94
5	Mol	Partly (publicly traded)	23
6	IBM Storage Products	Yes (greenfield)	100
7	Opel Hungary	Yes (greenfield)	100
8	Samsung Electronics	Yes (greenfield)	82
9	Borsodchem	Partly (publicly traded)	81
10	NABI	Yes (greenfield)	99

Note: Includes only those companies that provided data on their activities.
Source: Antalóczy and Sass (2003b).

But as the concomitant rise in imports suggests, the net effect of export-oriented FDI on the external trade balance can be considerably smaller. In this respect it is again useful to distinguish between export-oriented TNC affiliates that largely use imported intermediate products and those that process domestically produced goods (Meyer 1996.) The first type is by far the most important among Hungary's foreign-owned export-oriented firms. In essence, this type of firm carries out assembling activities, with relatively little value added generated in Hungary. Using machinery (SITC 7) as an example, Figure 6 illustrates the importance of assembling activities of TNCs for exports and imports. We can see that "parts and components" account for a large share of machinery exports and imports; at the same time, there has been a large increase in intra-company trade in machinery parts and components. It is also true that behind the above-mentioned increase in exports of high-technology products there is a significant increase in the import of their components. A good illustration is the high growth in the export of video recording apparatus and a similarly high growth in the import of one of its main components. Lest that not sound too pessimistic: while local value added is small in most of Hungary's export-oriented TNC production, empirical evidence shows that it has been growing over time (e.g. Somai 2003)

... but as many of Hungary's exports are based on the processing and assembling of imported intermediate goods, imports have risen strongly too.

Figure 6.   Parts and components in % of machinery export and imports, 1992-2000
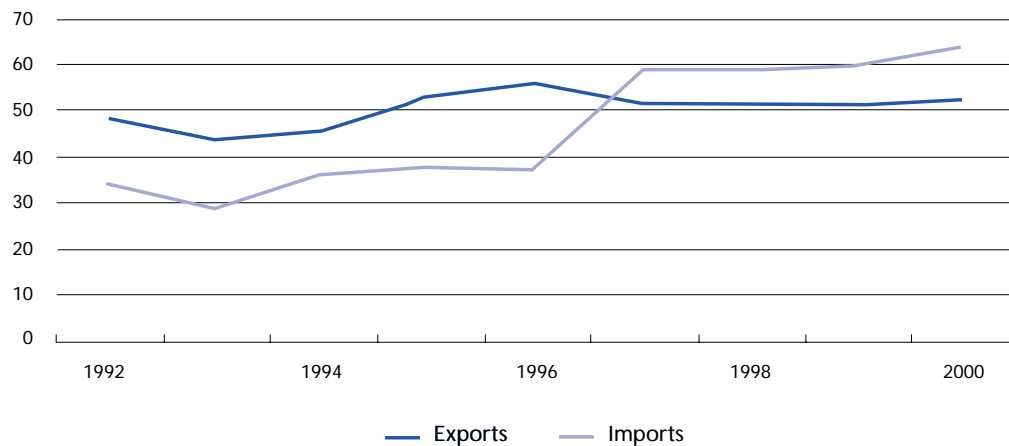
Sources: Own calculations based on foreign trade data provided by the Hungarian Central Statistical Office.

4.6 Strong impact on employment and wages

During the transition process, there is a changing relationship between FDI and employment that reflects the sequence of market-seeking FDI being followed by cost-reducing, export-oriented investment (Mickiewicz *et al.* 2000). As the latter has stronger employment effects than the former, first movers like Hungary are also first to fully enjoy the positive employment effect of FDI. Today, foreign-owned firms employ almost half of Hungary's manufacturing workforce, i.e. about a quarter of the total workforce.

During the period of transition, labour market changes were initiated mainly by demand-side factors and, thus, foreign investment had a major impact in that respect. During the first years of transition, about 1.5 million jobs disappeared. Some 80 percent of the net employment creation between 1993 and 2000 was due to the activities of companies with foreign participation (Fazekas 2003a). In 2001, companies with foreign participation were the most important employers in manufacturing and the trade sector. The contribution of foreign-owned firms to employment is especially high in electronics, the chemical industry, and in the production of transport equipment; in these sectors, foreign-owned firms account for more than 60 percent of employment. About one-third of "foreign" employment is realised in manufacturing, and within foreign-owned manufacturing electronics, tobacco, and textile and clothing are of particular importance.

What can we say about wages in foreign-owned companies? In 2001, companies with foreign participation paid, on average, 50 percent higher wages than indigenous firms. According to Kertesi and Köllő (1997), one-third of the difference in wages can be explained by the higher productivity of people employed by companies with foreign participation. These are mainly workers who are younger and better educated than the average manufacturing employee. Analysing a longer time period, Kertesi and Köllő (2001) confirm their earlier finding of higher productivity and wages of younger and skilled workers in companies with foreign participation. Kőrösi (2002) emphasises the role of skills, showing that jobs were created almost exclusively for skilled workers.

Inward FDI has contributed markedly to employment creation and rising labour income; but not surprisingly, the increase in living standards has not spread evenly across regions and people.

Given the importance of FDI for the creation of employment, it is natural to examine the impact of FDI on the regional distribution of employment and income. The findings here are relatively obvious: as FDI has flown largely to Hungary's more developed regions (about 80 percent of the FDI stock are located in Budapest and in the North-Transdanubia region), it is not surprising that FDI has increased regional income and employment differences (Nemes-Nagy 2000). In this context, it is worth noting that while wages in the developed regions are higher than in the periphery, this does not apply to unit labour costs, which are lower because of relatively higher productivity in developed regions (Fazekas 2003a). In sum, regional income and employment imbalances increased during the 1990s. Although the location choices of transnational corporations have contributed to this, growing regional imbalances could be seen as almost unavoidable in a country that is catching up with richer parts of the world from a position where a relatively egalitarian distribution of income was an explicit policy objective.

But here the question arises whether special incentives could help directing FDI to less developed regions. Like many other countries, Hungary has tried this, but with only limited success. Such incentives were offered through special programmes (offering grants and preferential credits for FDI in particular regions) and fiscal incentives (such as significantly reducing the minimum investment required for tax holiday eligibility or the granting of tax allowances for investment in regions with high unemployment). In spite of these measures, foreign investors invariably chose locations in the developed parts of the country. Extensions of motorways to regions with suitably skilled labour proved to be a more powerful tool. Proactive local governments could also be an attractive factor for FDI, as demonstrated by the success of Szekszárd, a town in a less developed region.

5. Conclusions

Hungary was the first CEE country to open itself to foreign direct investors. The process already started in the 1970s, and an FDI-conducive regulatory framework had been put in place by the end of the 1980s. The country was also the first to privatise large state-owned enterprises to foreign strategic investors. With limited national savings, indigenous capital accumulation was limited too; in these circumstances, FDI was the main engine of capital accumulation, economic growth, and of industrial restructuring.

To elaborate on the last aspect, the large inflow of FDI resulted in the creation of many new companies (many of them using advanced technologies), which contributed to the market exit of many old, state-owned companies that were using obsolete technologies. With large export-oriented foreign investors on the scene, exports grew rapidly and their structure changed fundamentally. The rapid growth of exports was mostly due to a surge in machinery exports, mainly targeting markets in the EU-15.

Given the early inflow of FDI, Hungary had reached ahead of other CEE economies a situation where agglomeration effects attract further investment. But it is also true that the relative maturity of FDI in Hungary has changed the composition of flows, with equity flows falling relative to inter-company loans and reinvested earnings. As the latter are not yet captured by Hungary's balance of payments statistics, cross-country comparisons on the basis of official statistics give an exaggerated impression of the decline in FDI flows to Hungary relative to other CEE countries.

Reflecting a bit more on Hungary's first-mover position, one should mention the country's growing role as a provider of outward FDI. Since the liberalisation of outward FDI in 1996, Hungary has been the leading FDI home country of the region, both in absolute and per capita terms. In 1997-2002, outward FDI flows amounted to an annual average of about EUR 400 million; preliminary estimates for 2003 suggest a surge in outward investment to more than EUR 1,400 million. Hungary's foreign direct investors comprise both affiliates of TNCs and indigenous firms, including banks. These are either market-seeking investors or companies transferring the labour-intensive parts of their production to neighbouring countries with lower labour costs (Antalóczy and Éltető 2002). This takes us to the disadvantages, or rather challenges, of being the first mover.

Having been the first target of foreign investors in CEE, Hungary now faces the challenge of cost-reducing, export-oriented projects – notably footloose ones – moving to greener pastures. In part, this is a sign that Hungary is moving up the value-added chain in the internationalisation of production, but it nevertheless makes it necessary to cope with changes in the structure of the Hungarian economy. In this context, it is worth recalling that rapid initial FDI inflows were partly responsible for exposing the economy to a fast structural transformation in which many jobs disappeared and many workers left the labour market. What is more, regional disparities increased since foreign-owned firms, which created the bulk of new jobs, invested mainly in the better-off regions of Hungary. So far, no adequate economic policy response has been found to address growing regional imbalances and the decline in Hungary's competitiveness in activities based on cheap, unskilled or semi-skilled labour.

Overall, Hungary's FDI strategy has been beneficial to the country and the challenge is now to remain an attractive destination for FDI further up the value-added chain.

Another possible disadvantage of the first mover is that the privatisation of largely unrestructured, inefficient state-owned enterprises in a context of considerable uncertainty resulted in significantly lower privatisation revenues compared to other countries, which started privatisation to strategic foreign investors at a later stage and sold mostly recapitalised, restructured enterprises. In this sense, moving first and speedily on the FDI-cum-privatisation front translated into low privatisation revenues.

In sum, the fact that Hungary was the first CEE country to open up to FDI has brought advantages and disadvantages. But what is the balance? Expert opinions cover the full range, from those who believe that opening up was the best that Hungary could have done to those who think that the country could not have done worse. Critics of the FDI strategy claim that the massive inflow of transnational corporations turned the country into a colony of foreign capital. Experts at the other end of the spectrum posit that FDI (and the free-market economy in general) solves all possible economic and social problems. Of course, the truth lies somewhere in between. All in all, we believe that Hungary's FDI strategy was beneficial for the country. This does not mean that economic polices could not have been implemented better. But before judging too lightly, one needs to bear in mind that the transition of Hungary (and other CEE countries) from plan to market was without historical precedent and, thus, a model to learn from. In these circumstances, there was surely scope for making mistakes. In any case, the strong and weak spots of Hungary's economic performance since the beginning of transition cannot be attributed to FDI alone, but rather reflect initial conditions at the onset of transition, a host of economic policy decision, and exogenous events.

References

Altomonte, C. (2000). "Economic determinants and institutional frameworks: FDI in economies in transition". *Transnational Corporations*, (9:2), pp. 75-106.

Antalóczy, K. and Éltető, A. (2002). "Outward foreign direct investments in Hungary. Motivations and effects". IWE HAS Working Papers No. 125.

Antalóczy, K. and Sass, M. (2001). "Greenfield investments in Hungary". *Transnational Corporations*, (3), pp. 39-60.

Antalóczy, K. and Sass, M. (2003a). "Befektetésösztönzés és Magyarország csatlakozása az Európai Unióhoz". (FDI incentives and Hungary's EU-accession). *Külgazdaság*, (XLVII:4), pp. 4.-29.

Antalóczy, K. and Sass, M. (2003b). "Mőködőtőke-befektetések és a külkereskedelem modernizációja. Nemzetközi kitekintés és hazai tapasztalatok" (Foreign direct investment and the modernisation Hungarian foreign trade. International and Hungarian experiences). *Külgazdaság*, (XLVII:12), pp. 4-36.

Barta, Gy. (2002). *A Magyar ipar területi folyamatai, 1945-2000. (Territorial processes of Hungarian Industry*, 1945-2000). Dialóg-Campus, Pécs, Budapest, Hungary.

Bartha, A. and Klauber, M. (2000). "Infrastruktúra és egyes régiók gazdasági fejlődése" (Infrastructure and economic development of certain regions). *Ipari Szemle*, (1), pp. 10-13.

Bartus, T. (2003). "Ingázás" (Commuting), in Fazekas, K. (ed.), *Munkaerőpiaci tükör 2003*, MTA, Budapest, Hungary.

Buzás, N. (2000). "Klaszterek, kialakulásuk, szerveződésük és lehetséges megjelenésük a Dél-Alföldön" (Clusters, their development, organisation and possible appearance on the South Great Plain). *Tér és Társadalom*, (XIV :4), pp. 109-123

Csáki, G. (2001). "Some critical issues of economic transition", in Csáki, G. and Karsai, G. (eds.), *Evolution of the Hungarian economy 1848-2000. Volume III. Hungary: from transition to integration.* Columbia University Press, New York, USA.

Csáki, G., Lemák, G., Losoncz, M., Molnár, L., Némethné Pál, K., Sulok, Z., Tompa, T., Vértes, A. and Vértes, B. (2001). *A felvásárlások és összeolvadások alakulása Magyarországon (Developments in M&A in Hungary.)*. GKI Gazdaságkutató and Ernst & Young, Budapest, Hungary.

Csáki, G., Sass, M. and Szalavetz, A. (1996). "A magyarországi mőködőtőke-befektetések modernizációs hatása" (The Modernizing effect of foreign direct investment in Hungary.). *Külpolitika*, (2).

Damijan, J.P., Knell, M., Majcen, B. and Rojec, M. (2003). "Technology transfer through FDI in top-10 transition countries: how important are direct effects, horizontal and vertical spillovers?". William Davidson Institute Working Paper No. 549.

Darvas, Zs. and Sass, M. (2002). "Changes in Hungarian foreign trade and trade balance with the European Union. A time series analysis", in Karadeloglou, P. (ed.), *Enlarging the EU: the trade balance effects.* Palgrave McMillan, Hampshire, UK.

Djankov, S. and Hoekman, B. (1998). "Avenues of technology transfer: foreign investment and productivity change in the Czech Republic", CEPR Discussion Paper No. 1883.

Dunning, J.H. (1993). *Multinational enterprises and the global economy.* Addison Wesley, Wokingham, UK.

Éltető, A. and Sass, M. (1998). "Motivations and behaviour of foreign investors in Hungary with respect to their export activity". Institute for World Economics of the Hungarian Academy of Sciences Working Paper No. 88.

Fazekas, K. (2003a). "Effects of foreign direct investment on the performance of local labour markets – The case of Hungary". Budapest Working Papers No. 2003/3.

Fazekas, K. (2003b). *Munkaerőpiaci Tükör*. (The Hungarian Labour Market), MTA Közgazdaságtudományi Kutatóközpont. Országos Foglalkoztatási Közalapítvány. Budapest, Hungary.

Grosz, A. (2000). "Ipari klaszterek" (Industrial clusters). *Tér és Társadalom*, (XIV:2-3). pp. 43-52.

Hamar, J. (2001). "A külföldi és a hazai tőkével mőködő vállalatok szerepe a magyar iparban" (The role of domestic companies and companies with foreign participation in Hungarian industry). *Külgazdaság*, (XLV:4), pp. 4-34.

Holland, D. and Pain, N. (1998). "The diffusion of innovations in Central and Eastern Europe: a study of the determinants and impact of foreign direct investment". NIESR Discussion Paper No. 137.

Holland, D., Sass, M., Benacek, V. and Gronicki, M. (2000). "The determinants and impacts of FDI in Central and Eastern Europe: a comparison of survey and econometric evidence". *Transnational Corporations*, (9:3), pp. 163-212.

Hunya, G. (2001). "Uneven competitiveness of industries in the wake of foreign penetration of advanced economies in transition". *Transnational Corporations*, (10:2), pp. 35-66.

Hunya, G. and Stankovsky, J. (1999). "Foreign direct investment in Central and East European Countries and the former Soviet Union". WIIW-WIFO Database, (September).

Inzelt, A. (1998). "A külföldi befektetök kutatás-fejlesztési ráfordításainak szerepe az átalakuló gazdaságban. Elemzés statisztikai adatok alapján" (The role of R&D expenditures of foreign investors in the transition economy). *Külgazdaság*, (XLII:6), pp. 59-75.

Inzelt, A. (2000). "The FDI in R&D: skin-deep and soul-deep cooperation". *Science and public policy journal of the International Science Policy Foundation*, (27:4), pp. 241-51.

Kalotay, K. (2003). "Mőködőtőke – válságban?" (Direct investments–in crisis?). *Közgazdasági Szemle*, (L), pp. 35-55.

Kalotay, K. and Hunya, G. (2000). "Privatisation and FDI in Central and Eastern Europe". *Transnational Corporations*, (9:1), pp. 39-66.

Kertesi G., and Köllő, J. (1997). "Reálbérek és kereseti egyenl_tlenségek, 1986-1996. A bérszerkezet átalakulása Magyarországon I". (Real wages and earnings inequality, 1986-1996. Transformation of the wage structure in Hungary. I.) *Közgazdasági Szemle*, (XLIV), pp. 612-634.

Kertesi, G. and Köllő, J. (2001). "A gazdasági átalakulás két szakasza és az emberi tőke átértékelődése. A bérszerkezet átalakulása Magyarországon 1986-1999. III". (Two periods of economic transformation and the reevaluation of human capital. Changes in the wage structure in Hungary 1986-1999). *Közgazdasági Szemle*, (XLVIII), pp. 897-919.

Konings, J. (2001). "The effects of foreign direct investment on domestic firms: evidence from firm level panel data in emerging economies". William Davidson Institute Working Paper No. 344.

Kőrösi, G. (2002). "Labour demand and efficiency in Hungary". Budapest Working Papers on the Labour Market, (3).

Lankes, H.P. and Venables, A.J. (1996). "Foreign direct investment in economic transition: the changing pattern of investments". Economics of Transition (4:2), pp. 331-347.

Meyer, K. (1996). "Business operation of British and German companies with the economies in transition". CIS Middle Europe Center, London Business School Department Series No.19, mimeo.

Meyer, K. (1998). "Multinational enterprises and the emergence of markets and networks in transition economies". CEES Working Paper No. 12.

Mickiewicz, T., Radosevic, S. and Varblane, U. (2000). "The value of diversity: foreign direct investment and employment in Central Europe during economic recovery". ESRC Working Papers No. 05/00.

Nemes-Nagy, J. (2000). "The new regional structure in Hungary", in Petracos, G., Maier, G. and Gorzelak, G. (eds.), *Integration and transition in Europe: the economic geography of interaction*. Routledge, London, UK.

Novák Cs. (2002). "Hatékonyságnövekedés és külföldi tulajdon a magyar feldolgozóiparban" (Efficiency growth and foreign ownership in Hungarian manufacturing.). *Külgazdaság*, (LXVI.:5). pp. 41-52.

Novák Cs. (2003). "A külföldi mőködőtőke és a technológiai tovagyőrőzés Magyarországon" (FDI and technology spillovers in Hungary). MTA VKI M_helytanulmányok. No. 50. October

Pula, G.. (2003). "Capital stock estimation in Hungary: a brief description of methodology and results". Hungarian National Bank MNB Working Papers 2003/7.

Pye, R.B K. (1998). "Foreign direct investment in Central Europe: the experiences of major western investors", *European Management Journal, Special Issue, Russia and Central and Eastern Europe*.

Resmini, L. (2000). "The determinants of foreign direct investment in the CEECs. New evidence from sectoral patterns". *Economics of Transition*, (8:3), pp. 665-689.

Sass, M. (1997). "Beszállítók Magyarországon. Egy kérdőíves felmérés eredményei" (Suppliers in Hungary. The results of a questionnaire survey). IWE HAS Budapest, manuscript.

Sass, M. (2003a). "The effectiveness of host country policy measures in attracting FDI: The case of Hungary. In. The Development Dimension of FDI: Policy and Rule-Making Perspectives". Proceedings of an Expert Meeting. UNCTAD, Geneva. 2003. pp. 49-58.

Sass, M. (2003b). "Enterprise case studies: Hungary. Paper prepared in the 5th framework project: Changes in industrial competitiveness as a factor of integration: identifying challenges of the enlarged Single European Market". Workpackage No. 6: Foreign and Domestic Firms as Catalysts in Changes in Competitiveness. (HPSE-CT-2002-00178)

Sass, M. (2003c). "Competitiveness and economic policies related to foreign direct investment". Ministry of Finance Working Paper No. 3. September.

Schoors, K., van der Tol, B. (2002). "Foreign direct investment spillovers within and between sectors. Evidence from Hungarian data". Ghent University Working Paper. 2002/157.

Somai, M. (2003). "The Hungarian automotive industry". IWE HAS Working Paper. No. 131. Budapest, October.

Szalavetz, A. (1999). "Technológia transzfer, innováció és modernizáció német tulajdonban levő feldolgozóipari cégek példáján" (Technology transfer, innovation and modernisation: the example of manufacturing companies in German ownership).OMFB TAN 98-56-05, Budapest.

Szanyi, M. (2001). "Spillover effects and business linkages of foreign-owned firms in Hungary". Institute for World Economics of the Hungarian Academy of Sciences Working Papers No. 126.

Vince, P. (2001). "Vállalati beszerzési és értékesítési kapcsolatok rendszere". (System of backward and forward linkages of companies). *Közgazdasági Szemle*, (XLVIII), pp. 980-992.

Zemplinerova, A.and Jarolím, M. (2001). "Modes of FDI entry and firm performance: the Czech case". *Transnational Corporations*, (10:3), pp. 95-109.

ABSTRACT

Analysing the evolution and determinants of foreign direct investment (FDI) in Estonia, Latvia and Lithuania, this paper argues that sound economic policies have created an environment conducive for FDI. Overall, FDI has contributed to economic growth in the Baltic economies, having financed around one-fifth of fixed investment. However, their small size makes the Baltic countries relatively less attractive for market-seeking FDI in manufacturing. Moreover, at the outset of transition, their economies were dominated by relatively uncompetitive low-technology industries, which made them less interesting for manufacturing-based export-oriented FDI. Thus, FDI largely went to relatively low-technology sectors, such as wood processing and food, and it has not helped radically transform the structure of the manufacturing sector. A major part of FDI went into services, including banking and telecommunication, contributing to increasing efficiency in the whole economy.

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FDI in small accession countries: the Baltic states

1. Introductory remarks

Estonia, Latvia and Lithuania are very small economies, with a combined population of just over 7 million and a GDP similar to that of Luxemburg. Having regained independence after the collapse of the Soviet Union in 1990-91, they are the only countries with such a background that smoothly integrated into Europe, finally joining the EU in May 2004. The geographical position between Russia and the rest of the EU gives them a bridgehead function, with Baltic Sea shipping linking them to the West more readily than overland routes.

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Although the outside world defines them as the Baltic region, these countries do not have a strong regional identity, with the possible exception of Latvia. Estonia considers itself mainly a Nordic country, closely linked to Finland and Sweden. Lithuania, on the other hand, considers itself central European due to its historic ties to Poland. Baltic Sea regional cooperation, supported by Denmark, seems to have little political and economic relevance (Jurkynas 2003). But recent history and the simultaneous accession to the EU put them under one heading, and joint EU accession will unavoidably bring them closer to each other in the future.

The transformation to a market economy proceeded fast on very liberal foundations in Estonia, followed later by Latvia and, more hesitantly, Lithuania. Due to this uneven development, only Estonia was considered for years a first-tier accession country. It was the Helsinki EU Council meeting in December 1999 that set the three countries on an equal footing, anchoring developments not only in Estonia but also in Latvia and Lithuania to the enlargement process. This contributed to an acceleration of transformation in Latvia and Lithuania, which have practically closed the gap in terms of institutional development to Estonia.

In per capita terms, the amount of inward foreign direct investment (FDI) in the Baltics is above the average of the new EU members from Central and Eastern Europe (CEE).[1] This is mainly the result of economic transformation, privatisation and a liberal, FDI-friendly environment. Most of the financial and the telecom sectors as well as a large part of the manufacturing sector are foreign-owned. Moreover, FDI is a factor integrating these countries more with their western neighbours than with each other although for many transnational corporations Estonia is a bridgehead for investments in the other two countries.

Notwithstanding the relatively high importance of FDI, there has been very little academic research on FDI in the Baltics. As one prominent analyst of the region, Pekka Sutela, notes: "Perhaps due to the small size of the Baltic economies and also reflecting the weakness of domestic economic research, little analytical literature is available on these countries" (Sutela 2001, p. 9.). While some research has been done on Estonia, the other two countries have attracted little outside interest. This paper attempts to systematise the

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[1] In addition to Estonia, Latvia and Lithuania the new members are the Czech Republic, Hungary, Poland, Slovakia, and Slovenia.

available information on the Baltic countries, but obviously it cannot fill the wide research gap that exists given the absence of background research comparable in size and quality to that available for Hungary, for instance. The remainder of the paper proceeds as follows. Sections 2 and 3, respectively, examine the main features and determinants of FDI in the Baltic countries. Section 4 sheds light on the contribution of foreign-owned firms to economic activity. Section 5 offers concluding remarks and an outlook.

2. Main features of FDI in the Baltic countries

This section will analyse the importance of FDI for the Baltic countries (examining both inward and outward FDI as well as the contribution of net FDI inflows to the financing of current account deficits), the geographical origin of FDI, and the economic sectors that have been the main targets of foreign direct investors.

2.1 How important is FDI for the region?

Although small in absolute terms, FDI flows to the Baltic countries have been substantial relative to the size of their economies.

Small countries normally attract only small amounts of FDI in nominal terms unless they function as international headquarters. The experience of the three Baltic countries fits this image. In 2000-02, for instance, they received about 6-7 percent of the FDI inflows into the eight CEE countries that have joined the EU, and total inflows reached USD 1.4 billion in 2002.[2] However, amounts that seem insignificant in an international comparison can be very important for a small recipient country where FDI usually finances a large part of the current account deficit, is equivalent to some 20-40 percent of gross fixed capital formation, and helps access new technology and new markets.

Let us start with a look at per capita FDI inflows. Figure 1 shows that Estonia – the smallest of the Baltic countries in terms of both population and GDP – attracted the largest per capita FDI inflow in 1995-2002, averaging about USD 250 a year.[3] In fact, with the exception of the Czech Republic, no other new EU member from CEE received more FDI per capita than Estonia during these years. Obviously, period averages hide developments over time and, in fact, FDI inflows have been quite volatile. An important point to note is that Estonia started to receive FDI earlier than Latvia and Lithuania as it was, on the whole, more attractive than the other countries due to early market reforms, full-scale liberalisation, and equity-sales-based privatisation. However, in 2001-02, the two late-coming countries were catching up. More specifically, in 2002, Estonia and Lithuania each attracted FDI per capita of USD 210, and Latvia came a close second with almost USD 170. The recent decline in FDI flows to Estonia reflects world-wide problems in the electronics industry and a higher share of non-equity investments. Mid-2003 data suggest that FDI flows to Estonia have recovered, however.

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2 Unless otherwise indicated, FDI data are taken from central bank publications.

3 It should be noted that FDI statistics for the Baltic countries are fully comparable only form 1997 onwards. In principle, FDI should include equity capital, reinvested earnings, and inter-company loans. Only the FDI data for Estonia include all items throughout the period considered here. In the case of Latvia, reinvested earnings and inter-company loans have been accounted for since 1996. In the case of Lithuania, reinvested earnings have been included as from 1995 and loans as from 1997.

A more general cause for the volatility of FDI inflows transpires when we consider the three forms of FDI: equity, reinvested earnings, and inter-company loans all follow a different pattern (see Annex Table A1). Privatisation-related FDI and new start-ups are usually in the form of equity. Profits are not made in the initial stage of the investment, but once they accrue, reinvested earnings normally contribute about 30 percent to FDI. To illustrate, in 2001, reinvested earnings amounted to 41 percent of FDI in Estonia, 36 percent in Latvia, and 19 percent in Lithuania. Given Estonia's head start, on the one hand, and Lithuania's late and slow accumulation of FDI on the other hand, the differences across countries in the relative importance of reinvested earnings are not surprising. What is more, when parent firms face financial difficulties, profit reinvestment declines and repatriation increases. This was the case, for instance, in 1998-99 when Scandinavian banks lost part of their investments in the context of Russia's financial crisis. To compensate for these losses, repatriated earnings from affiliates in other countries, including the Baltic countries, increased and thus reinvested earnings fell.

Inter-company loans are especially volatile. They can supplement equity investments in established subsidiaries, but they can also be an easy means of withdrawing capital. Large loan inflows in one year may be followed by high outflows in the next, as was the case in Latvia in 2001 and Lithuania in 1999. In Latvia, foreign banks consolidated banking and leasing operations, which required a large loan repayment to the foreign parent (IMF 2003). This caused a sizable drop in FDI. In Estonia, short-term inter-company loan inflows in 2001 were matched by outflows in 2002. Given the reasons for the volatility of inter-company loans and reinvested earnings, one has to be careful when interpreting fluctuations in overall FDI inflows. Clearly, swings in inter-company loans and reinvested earnings that are due to special events affecting parent companies should not be mistaken for a change in the attractiveness of the FDI receiving country.

At times, the volatility of inter-company loans and reinvested earnings may have given a false impression of the underlying capacity of Baltic countries to attract FDI.

**Figure 1.   Average annual FDI inflow per capita in USD, 1995-2002**
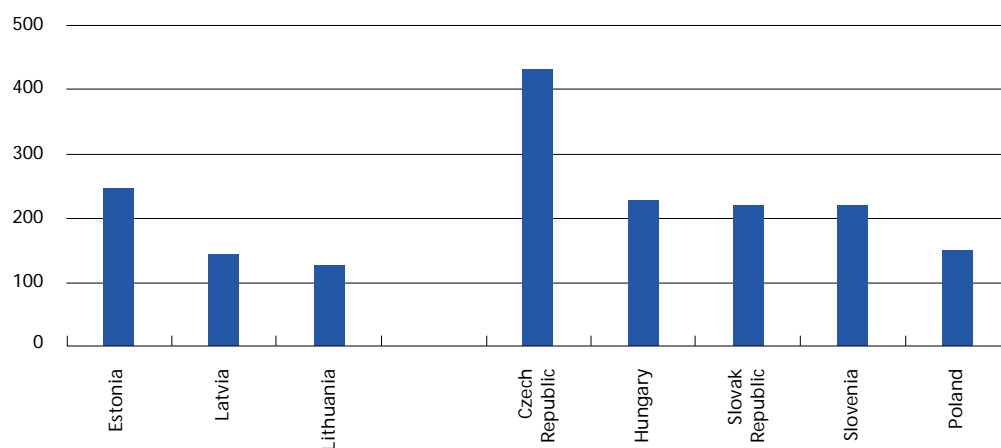
Source: Central banks.

The leading role of Estonia as a destination of FDI is also apparent when we use GDP instead of population to scale nominal FDI. This can be seen from Figure 2, which shows inward FDI stocks in percent of GDP for the beginning and the end of the period considered here.

In 2002, the inward FDI stock in Estonia was 66 percent of GDP, twice as high as in Latvia (33 percent) and Lithuania (29 percent). In all three countries, the stock of FDI (in percent of GDP) is above the world average.

Figure 2.   Inward FDI stock in % of GDP, 1995 and 2002
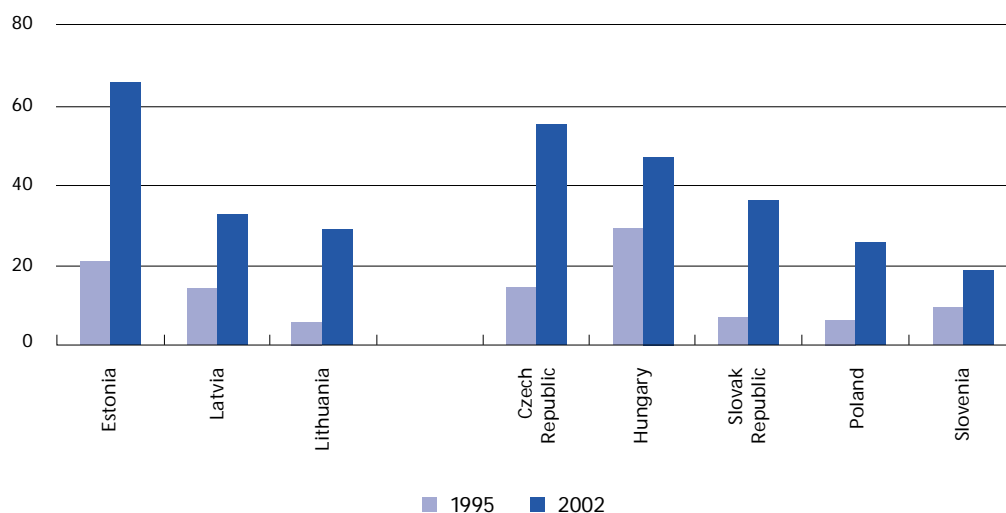
Notes: FDI stock at end of period.
Source: Central banks.

Relatively high FDI in Estonia is a special case, difficult to achieve by the other countries. It reflects the attractiveness of one of the most open and foreign-penetrated economies in the world. Estonia has been able to attract FDI beyond the absorption capacity of its small market by serving as headquarter for many Nordic transnational corporations in their penetration to the other two Baltic countries. In spite of considerable progress in structural transformation in recent years, the other Baltic countries continue to be less attractive. They score worse than Estonia in all international rankings of economic freedom, corruption and credit rating. Their institutions are more cumbersome, more prone to corruption, and are from time to time hesitant in supporting FDI.

Turning to outward FDI, it is fair to say that small, low-income economies usually lack companies that can invest abroad. This is reflected by the very low outward FDI figures of Latvia and Lithuania. Latvia had some foreign assets in Russia at the time of independence, but they virtually disappeared in the wake of the Russian crisis.

Estonia is an exception. Although small and comparatively poor, its outward FDI stock is significant relative to the size of the country, amounting to USD 500 per capita and around 10 percent of GDP. This puts Estonia together with Hungary on the top of the list of CEE countries that are providing FDI to the rest of the world. But the overwhelming part of Estonia's outward FDI is carried out by foreign affiliates. Three-quarters of its outward FDI stock is in Lithuania and Latvia, reflecting largely the fact that two Swedish banks expanded to the other Baltic states via their Estonian subsidiary. This also explains why most of Estonia's outward FDI stock lies in the banking sector. These investments are mainly in the form of loans and not of equity. Further FDI has taken place by Estonian affiliates of

foreign transnational corporations in the telecommunication sector, real estate, and in retail. Finally, a significant transport FDI is related to the merchant fleet registered in Cyprus (Varblane *et al.* 2001).

When assessing the importance of FDI, a question of particular interest is how much net FDI inflows (i.e. the difference between inflows and outflows) contribute to the financing of a country's external current account deficit. In all Baltic countries, net FDI inflows are of considerable importance for the financing of such deficits. Here one also needs to bear in mind that current account deficits are normally large in countries, such as the Baltics, that are trying to catch up with higher living standards elsewhere in the world. To illustrate, in 1996-2002, net FDI inflows averaged 60, 65, and 55 percent of the current account deficit in Estonia, Latvia, and Lithuania, respectively. But as Figure 3 shows, the ratio of net FDI to the current account deficit fluctuated substantially. This was due to annual variations in the size of both current account deficits and net FDI inflows.

In all Baltic countries, net FDI inflows have contributed considerably to the financing of external current account deficits.

Figure 3.   Net FDI inflows in % of current account deficit, 1996-2002
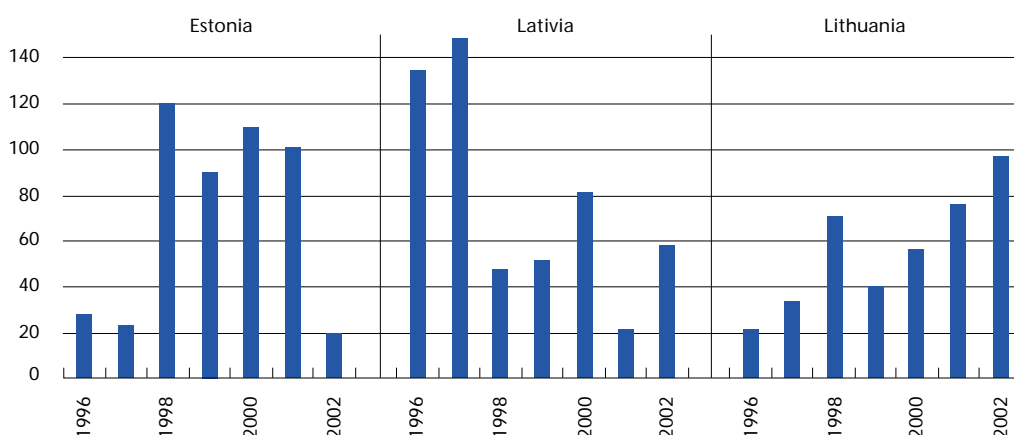
Source: Central banks.

Apart from year-to-year fluctuations in the ratio of net FDI to current account deficits, one needs to be aware of longer-term effects of FDI on a country's external position. As and when the stock of FDI in a country is building up and if foreign investments turn out to be successful, earnings accruing to foreign investors will negatively affect a country's external current account. To the extent that these earnings are reinvested, the negative current account impact is offset by additional FDI inflows. But as we have argued above, most likely, not all earnings are reinvested and, moreover, reinvested earnings may fluctuate markedly.

Overall, developments in the ratio of net FDI inflows to a country's current account deficit depends on net inflows themselves and on the current account; the latter – in turn – not only reflects movements in exports and imports but also earnings accruing to foreign investors for earlier FDI inflows. A telling example is what happened in Estonia in 2001-02. As Figure 3 shows, net FDI in percent of the current account deficit dropped

from 100 to about 20 percent. Two factors combined to bring about this result. One was a sharp decline in net FDI inflows from about USD 340 billion in 2001 to USD 153 billion a year later. The other factor was a doubling in Estonia's current account deficit to the equivalent of 12¹/₂ percent of GDP. But what was behind this large current account deterioration? For one thing, earnings of foreign investor increased sharply from some USD 70 billion to USD 170 billion, thus surpassing net FDI inflows. For another, exports stagnated and imports boomed.

While 2002 was an exceptional year for Estonia, it is nevertheless a reminder that FDI is not a free lunch: it is a profit-bearing investment for the foreign company. A country can expect profits to be reinvested only if it maintains its long-term attractiveness for FDI. Even then, an international economic downturn or financial difficulties for the investor elsewhere can lead to withdrawals. Under such circumstances, high current account deficits may become a problem.

2.2 Where do FDI inflows come from?

Small countries usually attract foreign direct investors from their richer neighbours, but not necessarily the largest transnational corporations.

Small countries usually attract investments from their richer neighbours. Moreover, as cheap assets and small markets require small amounts of investments, the largest transnational corporations may have little interest to invest in such countries in contrast to regional players. Austrian firms are a case in point, accounting for a high share in the inward FDI of small neighbouring countries like Slovakia and Slovenia.

The importance of foreign investors from neighbouring countries is most visible in the case of Estonia, where more than two-thirds of the inward FDI stock stems from Sweden (41 percent) and Finland (27 percent) while the third largest investor, the United States accounts for only 7 percent of the inward FDI stock (see Table 1). Overall, foreign investors

Table 1.   Inward FDI stock of Baltic countries by major investing country (2002)

	Estonia		Latvia		Lithuania	
	USD million	*% of total*	USD million	*% of total*	USD million	*% of total*
Nordic countries	3,127	*74.0*	1,182	*43.0*	2,122	*53.3*
Finland	1,153	*27.3*	197	*7.2*	246	*6.2*
Denmark	106	*2.5*	301	*10.9*	683	*17.2*
Sweden	1,731	*41.0*	331	*12.0*	609	*15.3*
Norway	137	*3.2*	189	*6.9*	117	*2.9*
Estonia	.	.	164	*5.9*	467	*11.7*
Germany	97	*2.3*	346	*12.6*	382	*9.6*
United Kingdom	93	*2.2*	117	*4.3*	214	*5.4*
USA	300	*7.1*	193	*7.0*	345	*8.7*
Russia	52	*1.2*	136	*4.9*	208	*5.2*
Netherlands	167	*3.9*	132	*4.8*	240	*6.0*
Other	392	*9.3*	646	*23.5*	471	*11.8*
TOTAL	4,226	*100*	2,751	*100*	3,981	*100*

Note: Numbers may not add up due to rounding.
Source: Central banks.

from Nordic countries account for around three-quarters of Estonia's inward FDI stock. In Latvia, the sources of FDI are more diverse, with Denmark, Sweden, but also Germany – for instance – each representing 11-13 percent of the FDI stock. The share of the Nordic region comes to around 43 percent. In Lithuania, Denmark comes first on the list with 17 percent, followed by Sweden (15 percent) and Estonia (12 percent). Overall, investors from the Nordic region account for 53 percent of FDI in Lithuania.

There is something to be said about the role of Russian firms as foreign investors in the Baltic countries. Although Russia is a neighbour, who controlled these countries when they were part of the Soviet Union, Russian firms do not appear as significant investors (5 percent or less of the FDI stock in all three countries). It seems fair to claim that, for historical reasons, governments of the Baltic countries are wary about too large an influence of Russian investors and, in fact, hinder them in penetrating. Privatisation conditions are usually formulated in a way that virtually shuts out Russian investors.

All Baltic countries are concerned about too large an influence of Russian investors; but to benefit from their geographical position, they may have to adopt a more open stance.

But this has had, at times, negative repercussions on the Baltic economies or eventually proved ineffective. For instance, in Latvia, the transit oil pipeline was put up for privatisation, but when Russia's Transneft was not declared the winner, it stopped exporting oil through the pipeline. The pipeline closed down, forcing Latvia to import oil by rail at much higher transport costs. Hostilities prompted Russia to build a new oil exporting harbour near St. Petersburg, which drained some of the transit revenues of the Baltic countries.

In Lithuania, a prominent case shows that hindering Russian investors may turn out to be futile. In October 1999, Lithuania concluded a controversial USD 150 million agreement to sell Williams International (a US firm) a 33 percent stake in Mazeikiu Naftu.[4] The deal gave Williams – which pledged to invest another USD 650 million – operational control of the refinery, pipeline, and the crude oil terminal. In addition, Williams acquired the right to buy a majority stake within five years. In addition to opposition from Lithuania's citizens, upset at the terms of the sale, the Russian oil giant Lukoil was dismayed to have been shut out of the partial privatisation. Lukoil, the coordinator of Russian oil exports to Lithuania, promptly began reducing oil supplies to the only refinery in the Baltic states. Oil shortages caused several shutdowns and losses to the refinery in 2000. In June 2001, Williams reached an oil supply deal with Yukos, alleviating some of the supply problems, but Mazeikiu Nafta continued to make losses. A year later, Yukos acquired a 27 percent stake in Mazeikiu Nafta, becoming an equal partner with Williams (whose stake in the company decreased to 27 percent while the Lithuanian government's stake decreased from 59 to 41 percent). The co-habitation of the two foreign owners lasted only until September 2002. Yukos bought out Williams' stake and took over management rights and operational control. It started boosting crude supplies to the refinery and made it profitable.

In sum, investors from neighbouring, mainly Nordic, countries account for the bulk of FDI in the Baltic countries. For historical reasons, investors from Russia are not particularly welcome. But if Baltic countries want to benefit more from their geographical position, they will have to accept prudent Russian investors.

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4   The following is based on information posted on the website of the US Energy Information Authority (http://www.eia.doe.gov/).

2.3 Which economic sectors attract FDI?

The secession from the Soviet Union, the 1998 Russian crisis, and market economy conditions drove much of the manufacturing companies out of business in the Baltic countries. Switching markets and quality requirements proved impossible for most of the companies producing consumer goods. A prominent example is the Latvian electronics industry, which had a fairly good reputation before the collapse of communism. Following sharp contraction in the early years of transition, industrial recovery has been relatively slow. Several small and medium-sized companies have been established either "greenfield" or following the break-up and privatisation of former state-owned enterprises, but overall, the share of manufacturing in GDP is relatively small, and services account for the largest and most dynamic part of economic activity.

Reflecting the structure of the Baltic economies, service sectors have attracted the bulk of FDI.

The sectoral distribution of FDI reflects the structure of the Baltic economies. As Table 2 shows, service sectors – such as transport, telecommunications, business services, and finance – have attracted the bulk of FDI. The high share of FDI related to transport, storage, and telecommunication is specific to the region. It is due to the transit position of the Baltic countries: Russian commodities are exported through Baltic Sea ports. Telecommunication enterprises were privatised to foreign investors in all three countries, and essential parts of the energy sector, including gas transport and distribution, are about to be privatised to foreign investors too.

Table 2.   Share of economic activities in the FDI stock (2002), in %

	Estonia	Latvia	Lithuania
Manufacturing	18.8	15.2	29.3
Electricity, gas	2.9	3.7	3.6
Construction	2.5	0.8	1.1
Trade	13.5	17.3	17.3
Hotels	1.3	1.5	1.5
Transport, telecom	21.4	14.1	17.1
Finance	28.0	15.7	20.0
Business services	9.5	23.8	7.1
Other	2.1	7.9	1.8
Total	**100.0**	**100.0**	**100.0**

Note: Numbers may not add up due to rounding.
Source: Central banks.

Financial intermediation is another service sector that has attracted considerable interest of foreign investors, accounting for 16-28 percent of total FDI. In this context, it is interesting to note that before the Second World War, Riga (the Latvian capital) used to be the financial hub of the region; now it is Tallinn, the capital of Estonia. In the banking sector foreign control is almost complete: about 90 percent of the banking assets are held by foreign subsidiaries. The credit expansion to the private economy is still meagre, but spreads have decreased after the privatisation of banks to Scandinavian banks. Banks in Baltic countries have also attracted deposits from Russia and Belarus, both having less reliable banking systems.

Turning to manufacturing, it is fair to say that FDI inflows were not able to stage a recovery of this sector and, thus, did not reverse the deindustrialisation of the Baltic countries. The share of manufacturing in the stock of inward FDI ranges from 15 percent in Latvia to 29 percent in Lithuania, where manufacturing has been growing more rapidly than in other Baltic countries.

Most of the manufacturing FDI is in low-tech sectors of wood processing (including paper and furniture) and food. These two industries received almost 40 percent of the manufacturing FDI in Estonia and 47 percent in Latvia. While the food industry mainly targets the local market, exports of the wood processing industries are substantial. In Lithuania, which is more abundant in agricultural land but less in forests, 38 percent of manufacturing FDI is in food processing. The chemical industry comes second (24 percent) due to one oil refinery that refines Russian oil for export. Textiles and clothing FDI represent about 10 percent of manufacturing FDI in all three countries. New greenfield investments in this sector are export oriented, especially in Lithuania and Estonia.

Low-tech activities, such as wood and food processing, account for most of the FDI in manufacturing.

Higher value added sectors of machinery, electronics, and transport equipment have a combined manufacturing FDI share of 13 percent in Estonia but only 8 percent in Lithuania and Latvia. Some of the foreign subsidiaries in high-value-added manufacturing have become increasingly export oriented, like the Finnish electronic equipment producers in Estonia.

To summarise the main features of FDI in the Baltic countries, it should first be noted that inward FDI plays an important role in all of them, Estonia being the leader. Second, reflecting geography, investors from Nordic countries account for the bulk of the inward FDI to the Baltic region. Finally, non-tradable services have attracted most of the inward FDI while there has been relatively little foreign investment in manufacturing; deindustrialisation associated with the output collapse in the early phase of transition and the small size of the Baltic market probably explain moderate FDI in manufacturing.

3. Main factors attracting FDI

3.1 Favourable macro-economic environment

Stable and growing economies provide a good environment for domestic and foreign investment activity. One of the reasons Baltic countries have been successful in attracting FDI is that they opted for radical market reforms that led to the rapid creation of functioning market economies.

The transformational recession in the early 1990s, amplified by the secession from the Soviet Union, was reflected in a significant fall in GDP. As Figure 4 shows, Estonia reached the bottom of the recession in 1994, with real GDP amounting to 66 percent of the level in 1990. Lithuania reached the turning point in the same year, but experienced a larger output contraction (real GDP equivalent to 56 percent of 1990 level). Latvia was most severely hit, as real GDP stagnated at around 50 percent of the pre-transition level through 1993-95.

Economic growth resumed around 1995 and was only interrupted in 1999 due to the Russian crisis. As a result, between 1995 and 2003, per capita GDP (in terms of purchasing power parity) increased by at least ten percentage points, indicating a fast catching-up process. Figure 5 shows that Estonia's per capita GDP (in terms of purchasing power parity) is now equivalent to around 45 percent of the EU average, which puts Estonia ahead of Lithuania (43 percent) and Latvia (37 percent).

Figure 4.   Real GDP index for the Baltic countries and Poland (1990= 100)
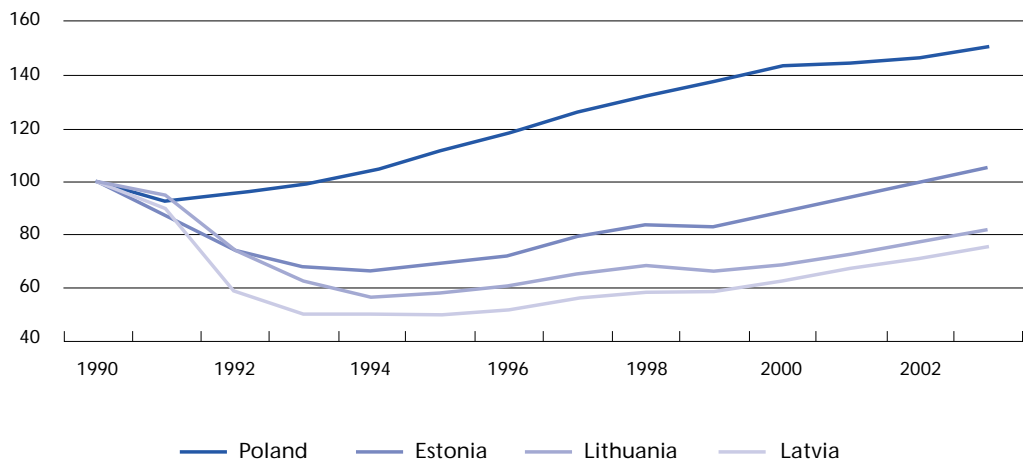
Source: wiiw database.

Figure 5.   GDP per capita in CEE countries (in % of EU-15 average, 2003)
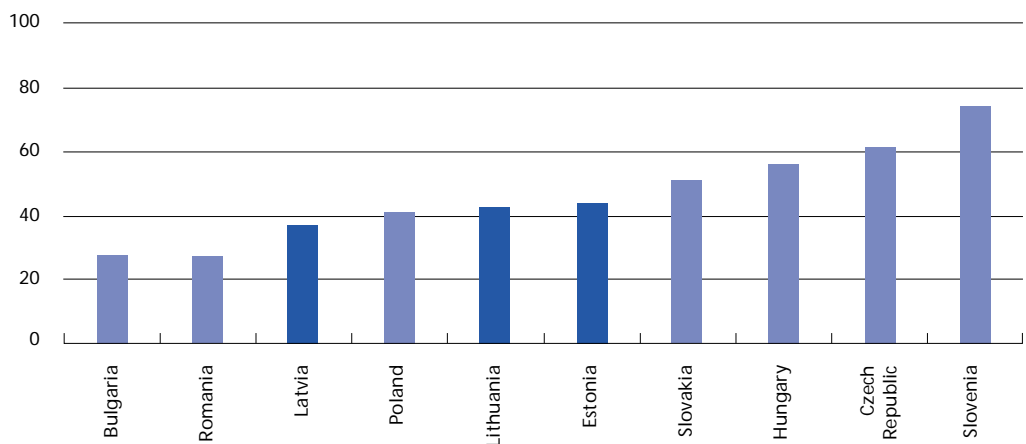
Note: GDP measured in purchasing power parity standards.
Source: European Commission.

In all Baltic countries, exchange rate stability contributed to an environment conducive to FDI. Exchange rate stability was achieved in similar ways: Estonia introduced a currency board in 1992, flowed by Lithuania in 1994; Latvia pegged its exchange rate to the SDR

(a change to the euro is planned for 2005 when the country plans to participate in the European Exchange Rate Mechanism, ERM-II). Under the fixed rate regimes, inflation came down and it is close to the EU-15 average. To support the viability of their fixed exchange rate arrangements, all countries have maintained low budget deficits.

To summarise the macroeconomic environment that provided the backdrop for FDI in the region: of the three Baltic countries, Estonia went through the mildest transformational recession and has maintained its advantage since the recovery began in the mid-1990s. While all Baltic countries have made considerable progress in catching up with higher living standards in the EU-15, only Estonia has reached its pre-transition per capita GDP, the other two countries are still about 20 percent below that level. All countries pursued fiscal policies that ensured the viability of their fixed exchange rate arrangements and, thus, a favourable investment climate.

3.2 Role of privatisation mainly indirect

In transition economies, the issues surrounding the privatisation of state-owned enterprises have stretched far beyond concerns about a possibly excessive involvement of foreign investors in the domestic economy. A total overhaul of property rights that took place in just about a decade created an unprecedented redistribution of wealth. Social equity considerations suggested a wide distribution of property among the population while efficiency and investment needs made a takeover by a strategic investor desirable. Given the main focus of this paper, we shall not go into details of the privatisation process but only evaluate it in terms of how much and what kind of FDI it attracted.

Examining the period 1994-98, Hunya and Kalotay (2000) find that about half of the FDI inflows to transition countries were directly (privatisation revenues) or indirectly (restructuring investment) linked to privatisation. The method and sequencing of privatisation decided over the size and timing of FDI directly related to privatisation. Estonia decided in 1993 in favour of direct sales, considering this an effective way of making the country an attractive place for investment. But assets were very cheap and, thus, privatisation revenue accounted for only 17 percent of the FDI inflows. Latvia initially privatised by lease and vouchers to domestic investors, excluding foreign investors. When sales to foreigners became more frequent, FDI inflows directly linked to privatisation increased, but nevertheless accounted for only about 25 percent of total FDI inflows in 1994-98 (Sutela 2001). In Lithuania, voucher privatisation dominated until the mid-1990s. But a few larger companies in industries with international dominance of multinationals (e.g. tobacco and confectionary) were sold directly to foreign investors. In all three countries, FDI directly linked to privatisation concentrated to some extent in specific years, reflecting the sale of major state assets. Worth mentioning are the selling of banks in Latvia in 1997 and the privatisation of telecoms in Lithuania in 1998.

The method and sequencing of privatising state-owned assets determined the size and the timing of FDI directly related to privatisation.

In general, the amount of FDI directly linked to privatisation depends on whether or not the government tries to restructure state-owned enterprises prior to privatisation. Restructuring before privatisation could increase the viability of a company and thus its sales. In practice, however, the state usually generates more revenues by privatising companies fast without prior restructuring. A possible exception is the privatisation of banks, which often require some restructuring and recapitalisation before privatisation.

Another factor that influences privatisation-related FDI inflows are preferences granted to the new foreign owners. For instance, there have been cases where the privatisation contract provided the investor a temporary protection against competitors. This was done usually in exchange of employment guarantees, investment commitments or a higher sale price. For instance, in the case of the Lithuanian telecom company, amendments to the law on telecommunications were passed granting the company monopoly rights in terrestrial communications. Another case is the Mazeikiu Nafta oil company in Lithuania where the government offered loans and loan guarantees to the privatised company. In addition, the government reduced tariffs for using the Klaipėda Oil Terminal and the Lithuanian Railways, and it offered to increase import duties on fuel, if necessary (Bogdanovicius 2000).

3.3 Local markets or exports?

Export-oriented subsidiaries are set up by a vertically integrated transnational corporation in a host country with the aim of reducing production costs or finding secure and diversified resources (Narula and Dunning 2000). In essence, export-oriented FDI results in a geographical fragmentation of production processes. The important location factors that influence this type of FDI include labour costs, factor endowment – including natural resources – trade and exchange restrictions, and transport cost. Local market-oriented FDI is set up by horizontally integrated transnationals to penetrate a market, increasing market share, diversifying the source of sale, and minimising competition risk (Zhang and Markusen 1999). Important determinants of this type of FDI include local market size, trade barriers, the level of human capital, political stability, and cultural barriers. For both types of FDI, the quality of infrastructure and the policies towards FDI are of importance.

To start with factors important for attracting export-oriented FDI, labour costs in the Baltic countries are low compared to neighbouring EU-15 countries. To illustrate, average monthly wages amount to EUR 400 in Estonia and EUR 300 in Latvia and Lithuania, implying the lowest wages in the new EU member countries. Baltic countries should thus have a good chance of attracting labour-intensive FDI. In fact, as wages in the Baltics are significantly lower than in Poland, for instance, there is scope for a shift of labour-intensive production to the Baltic region.

Low productivity of industrial production is a major problem in the Baltic countries.

But as Konings (this volume), for instance, emphasises, labour costs must be assessed together with productivity levels. Low productivity of industrial production is a major problem in the Baltic countries, reflecting a lack of modern capital stock and the specialisation in low-tech industries with relatively low productivity levels. As Figure 6 shows, the Baltic countries have the lowest level of macroeconomic productivity of all new EU members from CEE, with productivity in Estonia, Lithuania, and Latvia, respectively, amounting to 45, 38, and 35 percent of the EU-15 average. Due to low productivity, unit labour costs in the Baltic manufacturing industry are relatively high. In Estonia and Latvia, they amount to 40 percent of the Austrian level, and in Lithuania to 32 percent. For comparison, in Hungary and the Czech Republic unit labour costs amount to less than 30 percent of the Austrian level, while in Romania and Slovakia they stand at about 20 percent (Landesmann and Stehrer 2003).[5] Thus, compared to other new EU members from CEE, Estonia and Latvia do not appear to be very attractive low-wage countries, and only Lithuania seems to be competitive in terms of unit labour costs.

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5 Figures are for 2001 based on 1999 purchasing power parity exchange rates.

Figure 6. Macro-productivity in selected CEE countries (in % of EU-15 average, 2001)
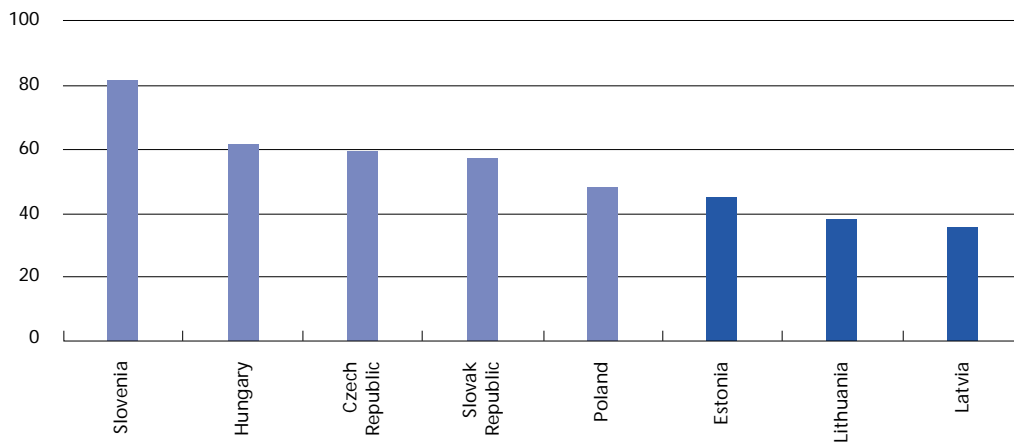
Note: Macro-productivity measured as GDP (at purchasing power parity exchange rates) per employee.
Source: wiiw database and OECD.

But unit labour cost is only one factor that influences export-oriented FDI. Other important factors are the cost of transportation to export markets and the level of taxation. Estonia in particular has benefited from its proximity and low transport costs to Finland. Its relatively low corporate taxes have been another cost advantage. Furthermore, in terms of investment promotion, local business environment, and quality of public governance, Estonia fares better than the other two countries (see also the Section 3.4). These factors compensate for Estonia's higher unit labour cost.

Turning to market-seeking FDI, due to the small size of the Baltic states, their potential to attract large assembly-type investments is limited. Larger countries, such as Poland, have an advantage in attracting such investment (Michalowski 2003) even if one considers that the term 'market-seeking' does not only apply to the market of individual Baltic countries but to the region as a whole (Varblane 2000). Better prospects exist for small-scale FDI that targets a narrow market segment. But even here the cost of local production can be high, making imports more likely than local production.

The small size of the Baltic countries limits the scope for market-seeking FDI.

Given the limited scope for market-seeking FDI in the production of tradable goods, most of the FDI in the Baltic countries is in the non-tradable services sector. Only a low, but undisclosed part of services are internationally oriented. This is more visible in the transportation and export logistics provided to Russian firms; it is less visible in the banking sector where a significant part of the deposits probably stems from CIS countries.

Both market-seeking and export-oriented FDI to the Baltic countries seem to be hindered by a lack of suitable labour. For instance, survey results in Estonia (Varblane and Ziacik 2001) indicate that in a number of cases, the labour force has not lived up to its reputation. Initially, Estonia was able to offer skilled labour, but by the late 1990s the available skills did not match investors' needs. Continued dissatisfaction is likely because the educational system had not been reformed to reflect the changing needs of employers. This may also be generalised to other Baltic countries whose manufacturing seems to be locked into low value-added production. Looking at trends in the structure of labour

supply, it appears that a good part of the young generation does not see a future in becoming skilled factory workers. By contrast, the service sector can draw on a pool of well-educated people, making the outlook for FDI in services much brighter than for manufacturing.

3.4 FDI promotion policy

Foreign direct investment promotion policies have been of secondary importance in all Baltic countries.

It is fair to state that direct investment promotion policies have been of secondary importance in all Baltic countries – in contrast to other CEE countries such as the Czech Republic and Hungary.[6] In the last few years, there have been no tax breaks or direct subsidies available for foreign investors only. If such incentives exist, they apply to both foreign and domestic investors. The main policies to attract FDI have included macroeconomic stabilisation, structural reforms, the creation of a business-friendly environment, and privatisation. FDI promotion agencies have played an active role in promoting the country, coaching investors, and initiating improvement in economic legislation. That said, one has to keep in mind that privatisation contracts often included features aimed at enticing FDI.

While tax policies do not discriminate between foreign and indigenous investors, they are nevertheless surrounded by controversy. There is tax competition among the three countries, especially corporate income taxes have been reduced. There is an ongoing debate concerning the effects of these tax reductions on public services and investment. In the case of Latvia, for instance, the IMF suggested that the reduction of the corporate income tax from 19 percent to 15 percent, planned for 2004, be postponed to contain the budget deficit (IMF 2003). In the event, Latvia went ahead with its tax reduction plan to gain a competitive edge over its neighbours. Tax issues are also controversially debated in Estonia. For instance, in late 2003, the Estonian government coalition was about to split due to the debate on the level of the flat personal income tax. Advocates of social policies called for budgetary expenditure and disagreed with those who argued that lowering taxes was the best way to enhance competitiveness.

Let us now take a closer look at investment conditions in each of the Baltic countries.

3.4.1 Estonia

Estonia has no exchange controls or restrictions on foreign investment. The amount of foreign capital invested in Estonian enterprises is unlimited, and full foreign ownership is permitted.

The principle of equal treatment of foreign and domestic investors has always been important and led to the abolishment of tax holidays for foreign investors as early as 1994. As of January 2000, the corporate income tax on re-invested profits (of foreign-owned and indigenous firms) was abolished in order to keep returns on FDI in the country. As a result, reinvested earnings increased in subsequent years. The withholding tax on distributed profit is 26 percent, equal to the flat tax rate on personal income.

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6   Information on FDI policy and incentives relies on the websites maintained by the investment promotion agencies in the respective countries and on UNCTAD (2002).

As there have been no customs duties imposed until recently (when the external border of EU became operational), Estonia has been an export-processing zone. It also provides a relatively easy administrative environment and relatively good infrastructure for investors. Infrastructure has been more readily available in the capital city (Tallinn), where the large majority of inward FDI concentrates. To promote a regionally more balanced economic development, an amendment to the income tax law was adopted in 1997, allowing the government to determine tax concessions for investments in backward regions to both foreign and domestic investors. Companies can deduct expenses made to acquire or upgrade fixed assets and equipment from taxable income provided that assets were acquired or upgraded in a region other than Tallinn and its neighbouring districts (Varblane and Ziacik 2001).

The Estonian Investment Agency (EIA) was established in 1994 as a governmental body with the remit to market Estonia as a stable business environment. It was turned into Enterprise Estonia in 2002 stressing its wider prerogatives in business promotion. For foreign investors it is a classic 'one stop' centre for information and support. Its function is to provide investors with all required information to evaluate investment opportunities in Estonia and help from the beginning of an investment to its completion.

In their analysis on the Estonian FDI policy Varblane and Ziacik (2001) suggest that the Estonian government should devote more attention to eliminating, or at least reducing, the bureaucracy associated with purchasing land, obtaining work and residence permits, and repaying VAT to exporters. Moreover, the government should also work to reduce corruption surrounding these procedures. Improvements in public governance can always be beneficial, but among the Baltic countries, these problems are the least pressing in Estonia.

3.4.2 Latvia

Foreign investors get national treatment, and they are free to engage in any activity, convert and transfer their earnings. Companies established before 1995 received 4-8 years tax holidays. Since 2001, large investments – both domestic and foreign – are eligible for corporate income tax holiday of up to 40 percent of the invested amount, in line with the limit set by EU competition rules. Companies manufacturing high-tech products enjoy a tax holiday of 30 percent of the investment; in the case of small and medium-sized enterprises it amounts to 20 percent. The corporate income tax rate has fallen gradually, reaching 15 percent in 2004. The withholding tax on dividends amounts to 10 percent. There is a flat personal income tax.

In all Baltic countries, foreign and domestic investors are now treated equally.

There are start-up supports in the framework of regional and labour market policies available for all companies. The Regional Development Fund of the Ministry of Economics compensates loan interest payments for companies establishing new employment-generating operations in regions with special support status.[7] Employers hiring new employees and providing training for them can receive training grants amounting to 70 percent of direct training costs. Losses can be carried forward for 5 years for

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7   See Ministry of Economics, Republic of Latvia (2003).

tax purposes. Double declining depreciation rates of up to 70 percent are applied for technological equipment.

Regional and local authorities may provide or sell land and real estate under favourable conditions to companies intending to create employment. Several local authorities in Latvia have established or intend to establish below market-price industrial estates to provide cheap land for greenfield investment. They can also grant up to 90 percent property tax reduction for investment projects conforming to their local/regional development strategies.

There are four special economic zones across the country, three of which are located in the free ports of Ventspils, Riga and Liepaja – the fourth being an inland zone in the city of Rezekne (located in Eastern Latvia, close to the Russian and Belarus borders). It took two years of negotiation with the European Commission to allow the operation of the zones after EU accession until 2017. Latvian authorities consider this a big achievement that would help the country to improve its FDI position.

3.4.3 Lithuania

The goal of attracting foreign investment was set by Lithuania shortly after it regained its independence. The first law on foreign investment was adopted on 29 December 1990. In mid-1995, Parliament enacted an updated version of it. The latter was replaced in 1999 with the Law on Investments applicable to foreign and domestic owned companies alike. Lithuania was thus the last Baltic country to provide national treatment and full freedom to foreign investors.

Furthermore, Lithuania no longer offers other incentives to foreign direct investors. Earlier incentives, introduced in 1993, were eliminated as of 1 April 1997. For investments made prior to that date, preferential tax treatment ceased to apply at end-2003.

All Baltic countries have relatively low corporate profit taxes.

The normal corporate tax rate is 15 percent, and the withholding tax rate on dividends is 15 percent. A zero-percent tax rate applies to companies producing agricultural products and to specialised enterprises rendering services to agriculture. A 13-percent corporate tax rate is levied on small companies.

The main investment incentives are those provided by the duty free economic zones of Siauliai and Klaipeda, as well as the industrial zones of Kaisiadorys and Utena. They can be maintained after EU accession. These regions provide the foundation of Lithuania's export-oriented manufacturing, emerging in the electronics, food, and chemical industries. Incentives applicable to enterprises operating in duty free economic zones are: a 50-percent reduction in land rent, a 80-percent reduction of profit taxes payable for the first 5 years, and a 50-percent reduction for the following 5 years. Investors with a minimum investment of USD 1 million are exempt from profit tax for the first 5 years, and a reduction of 50 percent is provided for the next 10 years. In addition, customs duty, VAT, excise tax, and withholding tax do not apply.

The most significant organisation promoting investment is the Lithuanian Development Agency (LDA). LDA supplies general information on the business climate and assists foreign

investors in gathering specific information. LDA also provides a variety of investor services and helps articulate and promote the interests of foreign investors through direct contact with the government.

4. The importance of foreign-owned firms in economic activity

Empirical evidence from broad-based country studies suggest that FDI has a positive impact on economic growth, restructuring, and competitiveness – both directly through the transfer of capital and knowledge to foreign-owned firms and indirectly through spillovers to the domestic sector. The Baltic states are fast growing economies and also host above-average amounts of FDI (relative to GDP). The coincidence of rapid growth and substantial FDI suggests that FDI has indeed helped the economic transformation and competitiveness of firms. However, the link between economic growth and FDI has not been thoroughly investigated. This section tries to shed some light on the link. First, we examine the role of foreign-owned firms in manufacturing employment, sales and exports. Then we take a brief look at productivity differences between foreign-owned and indigenous firms.

The coincidence of rapid economic growth and substantial FDI inflows suggests that FDI has helped to transform the Baltic economies.

The size of the inward FDI stock, as discussed in Section 2, gives some idea about the importance of foreign investment in an economy. However, it does not reflect the actual role of foreign firms in an economy. To learn more about this role, one needs to look at other indicators, notably the contribution of foreign-owned firms to output, exports, and employment (Hunya 2000). However, data showing the share of foreign-owned firms in output, exports, and employment are not available from statistical offices. This section draws on Hunya (2001 and 2003), who compiled such data for selected CEE countries, including one Baltic country, Estonia.

Figure 7. **Share of foreign-owned firms in manufacturing employment, sales, and exports in 2001 (in %)**
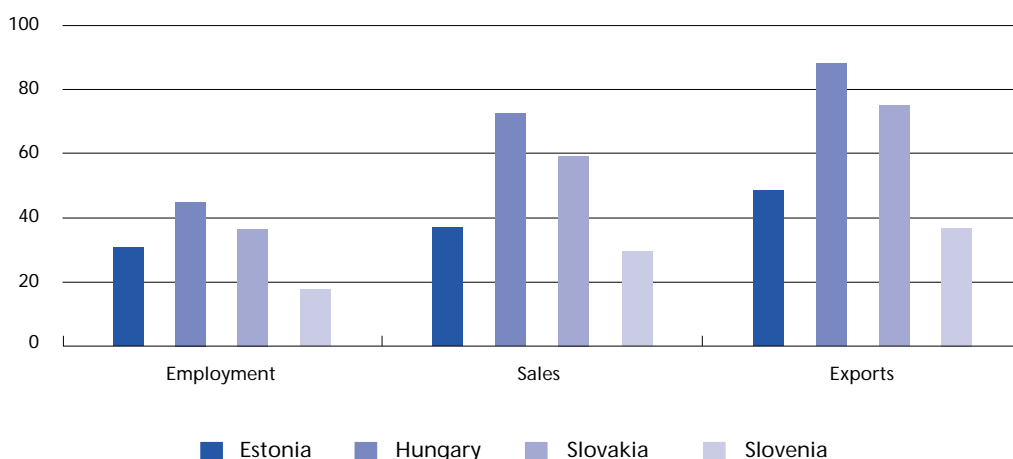
Note: For Hungary and Slovenia, data cover all firms; for Slovakia and Estonia, data include only firms with more than 20 employees; foreign-owned firms are those with at least 10% foreign ownership, except for Estonia where this threshold is 50%.

Source: wiiw database.

An observation to start with is that in Estonian manufacturing, foreign-owned firms are significantly bigger than domestic firms. The share of foreign-owned enterprises in the total number of firms with more than 20 employees is about 10 percent. But as Figure 7 indicates, they employ 31 percent of the manufacturing work force, produce 37 percent of sales, and account for almost half of manufacturing exports. As Figure 7 also shows, this suggests that the role of foreign-owned firms is less important in the Estonian economy than in Hungary and Slovakia.[8]

Figure 8 shows the same information, but for 1996 instead of 2001. Evidently, the contribution of foreign firms to economic activity in manufacturing increased in all countries. But it is also true that the rise of foreign firms has been more pronounced in Slovakia (and there is evidence that this also applies to the Czech Republic). In part, the slower increase in the share of foreign firms in Estonia and Hungary is because both countries opened their economies earlier to foreign investors, attracting FDI ahead of the Czech and Slovak Republics. Another reason for the moderate increase in the share of foreign-owned firms in Estonian manufacturing is that not only foreign affiliates increased sales, employment, and exports, but indigenous firms expanded as well. In this context, it is worth recalling that Estonia recovered fast from the output trough in 1994. Furthermore, it seems that the radical transformation policy and the creation of a business-friendly environment benefited both foreign and domestic investors in Estonia, while in many other CEE countries incentives benefited mainly the foreign investors.

Figure 8. Share of foreign-owned firms in manufacturing employment, sales, and exports in 1996 (in %)
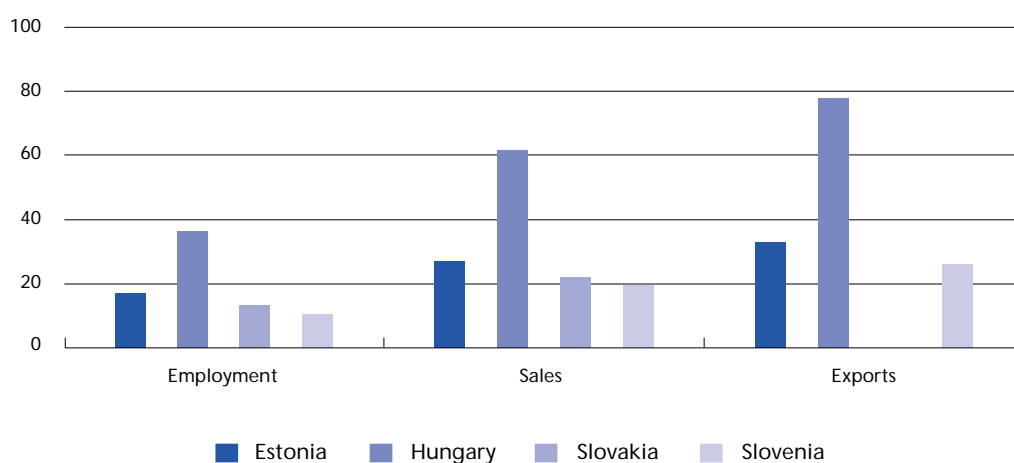
Note: For Hungary and Slovenia, data cover all firms; for Slovakia and Estonia, data include only firms with more than 20 employees; foreign-owned firms are those with at least 10% foreign ownership, except for Estonia where this threshold is 50%.

Source: wiiw database.

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8   Data for Estonia somewhat underestimate the size of the foreign sector in comparison to other CEE countries. This is because data for Estonia includes only majority-owned foreign firms with at least 20 employees. In the other countries the foreign ownership threshold is 10 percent. Furthermore, firms of all sizes are included in the database for Hungary and Slovenia (as in Estonia, the data for Slovakia include only firms with more than 20 employees). As most of the foreign subsidiaries in mature transition economies like Estonia or Hungary are majority-owned by foreign investors and because foreign subsidiaries are usually larger than domestic firms, the Estonian coverage does effectively not diverge significantly from the other countries.

The importance of foreign-owned firms is obviously not uniform across manufacturing industries. Industries where foreign-owned firms account for more than 50 percent of sales and exports include textiles, leather, motor vehicles and transport equipment. But on top of the list are the paper industry, other non-metallic minerals, and electronics – sectors where foreign-owned firms account for more than three-quarters of exports.

There have also been some noteworthy changes in the importance of foreign-owned firms within the manufacturing sector. Two periods can be distinguished. In 1996-99, leather and leather processing, furniture, wood, and wood processing industries saw the fastest rise in the share of foreign-owned firms in sales and exports. A growing importance of foreign firms also took place in non-metallic minerals and electrical and optical equipment. By contrast, the relative importance of foreign-owned firms declined in sectors such as rubber and plastic. As a result of these changes, the role of foreign firms in economic activity became more concentrated. In 1999-2001, foreign firms became stronger in the electrical and office machinery industry (mainly producing components for mobile phones). Three greenfield investments in this industry gave a boost to high-tech sectors, fundamentally changing the export structure of the country.

Apart from strengthening host countries' export potential, FDI is also expected to enhance their productivity. In Estonia, the productivity gap between foreign and indigenous firms is substantial. In some industries, productivity in the foreign-owned sector is twice as high as in the indigenous sector. To some extent this is because indigenous firms apply labour-intensive technology, while foreign are more capital intensive. Privatisation-driven acquisitions never accounted for the bulk of FDI inflows, suggesting that most FDI has financed gross fixed capital formation. Together with the observation that foreign-owned firms are on average more capital intensive, this indicates that FDI has contributed directly to output and labour productivity growth through higher fixed investment. On average, FDI is estimated to have accounted for some 20 percent of gross fixed capital formation.

Evidence for Estonia suggests that FDI has contributed to output and labour productivity growth through higher fixed investment.

That said, it is worth noting that the productivity gap has narrowed in Estonia since 1996 and is among the smallest in CEE countries. An increasing capital intensity of indigenous companies has probably contributed a good deal to the declining productivity gap.

One reason why the productivity gap between foreign and indigenous firms is lower in Estonia than in other CEE economies is that FDI in Estonia has concentrated on labour-intensive, low-tech industries rather than capital-intensive, high-tech ones. But in labour-intensive, low-tech industries the scope for differences in technology and, thus, productivity between foreign and indigenous firms is small. Another reason why the productivity gap between foreign and indigenous firms is lower (and falling) in Estonia than in other CEE economies is the generally lower level of foreign penetration in Estonia. This leaves a considerable part of each manufacturing industry in domestic hands, which fosters cooperation among indigenous firms, thereby spurring their growth more than in a country like Hungary where several industries are almost totally controlled by foreign investors.

But what can we say about the productivity spillovers that are hoped to derive from FDI? Using 1994-98 panel data that cover almost all firms in Slovenia and Estonia,

Damijan *et al.* (2001) test for intra-industry spillovers resulting from FDI. Controlling for potential selection bias in foreign investment decisions, common economic policy influences, and industry effects, the authors show that technology is transferred through the parent-affiliate relationship and intra-company trade, but that the expected spillovers to purely indigenous enterprises rarely materialise.

5. Concluding remarks and outlook

In summarising the key features of FDI in the Baltic countries, five points are worth highlighting. First, decisive and early steps in creating a free-market economy, successful macroeconomic stabilisation, and the prospect of EU accession combined to create an investor-friendly environment that attracted foreign direct investment to the Baltic countries.

Second, like small countries in general, Baltic countries attracted mainly investments from neighbouring countries, with some outward FDI from Estonia going to Latvia and Lithuania. There is a more or less outspoken policy that tries to prevent the inflow of Russian direct investment capital.

Swift progress with the transition from plan to market spurred FDI inflows, which have, however, preserved rather than changed the structure of the Baltic economies.

Third, most of the FDI is in the service sectors, notably banking and transport. Manufacturing FDI went mainly into low-tech industries. FDI has reinforced the given economic structure and has not generated much structural change. In this respect, the Baltic countries, notably Latvia and Lithuania, are more similar to other less developed transition countries like Romania than to the more advanced new EU members. Lithuania with its export-oriented FDI in the textile and clothing industry corresponds most to the pattern of a low-wage transition country.

Fourth, Estonia started first and most radically with liberalisation and privatisation and, thus, benefited from first-mover FDI in the region. It has become a regional centre for foreign affiliates. This environment was also beneficial for indigenous firms, and the productivity gap between them and foreign-owned firms seems to be smaller than in other new EU members from CEE.

Finally, Estonia is more exposed than the other two countries to the behaviour of export-oriented transnational corporations. As a result, Estonia has been much more affected by the recent economic downturn. Especially the slump in the electronics industry caused a slowdown of economic growth, exports, and FDI in 2002. This makes this country more similar to Hungary than to the other Baltic countries.

Reviewing FDI policies, it is, first, useful to stress that the Baltic countries' attitude towards FDI is on the whole liberal. In the mid-1990s, governments began to phase out direct incentives to channel FDI into the economy. Advantages of such incentives did not materialise, and EU accession made the introduction of equal treatment necessary. In line with EU rules, investment support is granted in the context of regional development, SME, and labour market policy objectives.

Second, Latvia and Lithuania have free trade zones, also functioning as export processing zones. Incentives try to attract larger manufacturing investments with some success

to these zones. With modified legislation, the zones are allowed to live on under EU membership as a regional policy instrument.

Finally, competition between countries for new investments prompted the reduction of the standard corporate tax rates in recent years. Tax competition can be detrimental as it drains funds for public investment and government services. All three Baltic states use similar arguments to attract FDI and appear mostly as competitors to each other. They have done little to coordinate their strategies. The standard advantages they list include the availability of low-cost skilled labour, good geographical location, and political stability. Recently, however, Estonia has been trying to distinguish itself from others by developing the image of an innovative country.

Taking into account the characteristics of the Baltic countries, their FDI policies, and the type of FDI they have attracted so far, what is the outlook for FDI in the years to come? Good prospects for economic growth, pegged currencies, and EU membership are the basic features setting an attractive environment for further FDI. At the same time, the small size of their economies is an impediment to market-seeking FDI. That said, Estonia should be in a position to attract further export-oriented subsidiaries in high-tech industries, while Latvia and Lithuania can use their advantage as low-wage countries to attract export-oriented subsidiaries in low- and medium-tech industries. Finding the specific production and market segments where local competence is of value will increasingly shape the future of FDI in Baltics. These can further strengthen the services functions as well as manufacturing for the regional market.

Good prospects for economic growth, sound macroeconomic policies, and EU membership should continue to provide an attractive environment for FDI.

There is also room for the Baltic countries to further expand their transit role between other EU countries and Russia. Improved political relations with Russia and a more welcoming attitude towards Russian investments could help strengthen this role.

To conclude, the Baltic countries should continue to absorb a fair amount of international FDI flows. But prospects are probably not the same for all countries. Estonia has a clear leading position as to the amount of FDI in the region. It has also a quality and competence advantage, and it started to function as headquarter for foreign investors venturing into the other two countries. For the time being, the other two countries cannot challenge Estonia's role and, thus, FDI flows to Latvia and Lithuania are unlikely to rival those to Estonia.

Annex

Table A.1   FDI inflows (in USD mn) and type of FDI inflow (in % total inflow)

	Total inflow (USD mn)	Equity capital (% of total)	Reinvested earnings (% of total)	Inter-company loans (% of total)
Estonia				
1995	201.5	50.3	7.6	42.1
1996	150.2	12.0	12.0	76.0
1997	266.2	36.4	35.6	28.0
1998	580.5	71.0	4.4	24.6
1999	305.1	57.1	15.5	27.4
2000	386.9	58.7	27.3	14.0
2001	542.4	38.8	41.3	19.9
2002	284.6	16.2	72.2	11.6
Latvia				
1996	381.7	57.4	9.1	33.5
1997	521.1	68.4	10.1	21.5
1998	356.7	58.6	16.8	24.6
1999	347.5	51.3	25.7	23.0
2000	410.1	52.1	13.8	34.1
2001	164.0	120.5	36.2	-56.7
2002	396.0	64.7	23.7	11.6
Lithuania				
1995	72.6	90.1	9.9	.
1996	152.4	83.9	16.1	.
1997	354.5	61.4	12.2	26.4
1998	925.5	83.4	10.8	5.8
1999	486.5	76.4	30.1	-6.5
2000	378.9	47.9	23.3	28.8
2001	445.9	58.4	19.2	22.3
2002	732.0	69.0	9.5	21.5

Source: National banks of respective countries (balance of payments data).

References

Bogdanovicius, A. (2000). "Rethinking privatization methods", *The Free Market*, (2).

Damijan, J., Knell, M. and Rojec, M. (2001). '"What role does FDI, absorptive capacity and trade play in transferring technology to eastern Europe? Evidence from panel data for Estonia and Slovenia". Paper prepared in the framework of the PHARE-ACE research project P97-8112-R, mimeo.

Hunya, G. (2000). *Integration through foreign direct investment. Making Central and Eastern European industries competitive*, Edward Elgar, Cheltenham, UK and Northampton, USA.

Hunya, G. and Kalotay, K. (2000). "Privatization and FDI in Central and Eastern Europe", *Transnational Corporations*, (9:11), pp. 39-66.

Hunya, G. (2001). "Database on foreign investment enterprises (foreign affiliates) in comparison with domestic-owned enterprises (DEs) in the Czech Republic, Estonia, Hungary, Poland and Slovenia in 1993-1999". Paper prepared in the framework of the PHARE-ACE research project P97-8112-R, The Vienna Institute for International Economic Studies (WIIW), Vienna, mimeo.

Hunya, G. (2003). "Structural development of manufacturing FDI". WIIW Structural Report 2003 on Central and Eastern Europe, (2).

IMF (2003). "Republic of Latvia: 2003 Article IV Consultation – Staff Report", Country Report No. 03/113.

Jurkynas, M. (2003). "Mobility of regionalism in the Baltic sea area: region-building in competition". Institute of International Relations and Political Science, Vilnius University, mimeo.

Landesmann, M. and Stehrer, R. (2003). "Structural patterns of East-West European integration: strong and weak Gerschenkron effects". WIIW Structural Report 2003 on Central and Eastern Europe, (1).

Michalowski, T. (2003). "Foreign direct investment in Poland and in the three Baltic States – a comparative analysis", University of Gdansk, Institute of International Business, mimeo.

Ministry of Economics, Republic of Latvia (2003). *Economic development of Latvia*, Riga, Latvia.

Narula, R. and Dunning, J.H. (2000). "Industrial development, globalization and multinational enterprises: new realities for developing countries". *Oxford Development Studies*, (28), pp. 141-167.

Sutela, P. (2001). "Managing capital flows in Estonia and Latvia", BOFIT Discussion Papers No. 17/2001.

UNCTAD (2002). *World Investment Directory II, Central and Eastern Europe*. Geneva, Switzerland.

Varblane, U. (2000). "Foreign direct investment in Estonia: major characteristics, trends and developments in 1993-1999". Paper prepared in the framework of the PHARE-ACE research project P97-8112-R, mimeo.

Varblane, U. and Ziacik, T. (2001). "The role of government in creating a favorable investment climate to foreign investors: the case of Estonia", *Journal of Business Research*, (2).

Varblane, U., Roolaht, T., Reiljan, E. and Jüriado,R. (2001). "Estonian outward foreign direct investment", University of Tartu, Faculty of Economics and Business Administration, Working Paper No. 9.

Zhang K.H., and Markusen, J.R. (1999). "Vertical multinationals and host country characteristics". *Journal of Development Economics*, (59), pp. 223-252.

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