INTEGRATION AND THE REGIONS OF EUROPE: HOW THE RIGHT POLICIES CAN PREVENT POLARIZATION

Monitoring European Integration 10

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Preface

The EU has chosen deeper economic integration as the path to an ever-closer union. Is this integration consistent with the Maastricht Treaty's goal of reducing economic inequality between regions, the backwardness of less-favoured regions, and the promotion of sustained and balanced economic and social progress? Several contradictory concerns exist. Poor regions fear that high-wage increasing-returns activities may agglomerate in the 'core'. Rich regions fear delocation to lower-wage regions in Europe's 'periphery' and beyond. Most regions fear declining competitiveness, de-industrialization and unemployment. All such fears create political pressures that resist further integration. In response, the EU spends a third of its budget on addressing these concerns, with member states more than matching this expenditure. European economic integration and the economic geography of Europe is clearly a major socio-economic challenge facing Europe.

Policy-makers in Europe need a better understanding of the extent and nature of economic agglomeration that has occurred in Europe, especially since the Single European Act. What types of economic activity have experienced spatial concentration and which have seen dispersion? Which regions have enjoyed agglomeration and which have experienced delocation? What has happened to the European urban structure? Is there a trade-off between spatial concentration and income equity? How does agglomeration interact with innovation and growth? How strong are the various agglomeration forces?

The location effects of integration have traditionally played only a minor role in formal economic analysis of European integration. This has recently changed. Economists in Europe and elsewhere have returned to location issues with new 'breakthrough' technology (modelling tools) and fresh excitement. This area, sometimes called the new economic geography, enjoys the happy conflux of new data, new theory and pressing policy relevance. Researchers all across Europe are working on this topic. While much of the basic economics of agglomeration has been worked out, many areas of the theory need work in order to provide a more precise guide for testing, measurement, and computer simulation of the location effects of European integration. Important questions to be addressed include: How do the various agglomeration forces (technological spillovers, labour market pooling, pecuniary externalities, etc.) interact? How do realistic adjustment mechanisms (e.g. concerning skilled-labour migration, regional labour markets and capital flows) affect agglomeration? What are the interactions among agglomeration, adjustment and growth? What are the effects of integration and information technology on city size and the structure of urban agglomeration? How do diverse public policies – ranging from support for regional universities to transport networks and taxation – affect economic agglomeration and how do they interact with tighter European integration?

Our understanding of these issues has grown in recent years, in part due to the pioneering work of CEPR researchers, and this Report draws on the fundamental research carried out by the Centre during the 1990s with the support of the Ford

Foundation and the European Commission. Research in this field is, therefore, not only a highly exciting endeavour, but also an extremely practical tool, capable of guiding policy-makers. These discussions should be, but too seldom are, based on economic analysis which is rigorous, yet presented in a manner accessible to public- and private-sector policy-makers, their advisers and the wider economic policy community.

Monitoring European Integration aims to meet this objective, by providing an annual assessment of the progress of, and obstacles encountered by, economic integration in Europe. A rotating panel of CEPR Research Fellows meets periodically to select key issues, analyse them in detail, and highlight the policy implications of the analysis. The output of the panel's work is a short annual Report, for which they take joint responsibility.

This Report (the tenth in the series) examines whether further European integration will increase the incentives for regional specialization of economic activity. The authors suggest that people and firms will increasingly cluster with those that share their particular know-how and skills. This specialization need not, however, lead to a polarization of Europe. The Report examines three possible outcomes: dispersion, where there is specialization, but most regions will be able to specialize in something; concentration, where concentration leads to depopulation of declining regions but is coupled with high labour mobility prevents a large growth in inequality of per capita income or access to jobs; and regional stagnation, where Europe polarizes into advanced regions with high incomes and low unemployment, and depressed regions with low incomes and high unemployment.

Which outcome is most likely? The authors argue that concentration is very unlikely. Evidence from the investment behaviour of multinational firms suggests that agglomeration gains are significant but not overwhelming, and can be offset by the higher costs of operating in areas where labour and public goods are scarce. The choice between dispersion and stagnation is less clear, and here, the authors argue, public policy can play an important role – for better or for worse. Misguided regional policies, which try but fail to freeze existing patterns of economic activity, can paradoxically increase the likelihood of the very polarization they seek to prevent.

Policies that increase the supply of skilled and educated labour and foster clusters of know-how and technical ability can, on the other hand, play an important positive role in preventing polarization. The Report concludes with a detailed examination of the role of government, contrasting policies that work with policies that don't.

The preparation of this Report was made possible through the very generous support of the Foreign and Commonwealth Office and the Department of Trade and Industry, while at an earlier date the German Marshall Fund of the United States provided financial assistance that was instrumental in establishing the *Monitoring European Integration* series. This Report includes new research, but since it is written and published quickly so as to be relevant to ongoing policy processes, it must rest on a solid base of past fundamental and policy-oriented research. The authors and CEPR express their continuing thanks for the support of such research which has come from these bodies and all others that contribute to the Centre's funding.

The authors and CEPR are also grateful to Sue Chapman and Lisa Moss, as well as other staff at CEPR whose patience and professionalism have been most helpful in the production of this Report.

None of these institutions or individuals is in any way associated with the content of the Report. The opinions expressed are those of the authors alone, and not of the institutions to which they are affiliated nor of CEPR, which takes no institutional policy positions. The Centre is extremely pleased, however, to offer to an outstanding group of European economists this forum for economic policy analysis.

Stephen Yeo
23 February 2000

Executive Summary

Further European integration will increase the incentives for regional specialization of economic activity. People and firms will increasingly cluster together with those that share their particular know-how and skills – which may be those within the same industry as conventionally defined, or simply those that share a functional specialization whatever the industry within which they are classified. This specialization need not imply polarization of Europe into rich and poor regions, those with jobs and those without. Three main types of outcome could be imagined:

1. **The Dispersion Outcome.** There could be a broad dispersion of activity and considerable regional equality: there will be specialization, but most regions will be able to specialize in something.
2. **The Concentration Outcome.** There could be strong geographical concentration accompanied by high labour mobility, leading to depopulation of declining regions but not to great inequality of per capita income or access to jobs.
3. **The Regional Stagnation Outcome.** There could be long-run polarization of Europe into advanced regions with high incomes and low unemployment, and depressed regions with low incomes and high unemployment.

Which seems most likely? In Chapter 2 we consider the various forces favouring agglomeration, and the contrary forces favouring dispersion. Certain forces (scale economies, learning effects, pecuniary and non-pecuniary externalities) lead to clustering, while others (factor immobility, congestion externalities and the intrinsic diversity of people's preferences) act in the direction of dispersion. The overall balance between these forces at any one time will depend on how intrinsically strong they are, as well as on the various barriers that may prevent economic agents from acting under their influence. We stress that what matters is not just the mobility of the various factors of production – labour, capital and entrepreneurship – but also their *relative* mobility, since their location decisions depend on each other. It makes all the difference in the world whether jobs follow people, or people follow jobs, or neither follows the other.

Consequently, Chapters 3 and 4 examine the mobility of firms and the mobility of labour. The evidence strongly implies that the Concentration Outcome is very unlikely. Evidence from the investment behaviour of multinational firms suggests that agglomeration gains are significant but not overwhelming, and can be offset by the higher costs of operating in areas where labour and public goods are scarce. At the same time, labour mobility is low in Europe and has even declined in recent years. Whether we get the Dispersion Outcome or the Regional Stagnation Outcome, however, is much less certain. Misguided regional policies, which try but fail to freeze existing patterns of economic activity, can paradoxically increase the likelihood of the very polarization they seek to prevent.

Evidence from the mobility of firms presented in Chapter 3 suggests that government policy has an important role to play in preventing polarization. Firms locate not just according to comparative labour costs and other country endowments, but also in pursuit of skilled and educated labour, and clusters of know-how and technical ability, both features of a country that can be strongly influenced by policy. In Chapters 5 and 6 we therefore examine the role of government in more detail, contrasting policies that work with policies that don't. Chapter 5 looks at the question from the point of view of an individual region, contrasting the successful development history of Ireland and the unsuccessful regional policies of the Italian Mezzogiorno. Ireland may have been lucky but it has been able to use its luck well.

Has Ireland's good luck harmed its neighbours, however? In Chapter 6 we look at how countries interact, and in particular at whether there are grounds for colluding rather than competing to prevent polarization. Both theory and the evidence presented in earlier chapters strongly suggest that the process is not a zero-sum game: one region's success does not have to be at the expense of another. This is particularly true because of the character of the policies that work: they are ones that build up a region's productive skills rather than merely allowing it to bid for business more cheaply. The essential components of a successful policy include:

- Public investment in a skilled and educated workforce.
- A tax and regulatory environment that encourages entrepreneurship.
- Labour market policies that encourage wage flexibility in response to economic shocks (especially important within the Euro-zone).
- Redistributive policies that diminish workers' fear of unemployment without acting as a disincentive for geographical mobility.
- Acceptance and encouragement of geographical clustering by firms using related skills.
- Reduced reliance on policies to support existing firms in difficulty, or simply to compensate firms for operating in an adverse environment without making any attempt to improve that environment.
- Policy consistency over time.

These are all ingredients of a policy environment that is good for growth as well as for regional convergence. Our most central message is that growth and cohesion are not enemies; unless misguided policies determine otherwise, they are allies.

1 Introduction

1.1 The question

Europe's economic geography may be on the threshold of a major transformation. The process of economic integration that has been under way since the Second World War has recently been gathering pace. The number of EU member states has grown from the original six to fifteen, and several more are knocking at the door. The EU's Single Market Programme has begun dismantling the remaining non-tariff barriers to trade. The deregulation of previously protected national industries has opened them up to competition from near and far. In addition, the various pressures known popularly as 'globalization' are increasingly forcing Europe's firms, like those elsewhere, to think of their operations in truly international terms.

The most dynamic and innovative economic activity has always been footloose, restlessly seeking out opportunities over time and space. Over two centuries ago, Adam Smith described the tendency for artisans and innovators to seek each other out, to congregate in towns and cities, because although proximity forced them to compete it also enabled them to learn from each other, and their gains from learning usually outweighed their losses from competition. In a predominantly agrarian society, however, there was a natural limit to this clustering process, because the bulk of people's work was tied to the land, which cannot move. Even restless entrepreneurship cannot move too far from people and their activities. Blacksmiths may have needed other blacksmiths, but they needed horses even more.

Europe is no longer an agrarian continent, though it has a few pockets that still depend significantly on the land (only 13 of the EU's 206 NUTS2 regions have more than 20% of their workforce employed in agriculture, and 10 of those 13 are in Greece). The national boundaries that once constrained footloose activities from clustering together have also become more porous in recent years. Does this mean that Europe in the next two decades will become more polarized, its favoured regions buzzing with prosperous activity while others remain backward and poor? Also, what would this mean for social cohesion, one of the aims of the EU enshrined in the Maastricht Treaty?

Polarization could happen, but it need not. In this report we look at the evidence. It comes from many sources, from the history of Europe up till now, and from comparisons of Europe with the United States, a region that has been economically and culturally integrated for very much longer. This evidence is striking, and some of it is surprising. For instance, although in some respects Europe is becoming more like the United States (for example, with greater mobility of capital between countries), in

other respects it is becoming less so. There is now less mobility of *labour* between European countries than there was in the 1960s. This trend may not continue, and we shall discuss some reasons why not, but it serves as a warning against simple extrapolation of US characteristics to the very different European continent.

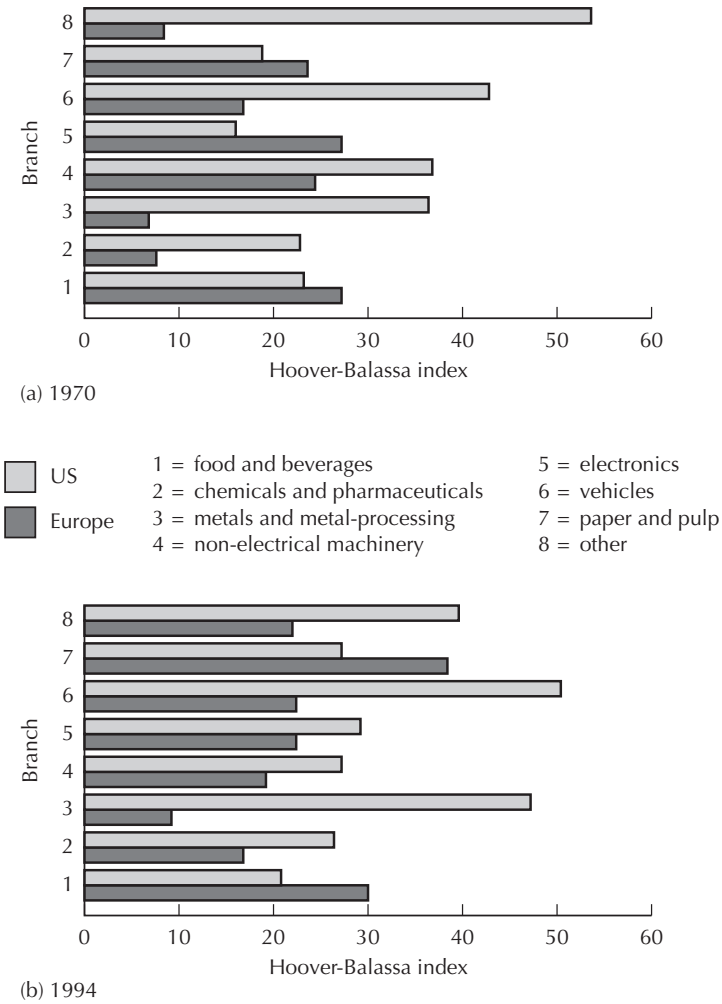
Nevertheless, the US example is very instructive in other respects. First, industries are indeed much less clustered in Europe than in the United States: there are no European equivalents to the concentration of car manufacturing in the Midwest, finance and insurance in the North East, software in the West. This strongly suggests that many of the possible benefits from clustering have yet to be realized in Europe, and the dramatic increase in cross-border investment flows in recent years may be a sign that their time has come. Secondly, the United States shows us that clustering (or *agglomeration*, as it is sometimes called) does not imply *polarization*, since by most criteria the United States is less geographically polarized than Europe. This is for two reasons. First, different industries cluster in different regions. Regions are more specialized, but most regions have proved quite capable of specializing in something. Second, the US population has always been much more willing to move where the work is. Regions that have a concentration of activity also have a concentration of population, so incomes per person are much less dispersed than the clustering of activity might lead us to expect.

Although this is in principle good news for Europe, the remaining differences between Europe and the United States could mean that we get the worst of all worlds. Continuing barriers to movement might stop us from realizing more than a fraction of the possible benefits from industrial agglomeration. Their differential impact on capital and labour, together with widespread factor price rigidities, however, might leave us with terminally depressed regions from which the jobs have moved out but the people have not. Regions must adjust to an unfavourable shock either through lower wages or through labour migration. Otherwise, even highly mobile capital will be insufficient to prevent unemployment from becoming permanently entrenched. The difference between these two outcomes will be made by the intelligence (or lack of it) with which policy-makers confront the problem. Policy-makers are, however, active at all levels: locally, regionally, nationally and supra-nationally. Devising an appropriate balance for their responsibilities will be as important as determining what they should do.

1.2 Europe and the United States: an initial comparison

There is a striking difference between the extent to which US and European firms have clustered together with others in their own industry. The way to see this is not, in the first place, to consider how geographically concentrated they are in absolute terms. Comparing two continents of different sizes and ecological conditions is difficult and potentially misleading, and the United States contains many more areas that are inhospitable to economic activity for physical reasons – though the existence of Las Vegas shows that human ingenuity can find a way even in the Nevada desert. However, Figure 1.1 shows, for eight different sectors of industry, an index of their regional concentration *relative* to that of industry as a whole, in 1970 and again in 1994. This index, knows as the relative Hoover-Balassa index, can be thought of as an index of regional specialization by industrial branch.

Figure 1.1 Relative Hoover-Balassa index for Europe and the United States



The results are very clear. Regional specialization (which incidentally has fluctuated much more in the United States over this period) remains substantially higher in the United States compared with Europe in six out of the eight sectors. The exceptions are food and beverages, and paper and pulp (the latter being influenced by high concentration in the Nordic countries). European specialization has increased modestly since 1970, but on the whole this increase is substantially less than the gap that separates Europe from the United States. These findings are in line with those of other recent studies, using a more detailed methodology, that have shown European industry to be increasing its degree of geographical specialization (see especially Amiti, 1997a Midelfart-Knarvik et.al., 1999; and WIFO, 1999). It is clear, however, that Europe has – potentially at least – some way to go.

Does the greater specialization in the United States imply greater polarization? Not at all. Table 1.1 illustrates. Based on data for 50 European NUTS1 regions and 49 states of the continental United States, it compares coefficients of variation for regional GDP and for regional GDP per capita, as these have evolved from 1978 to

Table 1.1 Dispersion of GDP and GDP per capita in the United States and Europe (Coefficient of variation across 49 US states and 50 EU NUTS1 regions)

Year	*GDP*		*GDP per capita*	
	US	*EU*	*US*	*EU*
1978	1.136	0.850	0.175	0.327
1990	1.220	0.801	0.185	0.229
1995	1.136	0.849	0.158	0.302

Sources: US Bureau of Economic Analysis and European Commission

1995. What is significant about this table is not the fact that GDP is more concentrated across US states (as measured by its higher coefficient of variation). After all, we pointed out above that such absolute comparisons may not mean very much. The important point is that the greater concentration of GDP in the United States is more than matched by the greater concentration of population, so that regional GDP *per capita* shows less concentration in the United States than in Europe.[1]

The GDP measures show no tendency for greater concentration over this period in either continent, and GDP per capita even shows a slight decline in concentration. So the fears of polarization do not appear to have any basis in the experience so far of either Europe or the United States. Sala-i-Martin (1996) has shown that income dispersion has actually declined over the whole post-war period in both Europe and the United States, and also within Japan (Quah, 1996, also reports convergence across US states). Indeed, the historical experience of Europe in the post-war era shows a tendency for income convergence among countries insofar as, and to the degree that, trade between them increased. Ben-David (1993) showed that members of the European Economic Community had seen much greater income convergence than in industrialized countries as a whole, and that the timing of these developments owed a good deal to episodes of trade liberalization. Ben-David (1995) showed that, in general, groups of countries which trade together have seen greater convergence than countries grouped by other criteria, and Ben-David and Rahman (1996) have provided evidence that this is principally because of flows of technology and know-how rather than of capital between countries. Quah (1997) argues that 'in Europe…spatial spillovers matter a lot' in generating convergence in per capita incomes, and provides a richly detailed account of the way in which these are influencing the development of the cohesion countries (Greece, Ireland, Spain and Portugal) in particular.

Over a longer historical perspective, the US experience shows that population mobility offers a way to avoid geographical polarization without freezing the regional pattern of industrial activity. Table 1.2 shows the evolution of the regional shares of US manufacturing employment since 1850 (comparable data are unfortunately unavailable for Europe). It shows that there has been a large amount of relocation of manufacturing activity, with New England and the Mid-Atlantic states declining dramatically in importance (the latter more recently than the

1 See also Banco d' Italia (1998) and Puga (1999).

Table 1.2 US regional shares, % of manufacturing employment, 1850–1990

Region	*1850*	*1890*	*1930*	*1970*	*1990*
New England	32.6	17.4	10.5	7.5	6.4
Mid-Atlantic	43.9	35.8	30.3	23.2	15.8
Great Lakes (ENC)	9.7	21.2	25.6	27.1	24.2
South East	11.4	10.4	14.4	20.2	24.4
Plains (WNC)	1.8	8.9	7.1	8.9	10.3
South West	0.1	1.3	4.1	1.3	2.1
Mountain	0.01	1.4	1.3	1.3	2.1
Far West	0.44	3.5	6.7	10.3	14.6

Source: US Census Bureau

Table 1.3 Ratio of regional shares, % of manufacturing employment to total population, 1850–1990

Region	*1850*	*1890*	*1930*	*1970*	*1990*
New England	2.71	2.32	1.58	1.28	1.20
Mid-Atlantic	1.63	1.59	1.30	1.11	0.89
Great Lakes (ENC)	0.49	0.99	1.24	1.36	1.42
South East	0.32	0.40	0.65	0.93	1.02
Plains (WNC)	0.46	0.63	0.66	1.10	1.44
South West	0.08	0.32	0.55	0.16	0.20
Mountain	0.20	0.98	0.58	0.52	0.71
Far West	0.94	1.14	0.99	0.80	0.93

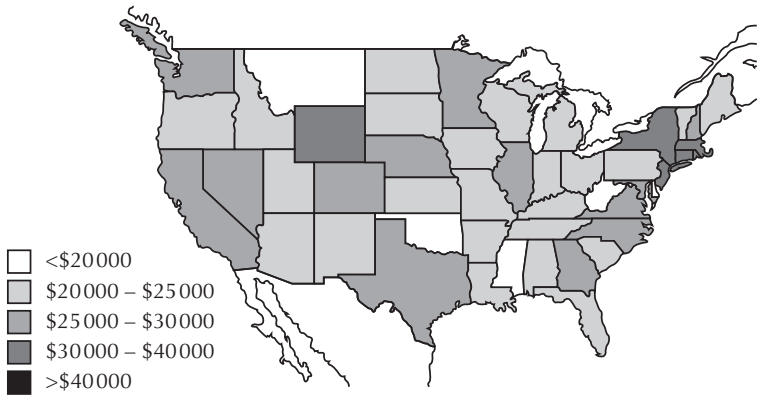
Source: US Census Bureau

former). The net result of this movement and of the associated population movements has, however, been to disperse manufacturing itself more evenly across the population base. Table 1.3 takes the ratio of manufacturing shares to overall population shares: values close to one would indicate a very even spread of manufacturing across the population. In fact we can see that the values have moved closer to one in every region except the Far West, where they began close to one and have remained so.

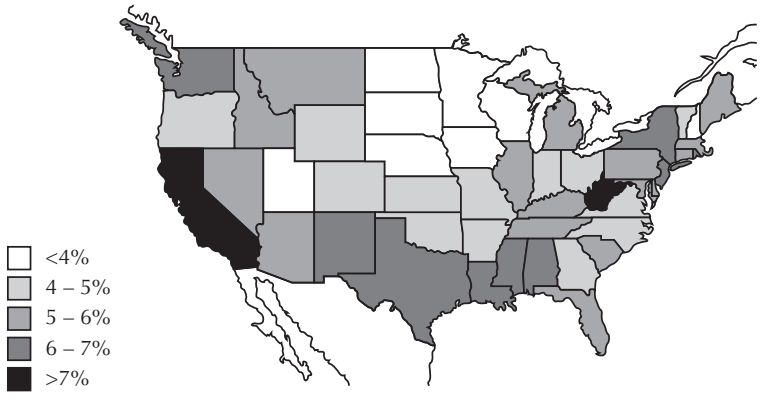
Population movements do not, of course, stop regions from declining – in one sense of the word 'decline'. Depopulation of a once-bustling region may well seem regrettable to some, though the replacement of farms by nature reserves may have its champions too. It is clearly different, however, from the kind of decline that leaves a region suffering permanently higher unemployment, because jobs have left but people have not. It is this latter kind of decline that has been Europe's particular fate.

To see how this is, compare two pairs of maps. Figure 1.2 shows GDP per capita and unemployment rates across US states. There is a small positive correlation between the two. Poorer states are slightly less likely to suffer from unemployment than richer states (and this is confirmed by a formal regression analysis).

Figure 1.2 US per capita GDP and unemployment rates by state, 1995



(a) US GDP per capita by state, 1995

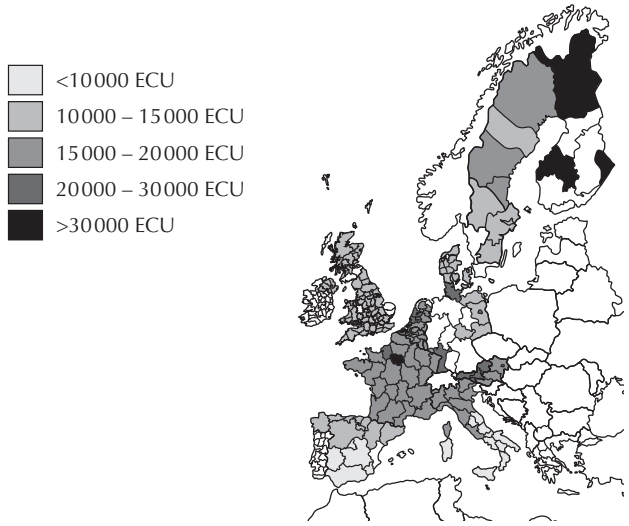


(b) US unemployment rates by state, 1995

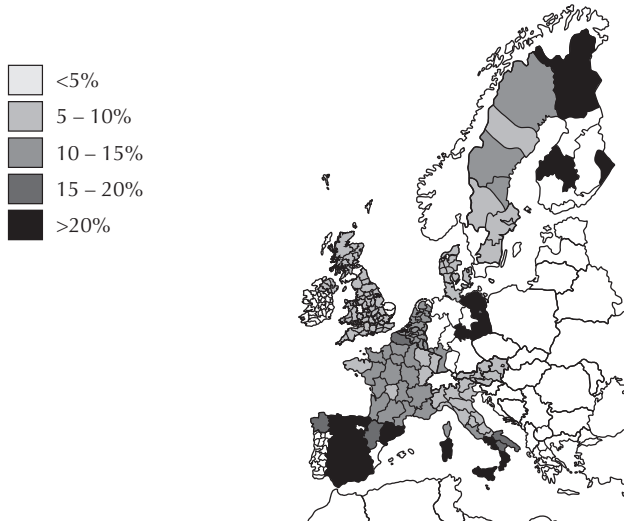
In Europe the situation is quite different. Figure 1.3 shows the same pair of variables across European regions. Although there are one or two exceptions, such as some Finnish regions which suffer from high unemployment despite being rich, in Europe there is a strong negative link between income and unemployment. Poor regions are much more likely to suffer from unemployment. Table 1.4 reports comparative regressions of unemployment on income across regions. It shows that, on average, a poor region has an unemployment rate that is higher than that of a rich region by a quarter of a percentage point for each €1,000 of difference between them in income per person. This correlation is statistically significant at less than 5%. It shows that, in Europe though not in the United States, declining economic activity threatens to bring unemployment to a whole region in its wake. As we shall see in future chapters, capital mobility is increasing in Europe, but labour mobility has fallen in recent years. Decline, European-style, may be more of a danger for some regions than ever before.

The discussion above has suggested that agglomeration need not imply polarization, because although there is greater specialization, many localities will be able to specialize in something. Not all localities will in fact do so, however. It is

Figure 1.3 GDP per capita and unemployment rates for European regions, 1995



(a) GDP per capita for European regions, 1995 (NUTS2 regions for Western Europe, NUTS3 regions for Scandinavia)



(b) Unemployment rates for European regions, 1995 (NUTS2 regions for Western Europe, NUTS3 regions for Scandinavia)

Table 1.4 Regression of unemployment rates on GDP per capita (49 US states and 50 EU NUTS1 regions)

	US($000)	*EU(€000)*
Coefficient on GDP per capita	0.0497	–0.246
T-ratio	2.73	–2.16

Sources: Own calculations on data from US Bureau of Economic Analysis and European Commission

Table 1.5 Regression of GDP growth rates (%), EU and United States

	EU 1977–95 (€000)	*United States 1960–95 ($000 1960)*
Coefficient on GDP per capita (T–ratio)	–0.27	–0.99
	–5.5	–5.1
Coefficient on divergence from regional centre (T–ratio)	0.13	0.41
	1.5	4.1
Number of observations	109	3060
Mean GDP per capita in base year (€000 or $000)	4.69	1.35
Standard deviation GDP per capita in base year ($000)	1.90	0.414
Effect on growth rate of one s.d. increase in:		
GDP per capita in base year	–0.513	–0.410
Divergence from regional centre in base year	0.247	0.170

Sources: Own calculations on data from US Census Bureau and European Commission

likely that a tendency towards per capita income equalization across broadly-defined regions may coexist with a tendency for polarization within these regions. If we examine the spatial patterns of recent economic growth in the continental United States at a more detailed level, this is indeed exactly what we find. Table 1.5 shows, at the level of individual US counties, the results of a regression analysis of GDP growth rates, averaged over the 35 years from 1960 to 1995. These are not structural regressions aiming to uncover the causes of growth, but rather descriptive regressions aiming to ask whether increases in economic activity have tended to take place (for whatever reasons) in localities that were already prosperous, or the reverse. We approach the question in two ways: first by including as a regressor the initial level of income per capita in the county concerned, and secondly by including the *difference* between that income per capita and the average income per capita of the state in which the county belongs. The results are extremely clear: economic growth has been higher in counties that are poor relative to the United States as a whole, but rich relative to the states in which they are located – resulting in national convergence but local polarization.

The same table also reports the results of an identical analysis of data for European NUTS2 regions from 1977 to 1995. Many more data are missing here, meaning the results must be interpreted with caution. The findings are, however, remarkably similar to those of the United States. On average, a region whose per capita income was one standard deviation higher than another in the base year would have had an annual growth rate roughly half a percentage point lower. A similar deviation from the national – rather than the European – average would, however, *raise* the expected growth rate by about a quarter of a percentage point. These are between a quarter and a third higher than the corresponding figures for the United States, but are qualitatively identical.

In many ways these findings are encouraging, because they suggest that the spatial changes to be expected in Europe in the future are an extension of changes that are already under way. They also suggest – if there had ever been any reasons to doubt it – that the European economy's intrinsic capacity to generate special-

ization without polarization may match the United States', in spite of the message from the unemployment figures. They reinforce, therefore, the warning that if polarization is to be Europe's fate, it is likely to come from ill-conceived policy responses rather than from the underlying nature of European industry.

What can we conclude from the evidence so far? Three conclusions stand out:

- Europe has hardly begun to enjoy the benefits of regional specialization by industry that the US experience suggests may be possible once barriers to economic mobility are removed. Specialization has been increasing, but it has a long way to go.
- The United States has for many decades been home to footloose industry, and has seen great movements of economic activity from one region to another. Most regions, however, have managed to specialize in something. Regional per capita income inequality is no higher than in Europe, and regional unemployment is uncorrelated with income. So, polarization is not an inevitable consequence of regional specialization.
- Europe, however, is in real danger of suffering from polarization without necessarily enjoying the full benefits of agglomeration.

The evidence so far, however, tells us only about the potential for change, the potential benefits and the potential dangers. To get a clearer picture of how much of this potential is likely to be realized, we must examine the nature of the developments that are already changing the outlook for Europe.

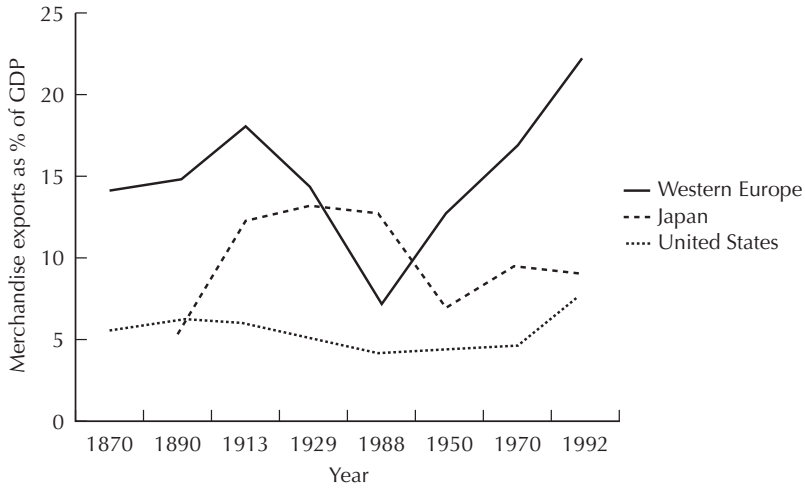
1.3 The changes facing Europe

Europe today is facing challenges of two kinds: those that it shares with the rest of the world, and those that are particular to the European continent. Along with the rest of the world, Europe's economies face the pressures of globalization. Globalization is sometimes thought of as being linked to the increasing importance and influence of international markets on our everyday lives, but in fact markets are only part of the story. There is undoubtedly an increase in the importance of economic transactions that take place across national frontiers, but these transactions take place in at least three ways:

- In *markets*, in which resources (goods, services, people, financial assets and means of payment) are exchanged for each other on a one-time basis.
- Within *firms*, where decisions made by managers transfer resources across borders between divisions of the same firm.
- Within *networks*, which are associations of independent individuals or firms that nevertheless transact regularly with each other and perceive a degree of collective self-interest.

Figure 1.4 shows how the importance of cross-border market exchanges (as measured by the share of exports in GDP) has risen in recent decades from a low point in the inter-war years. Even in Western Europe, however, (where it has risen most) it is not dramatically higher than it was at the end of the nineteenth century, and for Japan it has still not rebounded to the nineteenth-century peak. It is true that the nature of trade has changed, with less commodity trade and

Figure 1.4 Trade and national income, 1870–1992

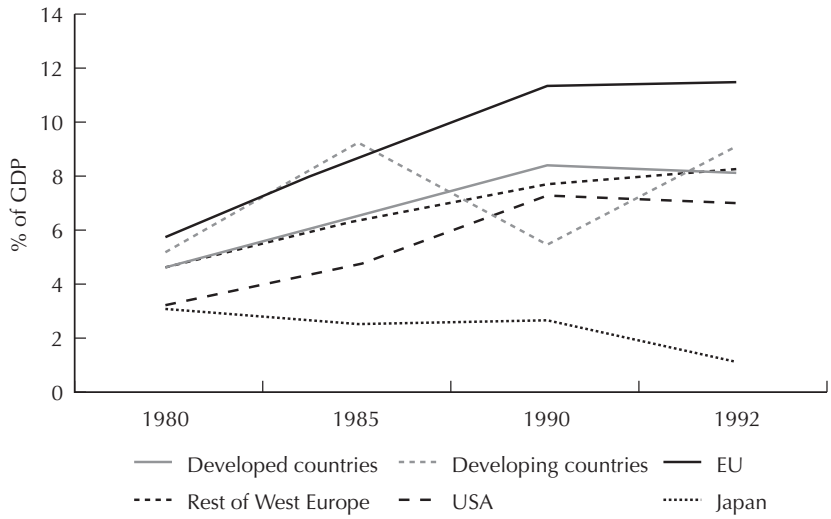


more exchange of differentiated products within the same industries (see Greenaway and Torstensson, 1998) but the figure should at least serve to remind us that the other non-market aspects of globalization may be quantitatively even more important. Indeed, Baldwin and Martin (1999) have stressed that the current wave of globalization differs from that of the nineteenth century in that it is much more about trade in ideas than trade in goods.[2] Figure 1.5 shows how the stock of foreign direct investment has grown sharply in recent years, especially in Europe (it almost certainly understates the importance of foreign ownership for firm decisions because it does not include portfolio investment, some of which involves large enough stakes to influence management decisions). Finally, the relative importance of networks can be illustrated by looking at just one type of network – that created by the parent companies involved in a joint venture. Of the transactions notified to the European Commission under its merger control procedure during the seven years from 1991 to 1997, as many as 49% involved joint ventures, more than the combined total of takeover bids and majority acquisitions. Other types of network are becoming even more widespread: for example, alliances between airlines have increasingly replaced more traditional forms of merger and takeover activity.

What are the implications of the growing importance of global non-market transactions? Market and non-market transactions can sometimes be *substitutes* for one another, in ways that affect the nature and the location of the underlying economic activity. Barriers that make exporting to a country more difficult may encourage firms to set up manufacturing plants within its frontiers. Alternatively, market and non-market transactions may be *complementary*: the possibility of exporting products to a country may lead to a direct investment in service and distribution channels. Indeed, the European Commission (1996) has estimated that the Single Market Programme has had a greater impact on foreign

2 Nevertheless, Taylor (1999) shows the presence of economic convergence among a group of seven countries for the period 1870–1914, based mainly on highly mobile capital and labour.

Figure 1.5 Stock of inward FDI as % GDP



direct investment within the EU than on trade; certainly FDI flows have grown much more rapidly than trade flows in recent years. Policy-makers concerned about the economic future of a region need to take these relations into account, otherwise interventions that are conceived just in terms of market transactions could have counter-productive results. These considerations matter particularly now that Europe's political leaders are committed to dismantling the remaining barriers to cross-border transactions of all kinds.

These interactions between market- and non-market transactions mean that globalization can paradoxically increase the importance of *local* links between firms. Thanks to falling trade barriers and improved information technology, a large firm can now outsource some of its components from a foreign supplier in a way that simultaneously:

- allows it to control quality and delivery specifications at a much greater distance than ever before, and
- allows its supplier to remain connected to local networks of skills, know-how and proprietary technology.

Far from making the location decisions of firms unimportant, these developments enable a firm to decouple itself from those of its partners with whom transactions can indeed be conducted entirely at arm's length, and thereby focus its location decisions on those considerations which remain firmly rooted in physical space. Nowhere is this illustrated more clearly than in the software industry. An important part of the software for the US banking industry is written in India, thereby illustrating that proximity to the final user is not an important consideration for creators of a product that can be transmitted across the world in seconds. The Indian software industry is, however, highly concentrated in a few regional centres such as Bangalore, Hyderabad and Pune – thereby illustrating its dependence on skills and know-how that are transmitted between firms by proximity and daily interaction (see Banerjee and Duflo, 1999). For software firms, location near to their competitors is much more important than

location to their customers. It is exactly what Adam Smith would have predicted for blacksmiths if they had been able to shoe horses across the World Wide Web.

If we want to understand the forces shaping economic location decisions, we therefore need to understand non-market transactions as well as those that happen in markets, and to understand why some kinds of productive interaction continue to depend upon physical proximity. As we shall see in later chapters, there is no reason to think that the forces promoting agglomeration of economic activity are any weaker now than they were in the decades when the current regional structure of the US economy was taking shape.

Typically it is much harder to investigate non-market than market transactions, because the evidence is normally unavailable. In Chapter 3, however, we report the results of an important study of the investment decisions of Swedish multinational firms, which have been the most active of Europe's international investors over many decades. The results of this study provide a unique insight into the factors determining where economic activity is likely to move in coming years, and complement the information coming out of other studies that we shall also report.

The developments we have sketched here are transforming ways of doing business across the world, but they are being given added impetus by a number of events that are special to Europe. First of all, the EU's Single Market Programme is making continuing efforts to remove obstacles to the movement of goods, services, people and capital across the EU's internal frontiers. A number of studies (European Economy, 1996, for instance) document the considerable distance the EU has moved in this respect, but also how many more barriers remain to come down. Also, evidence from North America has emphasized how significant national frontiers remain even when formal barriers to trade are removed: provinces in Canada, for example, trade much more with each other than with US states that are a similar distance away (McCallum, 1995; Engel and Rogers, 1996). Even more strikingly, Helliwell and McKitrick (1998) have found that the Canadian national frontier acts as a significant barrier to capital flows, but that provincial frontiers do not. The reasons for these phenomena are not always well understood: they may have to do as much with historical information networks and the pattern of infrastructure as with any obstacles to trade as such (see Helliwell, 1997). They strengthen the reasons for thinking, however, that borders between European nations continue to exercise a powerful influence on the continent's economic geography, and therefore that changes in the way these borders function may also make a significant difference. In Chapter 2 we show why it may matter very much whether the mobility of capital increases by more than that of labour, or vice versa. We then discuss in Chapters 3 and 4 reasons for thinking that, for some time to come, the mobility of capital and firms will increase by more than the mobility of labour, and we consider the implications of this for the overall shape of European industry in future decades.

A second specifically European development has been European Monetary Union. Greater transparency of pricing behaviour across Europe may make buyers seek out purchases much more readily across frontiers, and therefore weaken even further the geographical links tying producers to their markets (developments in electronic commerce will contribute to this as well – see Department of Trade and Industry, 1999). At the same time, the loss of the option to devalue domestic currencies may change labour market behaviour in ways that will affect the ability of

regions to compete. If workers realize that uncompetitive wage-setting cannot be offset by currency depreciation they may become more conscious of their need to compete across the whole Euro-zone. On the other hand, if regions become significantly uncompetitive, they may remain so in a spiral of unemployment, low investment, and poor productivity from which devaluation cannot offer any relief. As we discuss below in the case of Italy, monetary union provides a new urgency to the need to ensure complementary policies that do not hamper the ability of poor regions to compete with the rest.

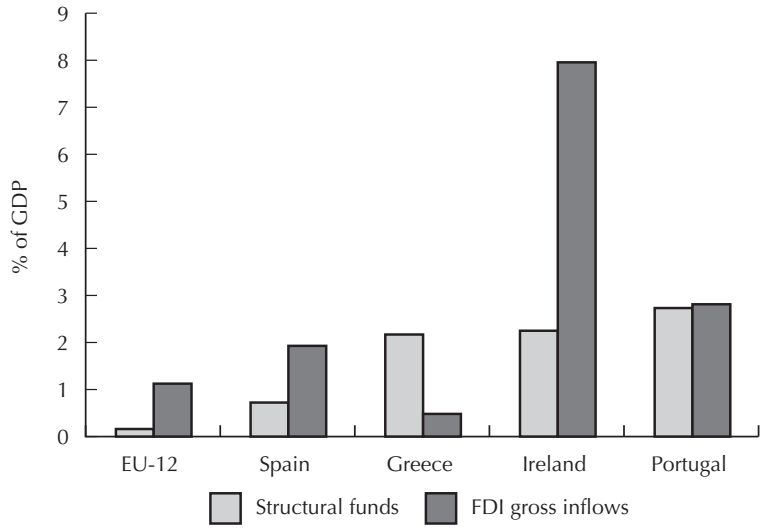
1.4 The policy responses

When policy-makers are concerned that economic integration may accelerate the decline of some regions, several options are open to them. They may transfer resources directly to the threatened regions, and they may hope to create the conditions under which resources under the control of other economic agents will flow there of their own accord. Typically, of course, direct transfers of resources are undertaken in the hope of inducing other transfers, sometimes through explicit linkage mechanisms such as co-funding, sometimes through the building of infrastructures designed to make the region more attractive to investors. Public expenditures are, however, not the only tools available to policy-makers. The design of local regulation, the local tax system, agreements with local trade unions and the fostering of a local entrepreneurial culture, are all arenas in which governments have sought to induce private inflows of resources, with varying degrees of success. Sometimes, unfortunately, the unwise design of these other policies has even been the principal obstacle to their efforts to induce direct resource inflows; and there may be adverse long-run consequences even of policies that succeed in their immediate goals. Martin (1999) has suggested that policies (such as infrastructure investments) which are designed to reduce the concentration of industry within a region may thereby prevent agglomeration benefits and consequently lower the growth rate for the region as a whole.

Figure 1.6 shows that within the EU, direct flows of regional assistance have by no means guaranteed complementary flows of private investment. It shows, for the four EU cohesion countries (Greece, Spain, Portugal and Ireland) as well as for the average of the remaining 12 member states, the flows of EU regional assistance through the structural funds as a proportion of GDP, and compares this to flows of foreign direct investment. What stands out very strikingly from the figure is the divergent experience of the cohesion countries in attracting investment, even though their entitlement to regional assistance has been rather similar (with the exception of Spain). Greece has had negligible success in attracting FDI, while Ireland's FDI has amounted to an annual flow of 8% of GDP, around four times its inflow of regional assistance.

What makes a hitherto-poor country or a region successful in attracting inflows of private funds? And does the success of one country or region necessarily come at the expense of others? Is the contest to attract FDI a zero-sum game? Later in this report we try to answer these questions on the basis of the available evidence.

Figure 1.6 The relative importance of FDI and structural funds in the four cohesion countries



1.5 The structure of this book

Chapter 2 of this book summarizes what economic analysis has to say about the various forces determining the location of economic activity. Certain forces (scale economies, learning effects, pecuniary and non-pecuniary externalities) lead to clustering, while others (factor immobility, congestion externalities and the intrinsic diversity of people's preferences) act in the direction of dispersion. The overall balance between these forces at any one time will depend on how intrinsically strong they are, as well as on the various barriers that may prevent economic agents from acting under their influence.[3] We stress that what matters is not just the mobility of the various factors of production (labour, capital and entrepreneurship) but also their *relative* mobility, since their location decisions depend on each other. It makes all the difference in the world whether jobs follow people, or people follow jobs, or neither follows the other.

Chapter 3 examines in detail what we know about what influences the location decisions of firms. Chapter 4 does the same thing for labour. Chapter 5 examines the various policy responses of authorities at different levels – regions, nation states and the EU – to the dangers of regional decline. It summarizes what we know (and just as importantly, what we don't know) about what makes for a successful regional policy. Chapter 6 then draws the threads of the argument

3 Forslid, Haaland and Midelfart-Knarvik (1999) have simulated a computable general equilibrium model of economic integration, finding (not suprisingly) that the effect of trade liberalization on concentration depends on the details of industry specification. Specifically, scale-intensive industries display a U-shaped relation and those based on traditional comparative advantage becoming more concentrated as trade costs fall. They estimate the overall concentration of European industry to be highest for intermediate trade costs, and to be likely to fall as the current round of integration proceeds. Although their results are inevitably sensitive to the details of their model, these are clearly consistent with our argument that integration need not lead to polarization.

together to make policy recommendations, both about what responsibilities should be granted to authorities at different levels, and about the use they should make of these responsibilities.

1.6 Our argument in brief

Further European integration will increase the incentives for regional specialization of economic activity. People and firms will increasingly cluster together with those that share their particular know-how and skills – which may be those within the same industry as conventionally defined, or simply those that share a functional specialization whatever the industry within which they are classified. This specialization need not imply polarization of Europe into rich and poor regions, those with jobs and those without. Three main types of outcome could be imagined:

1. There could be a broad dispersion of activity and considerable regional equality: there will be specialization, but most regions will be able to specialize in something.
2. There could be strong geographical concentration accompanied by high labour mobility, leading to depopulation of declining regions, but, not to great inequality of per capita income or access to jobs.
3. There could be long-run polarization of Europe into advanced regions with high incomes and low unemployment, and depressed regions with low incomes and high unemployment.

The evidence strongly suggests the second outcome is very unlikely. Evidence from the investment behaviour of multinational firms suggests that agglomeration gains are significant but not overwhelming, and can be offset by the higher costs of operating in areas where labour and public goods are scarce. At the same time, labour mobility is low in Europe and has even declined in recent years. Whether we get the first or the third outcome, however, is much less certain. Misguided regional policies, which try but fail to freeze existing patterns of economic activity, can paradoxically increase the likelihood of the very polarization they seek to prevent.

Both the evidence from the mobility of firms, and the contrasting experience of the successful development policies of Ireland and the unsuccessful regional policies of the Italian Mezzogiorno, suggest that government policy has an important role to play in preventing polarization. They also suggest that the process is not a zero-sum game: one region's success does not have to be at the expense of another. We discuss the likely ingredients of a successful policy mix in more detail in later chapters, but the essential components include:

- Public investment in a skilled and educated workforce.
- A tax and regulatory environment that encourages entrepreneurship.
- Labour market policies that encourage wage flexibility in response to economic shocks (especially important within the Euro-zone).
- Redistributive policies that diminish workers' fear of unemployment without acting as a disincentive for geographical mobility.
- Acceptance and encouragement of geographical clustering by firms using related skills.

- Reduced reliance on policies to support existing firms in difficulty, or simply to compensate firms for operating in an adverse environment without making any attempt to improve that environment.
- Policy consistency over time.

Not surprisingly, these are all ingredients of a policy environment that is good for growth as well as for regional convergence. Our most central message is that growth and cohesion are not enemies; unless misguided policies determine otherwise, they are allies.

2 Forces Shaping the New Economic Geography

2.1 Agglomeration and fragmentation

Economic activity typically occurs in geographic clusters – people agglomerate in towns and cities, retailers gather in shopping centres, firms in the same industry often concentrate in particular regions or countries. Despite this, economic activity is remarkably unconcentrated. People live and thrive in Portugal and Scotland, a 'peripheral' country like Ireland has had greater economic success in recent years than central Germany, and Nokia, one of the fastest growing companies in Europe, is based about as far from the centre as it is possible to come.

The dual phenomena of agglomeration and dispersion reflect strongly counteracting forces. On the one hand, there are gains from agglomeration. Most people prefer the range of shops, services, activities and social contacts offered by a town or larger city to the solitude of the country; shops and restaurants get more customers if they locate near other shops and restaurants; software firms find it easier to recruit good programmers in locations where there are other producers of software, etc. On the other hand, there are equally substantial gains from dispersion. People like to have a choice of places to live and work, and they differ in their residential preferences; natural and other immobile resources are dispersed; and geographic concentration leads to congestion and price differences for property and other resources that by themselves induce dispersion.

Both agglomeration and dispersion are limited by the extent of markets. If people do not move, and transport costs or trade barriers prevent trade, production of all goods must take place locally, regardless of factor price differentials, congestion, or gains from agglomeration. The two forces come into play only if goods or labour and other factors of production are geographically mobile. Absolute mobility is important, particularly for agglomeration, but relative mobility may be more important. If labour and other factors of production are less mobile than goods and services, the initial geographic distribution of factors will serve as an anchor effectively preventing geographic concentration. Trade will induce geographic specialization, possibly in the form of specialized industrial agglomerations, but no more. If, on the other hand, people, capital, and other key resources are more mobile than goods and services, overall geographic concentration cannot be ruled out.

The incentives to agglomerate or disperse are probably also limited by the degree of competition. Relocation of firms or production lines may occur simply because there is something to gain, but it is more likely if managers feel compelled to do so. In the absence of competition, there may be no compulsion. Firms can survive in high-cost locations, and owners, managers and workers are free to choose a quiet life.

Competition and mobility in Europe have increased dramatically in the last two decades, as the result of deregulation, liberalization of capital movements, integration of European markets, reforms in Eastern Europe, globalization of world markets, and rapid industrialization in Asia. These changes are reinforced by strong growth in the demand for services and manufactured goods from footloose industries (and will be so even more with the spread of internet trade), and by technological changes that facilitate communication and reduce distance costs. The purpose of this chapter is to discuss the separate effects of each of these changes and to analyse how they interact. First, however, we ask why we should be concerned about changes in the economic geography of Europe.

2.2 Why location matters

Relocation of economic activity occurs because firms and factor owners can earn more by moving, because buyers can get cheaper or better products by switching to new suppliers and because individuals can get better job and recreational opportunities by settling somewhere else. Doesn't this mean that changes in the pattern of production and the location of economic activity simply reflect the invisible hand at work, so that the outcome is improved overall efficiency and expanded choice sets for individuals?

There are certainly very good reasons to welcome these changes. A sharper division of labour, factor movements and exploitation of agglomeration gains will improve efficiency and thus raise European real income. There are reasons to believe that the overall gain could be large. It is also important to bear in mind that removal of impediments to factor mobility does, in fact, expand the choices available to firms and factor owners; and that firms, capital and individuals will move only if they become better off as a result. For many – perhaps most – Europeans, therefore, economic integration and the changes in economic geography that follow from it, will be advantageous.

Nevertheless there are several reasons for concern. First, economic location is characterized by important externalities – between citizens and between firms. Some of these are positive externalities, such as those that arise from sharing knowledge and professional skills; we shall have much to say about these in future chapters. Some are negative, however, like the congestion that can arise in cities. There is no reason to think that market forces alone will strike the right balance between these positive and negative effects.

Second, there could be major, and perhaps undesirable, regional distribution effects. It is well known that even though freer trade gives aggregate gains, these gains are always unevenly distributed in the sense that there will be winners and losers within each country, and also in the sense that some countries could become worse off. When we add factor movements and agglomeration gains to the traditional free-trade story, such effects are magnified. If factors and firms agglomerate in some regions, real income levels there will rise, and they will fall elsewhere, so those who remain in the deindustrialized areas will be worse off.

Related to this is the possibility of European 'North Dakotas'; i.e. the danger that some areas will become, or remain, desolate. This is more than a distributional concern. Geographic diversity is a public good. Most people appreciate, and are willing to pay for, activity in all parts of their country or continent. For that reason, if Scotland or Scandinavia were depopulated, or if Southern Italy remained perma-

nently depressed, most Europeans would see that as a problem in itself – even if the Scots, Scandinavians or Italians were somehow given economic compensation.

Diversity is also a private good, in the sense that we as individuals like to have a choice. If relocation should lead to greater geographic concentration, or to greater uniformity in terms of job and recreational opportunities, the expansion of choice which increased mobility should induce, might not materialize.

A different concern is greater regional susceptibility to shocks. Even without stronger agglomeration, there will be greater regional specialization. As a result, shocks that affect relative prices – changes in technology, demand shocks, emergence of new, foreign competition, etc. – will affect particular regions more strongly than today. If labour and other factors are highly mobile, the effects will be dampened by factor movements. If they are not, shocks could create greater divergence in labour market conditions than today, with serious unemployment and falling wages in some regions concurrent with labour shortages and inflationary pressures in others. This is an important effect of integration. The general presumption, for instance in the discussions of the European Monetary Union, has been that integration is the 'great equalizer'. In some respects it is. With respect to industrial structure, however, it is not.

The final, and perhaps most important, reason for concern that we shall mention, has to do with regional and industrial policy. Because the combination of factor movements and agglomeration will have major effects on the regional distribution of income, all regions have strong incentives to attract new agglomerations and retain old ones. They are likely to use all means at their disposal – direct subsidies, tax incentives, investments in infrastructure, etc. – to attract capital, firms and highly qualified individuals.

Local competition for industry would waste resources even if relocation were a zero-sum game. It is not. There are real gains from increased agglomeration, and there is a danger that the effect of extensive local policy competition will be greater dispersion than would otherwise be the case. Thus, local industrial policy could be costly both because resources are wasted directly in rent-seeking activities and because the end result could be a less efficient regional pattern of production in Europe.

If this were the whole story, the problem could easily be solved by centralizing policy, i.e. by removing industrial policy, taxation and infrastructure from the spheres of national and local policy. It is not that simple, however. There are informational gains from policy decentralization, and these are as important in industrial as in other contexts. There are also clear gains from policy competition: national and local authorities will provide better and more efficient infrastructure if that is important to attract firms and individuals; they have incentives for improvements in the tax system if factor owners can escape their share of the burden by moving; and competing local authorities may be more innovative when it comes to constructive industrial policy than the Brussels bureaucracy. The Irish success in attracting new industry to Europe may be a case in point.

2.3 Factors inducing relocation

The various factors that have contributed to greater competition and increased mobility of goods and factors in Europe differ in their effects on the location of

economic activity. Before we look at the way the different forces interact, it is useful briefly to consider them separately.

2.3.1 New market structures

Integration of European product markets and deregulation of national markets in areas such as finance, telecommunications and transportation break up traditional market structures. As national monopolies are dismantled, restrictions on foreign ownership are lifted and trading opportunities arise; firm and market structures change rapidly through international networking and cross-border mergers and acquisitions which transform national industries into European ones.

The key to the effects of integration is the replacement of small, national markets by larger, European ones. Larger markets mean greater competition, and increased competition affects the structure and location of firms and industries. Larger markets also mean greater scope for market-based activities. In small, national markets, demand is often insufficient for the establishment of firms specializing in particular services or narrow product ranges, so firms dependent on specialized goods or services will typically have to provide them in-house. Integration permits subcontracting and outsourcing on a large scale. That, in turn, also affects firm location and structure.

Consider first the effects on the scope and size of firms. There are two counteracting forces. On the one hand, integration and increased competition should force out inefficient firms, create growth opportunities for efficient ones, and induce cross-border mergers and take-overs. If there are unexploited economies of scale, the net effect should be larger firms. On the other hand, increased subcontracting and outsourcing should narrow the scope of existing firms to core business areas and lead to the establishment of a number of new, highly specialized firms.

Prior to the establishment of the internal EU market, a number of studies, with Smith and Venables (1988) as the pioneering one, analysed the likely effects of integration on competition and firm size. The consensus was that firms would become larger. According to the original Smith and Venables simulations, the average firm size in European manufacturing would increase by around 8% as a result of market integration. There would be significant differences between industries, however. For some, such as machine tools and footwear, there would be no marked effect at all. For others, such as office machinery, the effect would be very large, with an increase in average firm size of more than 30%.

Some *ex-post* studies seem to suggest the opposite, *viz*. a trend towards downsizing of European firms (Sengenberg et al., 1991; Commission of the European Communities 1992, 1994; Gallagher and Robson, 1994, etc). It is also worth noting that, in terms of employees per firm, there was no trend towards larger firms in the United States up to 1990, despite a much more integrated market. Technological change, enabling the adoption of small scale operations, together with more informal firm structures (due to strategic alliances, outsourcing, etc), and changes in consumer demand are the most frequently invoked explanations for this phenomenon. Even in some of the industries where mergers and takeover activities have been strongest, such as automobile and information technology industries, the concentration ratio has not increased between 1985 and 1997 (United Nations, 1999).

When assessing such evidence, however, one should keep in mind that the US experience refers to changes in firm structure within an established, integrated

market, while the European question is how integration by itself will affect firm size. It should also be noted that employment may be an inappropriate indicator of effective firm size. If non-core activities are outsourced, but a firm expands in its core activities, final sales will increase even though employment may go down.

In fact, rather than overestimating the effect on firm size in Europe, there are reasons to believe that the studies in the Smith-Venables tradition are likely to understimate them. These studies were restricted to manufacturing, and to the pre-expansion European community. The addition of new EU members and the expansion of the single market to comprise countries outside the EU will reinforce the effects. Also, firm size effects are likely to be even greater in service industries such as telecommunications and finance, where national markets were initially more closed than in manufacturing, and where there are alleged to be substantial economies of scale. The effects may also become more marked over time, if market integration feeds back on demand patterns, making consumers more similar across European countries.[1]

Therefore, previous trends towards down-sizing are likely to be replaced by a trend towards larger firms as market integration progresses. In particular, in sectors such as banking, insurance, transportation, telecommunications and pharmaceuticals, it seems a fair bet that the average size of firms will increase substantially.

An important implication is that national corporate headquarters will disappear and that capitals and other cities that derive rents from headquarter functions will be worse off as a result. Instead, these rents are likely to accrue to a smaller number of European headquarter cities.

Growth in average firm size does not, however, necessarily mean that all surviving firms will have to be bigger. For most goods and services there is a market for small, niche producers to supplement the large firms that have long production lines and standardization of products as their raison d'être, and the income elasticity of demand is typically higher for the specialized niche products than for the large-volume varieties. Subcontracting, networking and outsourcing provide similar, new opportunities for small firms. The likely effect of market integration, therefore, is a bipolar distribution of firms, with a few large ones accounting for the bulk of production, but with a large number of small firms surviving profitably along with the big ones.

2.3.2 Sharper division of labour

Lower trade costs, increased competition, and greater specialization at the firm level will also induce greater inter-sectoral specialization within Europe. High-cost industries that could survive in sheltered, national markets must perform or perish in internationally open markets, while low-cost industries traditionally hampered by foreign trade barriers can exploit new market opportunities. The result should be a sharper division of labour, where the regions of Europe concentrate on producing those goods and services in which they have a comparative advantage.

The effects could be large, particularly because European integration occurs concurrent with, and in important respects as part of, the more general process of globalization, i.e. of globally freer trade in goods and services, freer move-

1 It is difficult, however, to be sure to what extent existing differences in demand reflects hidden non-tariff barriers to trade as opposed to national differences in consumer preferences

ments of firms, capital and labour, and more rapid international diffusion of technology. New markets in Asia and Latin America provide European firms with new export opportunities, but globalization also means sharper foreign competition in European markets.

Looking at the effects of European integration alone, Gasiorek, et al. (1991) concluded that the internal market should induce a significant shift in production of textiles and clothing from France and the United Kingdom to Italy and the rest of the EU, and a correspondingly large shift the other way in the production of machinery and transport equipment. Haaland and Norman (1995) looked more systematically into these effects, in a simulation model splitting Western Europe into three regions, South, Central (Northern EC prior to expansion), and North (the old EFTAns). Their results suggested a moderate, but significant, shift towards greater specialization in skill-intensive production in the north, and labour intensive production in the south.

Global dismantling of trade and investment barriers could magnify these changes, inducing large-scale capital exports from industrial to developing countries, exports of agricultural products and labour-intensive manufactures from developing to (initially) industrialized countries, and net exports of services and skill-intensive goods from industrial to developing countries. This calls for even greater specialization within Europe. For some parts of Europe it means stronger specialization in the same product lines as they would specialize in anyway. North-west Europe, with a highly educated workforce, will have even stronger incentives to specialize in high-skill goods and services. For other areas, global competition may call for specialization in other fields than would otherwise have been the case – but it will still call for specialization.

2.3.3 More mobile factors of production

International mobility of capital and labour has been relatively low in Europe, at least in recent times. Europeans have not been apt to move even within their own countries, and with the barriers that language and cultural differences represent, they have been even less inclined to move between countries. At the same time, as in the rest of the world, domestic saving has traditionally been channelled into domestic investment; intra-European net capital flows being very modest relative to the rate of capital accumulation (see Feldstein and Horioka, 1980).

Liberalization of international capital movements, deregulation of national capital markets and the growth of international capital intermediaries should contribute to greater capital flows within Europe. In principle, removal of formal impediments to labour mobility should have a similar effect on labour movements.

To assess the possible volumes and effects of factor movements, one should distinguish clearly between net and gross flows. Net flows are likely to reflect differences in wages and returns on capital between countries and regions. Gross flows are determined by quite different variables. Gross capital flows may typically reflect a desire for financial diversification on the part of investors; gross labour movements could reflect differences between individuals in residential preferences, qualifications or job opportunities.

When it comes to the effects of freer factor movements, it should be remembered that there is a parallel reduction in trade impediments for goods and services. It is not immediately clear that the combined effect will be a dramatic

increase in net capital flows or net migration. As first noted by Ohlin (1924), if factor movements are induced by differences in factor prices, and such differences reflect differences in relative supplies of factors, then goods or factors will be traded depending on their relative international transactions costs. Specifically, the crucial question is whether the international factor price differences created by trade impediments or other transactions costs for goods are greater or smaller than the factor price differences created by transactions costs for factors. As shown by Norman and Venables (1995), the condition for trade in a factor, rather than in a good which uses the factor intensively, is that:

$$t_f < t_g s \tag{1}$$

where t_f is the percentage transactions cost for the factor, t_g the percentage transactions cost for the good, and s is the Stolper-Samuelson elasticity of the price of the factor with respect to the price of the good. As the Stolper-Samuelson elasticity is typically greater than one, (1) implies that at equal percentage transactions costs, factors, not goods, will be traded.

Trade liberalization and economic integration reduce international transactions costs for both goods and factors, and one should avoid simple generalizations about which is reduced the most. A few, general observations seem possible, however. First, barriers to, and costs associated with, migration remain high, so trade in labour-intensive and skill-intensive goods is more likely than migration of unskilled and skilled labour. Second, the reduction in international barriers to capital flows is dramatic, while the reduction for manufactured goods (which initially face low trade barriers) is relatively modest. We are, therefore, likely to see long-term capital movements replacing some of the international trade in capital-intensive manufactures. Third, reductions in international transactions costs for many services are substantial, so increased factor mobility is not likely to prevent rapid growth in service trade.

2.3.4 European industrial agglomerations

The forces we have considered so far should lead to substantial relocation of activity within Europe, but there is no reason to expect the outcome to be geographic concentration or greater regional inequality. On the contrary: as firms and regions specialize, and factors move to those locations where they can be used most productively, we should expect increased geographic diversity combined with greater equality of factor rewards.

Gains from agglomeration could upset this pastoral vision. If there are sufficiently large gains from co-location of firms or individuals, freer European markets could lead to geographic concentration and polarization. That is at least how many people read the so-called 'new' theory of economic geography, which has been developed primarily by Krugman (1991a), Krugman and Venables (1995a) and Venables (1996a).

Neither the fact nor the the theory of economic agglomeration are novel. Economic activity has always been lumpy, as exemplified by the contrasts between the industrial concentrations in the Rühr and the Midlands and the countrysides of Bavaria and the Cotswolds; and economists going back to von Thünen (1826) and Marshall (1890) have provided theories explaining the phenomenon.

What is new in the modern theory of agglomerations is a more systematic investigation of the sources of agglomeration gains and an analytic framework that makes it possible to identify the types of equilibria that can occur when there are external scale economies, and to study how gains from agglomeration interact with other forces that shape economic geography. This is particularly relevant to Europe. It is likely that the existence of separate national markets in Europe since 1914 has precluded the formation of 'European' industrial agglomerations. If so, economic integration should release latent agglomeration forces which could induce major changes in European economic geography.

Agglomeration theory is essentially a theory of external economies of scale. The hypothesis is that the profitability of each firm is higher the more other firms there are near by. This could be due to true externalities, i.e. that there are direct, positive links – e.g. knowledge spillovers – between the firms. It is more likely to be caused by a combination of market linkages, internal scale economies and imperfect competition. The best example is probably a shopping centre: customers are attracted by the range of shops in the centre, so the more shops there are, the more customers will each shop have. This induces self-reinforcing processes: more shops mean more customers, which makes it profitable to establish more shops, etc. This is an example of a so-called forward linkage: firms are linked through the market for their final products. There can be backward linkages as well. Firms dependent on the same subcontractors or suppliers of intermediate goods could find that their profits increase as the number of other firms increases, because more buyers give a larger market for intermediates, and thus more suppliers. Linkages through labour or capital markets work in a similar fashion.

If the gains from agglomeration are substantial, and these extend between industries as well as within them, the geographic effects of economic integration could be dramatically different from the effects we have discussed so far. According to the line of argument we pursued previously, specialization and factor mobility are self-limiting processes. Both are induced by differences in wages and other factor prices. As factors move or countries specialize, these differences are reduced, until we reach the point where they are so small that there are no further incentives for specialization or factor movements. With large and widespread inter-industry gains from agglomeration, however, it need no longer be the case that exports of a factor will increase its domestic scarcity. On the contrary: factor exports will reduce domestic production of goods which use the factor intensively; with external economies of scale this will reduce the domestic marginal productivity of the factor; and the net effect may be a lower domestic price. If so, factor exports could become a self-reinforcing process which ultimately might leave a country or a region without key resources.

Something similar could happen as the result of freer trade, even without factor movements. Consider two countries, one slightly larger than the other, each initially with an agricultural and a highly protected industrial sector. Suppose there are significant external economies of scale in industrial production, but not in agriculture. Factor prices will be almost the same in the two countries, but slightly higher in the larger because of the scale economies. Now reduce industrial protection in both countries. Where factor prices are almost equal, the large-country industrial firms will have a cost advantage over their small-country competitors because of the external scale economies, so with freer trade, the large-country industrial sector will expand and the small-country one contract. As a result, factor

inputs will be bid away from agriculture in the larger country, and factor prices will rise. The opposite happens in the smaller country. The end result is greater industrial concentration in the large country and widening of the factor price-gap between the two (see Baldwin, 1999, for similar 'catastrophic' arguments).

Thus, 'catastrophic' outcomes are possible in the presence of gains from agglomeration. They are not likely, however. Bear in mind that a number of other factors will tend to limit concentration. Take backward linkages as an example. It is true that more buyers give a larger market for intermediates, and that this can induce more suppliers and greater competition. Normally, however, we think of supply curves as sloping upwards, in which case more buyers mean higher prices and thus more expensive intermediates. This will be the case if entry to intermediates' production is less than perfectly free, or if there is some fixed factor of production which effectively restricts the supply.

Generally, we should expect diminishing gains from agglomeration – the gain from an additional customer in a shopping centre with 10 000 customers a day is clearly smaller than in a centre with 100 customers a day – and we should expect congestion, limited supply of key factors and entry barriers of different types to counteract agglomeration forces. While European integration should induce greater agglomeration, therefore, it is highly unlikely that it will induce massive concentration of economic activity.

Studies of the United States seem to confirm that agglomeration forces are important, but that other forces prevent large-scale concentration. Hanson (1998a) notes that the 100 most economically active US counties, displaying high labour per land densities, account for 41% of US employment, but only 1.5% of the land area. On the other hand, the 2000 least economically active counties account for 75% of the land area, but only 11% of employment. Thus, agglomeration is an empirical fact. Taking a dynamic perspective that stretches back to the seventeenth century, Kim (1995, 1999) finds, however, that shifts in comparative advantage provide the main explanation of the regional reallocation of production, i.e. from agriculture to manufacturing, and most recently, to services. Similar results are reported by Davis and Weinstein (1996). Moreover, the results by Kim (1995) indicate that regional specialization in the United States primarily occurred between 1878 and 1926, but decreased between 1926 and 1986. One possible reason is that agglomeration is only present before firms have reached optimal size. That should, according to Kim, also explain why agglomeration today primarily is present in young and growing industries.

Nevertheless, recent European studies suggest that integration could lead to some, although not massive, geographic concentration. Amiti (1998) reports an increase in European specialization after the integration process was initiated. Between 1986 and 1990 she reports that 17 out of 27 industries experienced an increase in geographical concentration. She concludes that concentration is related to economies of scale and high proportions of intermediate products, rather than factor endowments. To some extent this corroborates other studies on Europe (Greenaway and Hine, 1991; Lundbäck and Torstensson, 1996). Haaland et. al. (1998) examine concentration in European industrial production for the years 1985 and 1992. They also find that concentration has increased. In their findings, however, as much as 50% of concentration in European manufacturing production is explained by differences in factor endowments and technology.

2.4 Interaction of forces

The review above shows that we are faced with a number of conflicting effects. Through comparative advantage, freer trade tends to disperse production and equalize factor prices; through agglomeration the opposite happens. Internal scale economies tend to make firms larger as competition increases; but competitive pressures could also induce fragmentation of firms and production processes. Lower trade costs and cheaper access to foreign markets should reduce the disadvantage of small countries and regions; but they could still be worse off if increased factor mobility induces capital and firms to leave, even at small differences in returns and profits. With these conflicting effects, it is important to consider how the different forces interact.

2.4.1 Firm size, agglomeration and fragmentation

Consider first the combined effects of internal scale economies, agglomeration and fragmentation. They are probably best understood in a Coase-Williamson perspective. Firms internalize those transactions which are performed more efficiently within an organization than through external markets. It follows that a reduction in external transactions costs, through increased market competition, lower real trade costs, or the emergence of markets for new goods and services, should lead to outsourcing and fragmenation of firms. It also follows that transactions and activities that entail substantal internal economies of scale will remain within firms, and that those activities will be more important in defining the limits of the firm as external transactions costs decline. In most cases, however, economies of scale relate to particular functions – not to the production and distribution process as a whole. A likely outcome, therefore, is a trend towards firms that are functionally more highly specialized, that are larger than today relative to the total market at the functional level, but which need not be larger than some of the functional conglomerates we find in many industries today.

If this is likely at the firm level, it is even more likely when it comes to agglomerations. The market linkages and true externalities that create agglomerations are essentially of two kinds. One has to do with vertical linkages and is directly related to standard trade and transportation costs. It is advantageous to be near suppliers of intermediates and buyers of final goods. How great that advantage is, and consequently how important vertical linkages are as an agglomeration force, clearly depends on transport and other distance costs. The other kind are linkages which are essentially horizontal, such as direct knowledge spillovers between firms and indirect knowledge links through a common, local pool of skilled workers, specialized management, etc. In a deeper sense these also have to do with trade and transport costs – if workers could move between locations costlessly or if knowledge were a freely transmittable public good, there would be no horizontal gains from agglomeration. The transactions costs involved are, however, typically greater, and have less to do with trade costs as we ordinarily think of them, than is the case with vertical trade and distance costs.

More importantly, deregulation and trade liberalization are likely to have a greater and more direct impact on vertical than on horizontal trade costs. Freer trade in goods and services, and more efficient transport systems following from deregulation, directly reduce the importance of vertical linkages as a source of agglomeration.

It seems less likely that liberalization will greatly increase labour mobility. Information technology and deregulation of telecommunications do facilitate long-distance communication, so to the extent that direct knowledge spillovers are related to communication costs, there could be an effect on horizontal agglomeration gains as well. In most cases, however, it seems more likely that direct knowledge links relate to informal, and thus essentially local, communication (von Hippel 1987, 1991). Furthermore, Internet technology seems set to reduce further the agglomeration forces associated with vertical linkages (e.g. in automotive components and PC production). This will occur if the anticipated growth in business to business (b2b) electronic commerce is realized so that companies can source components globally in the coming years as easily as they can currently do so locally or regionally.

All told, therefore, horizontal linkages should become more important relative to vertical ones as a source of agglomerations. If so, we should expect functional, rather than industrial, agglomerations. The concentration of advertising agencies on Madison Avenue is more likely to be indicative of the future European agglomerations than the cluster of fully integrated car manufacturers in Detroit.

2.4.2 Agglomeration and comparative advantage

A second issue concerns the strength of agglomeration relative to that of comparative advantage. Agglomeration is a centripetal force – there are gains from geographic concentration. Comparative advantage is essentially a centrifugal one – even if the centre had absolute advantage in the production of all goods, the comparative advantage of the periphery in those goods where a central location mattered the least, would ensure geographic dispersion.

For comparative advantage to counteract agglomeration, some factors of production in the periphery must be immobile. The question of how factor mobility interacts with agglomeration is discussed below, so let us for the moment simply note that some resources – land is the obvious example – are necessarily immobile, and consider how different activities will locate when agglomeration and comparative advantage interact. Three observations are immediate.

First, industries and activities with weak internal linkages will typically be located in the periphery, particularly if they also use intensively those immobile resources which are abundant there. The textbook example is agriculture. 'Wilderness' tourism could be another. There could be less obvious examples, however. In a Porter-type study of Norwegian manufacturing, Reve et al. (1992) found no evidence of strong linkages in metallurgic manufacturing. As such manufacturing is highly energy-intensive, location near cheap energy sources then seems likely.

Second, activities with strong horizontal linkages will agglomerate, and most likely in areas with an abundant supply of highly educated labour. These are the Silicon-Valley-type industries, which combine strong agglomeration gains and intensive use of highly skilled workers.

Third, the presence of an agglomeration by itself gives a region a comparative advantage in that activity, so most future agglomerations are likely to be expanded versions of existing ones. We should generally expect larger, and fewer, agglomerations in Europe than we have today, so not all existing ones will survive. It will, however, be even more rare that entirely new ones emerge. Thus, if there is to be only one financial centre in Europe in the future, it is likely to be London, Frankfurt or Zürich. In effect, the financial market in Paris is already in decline.

There is also evidence that at some point too strong a concentration of production causes diseconomies of agglomeration. For instance, Tran (1986) argues that increases in costs of labour and energy hampered growth in the New York area. Hansen (1990) presents evidence that high wages in central Sao Paolo caused manufacturing firms to relocate in more peripheral areas. In urbanization literature it has been suggested that cities prosper until they reach a certain threshold, thereafter decline will follow (Wheaton and Shishido, 1981). More precisley, this critical level is estimated to be two million inhabitants in a study by Calem and Carlino (1991).

2.4.3 Factor mobility and geographic concentration

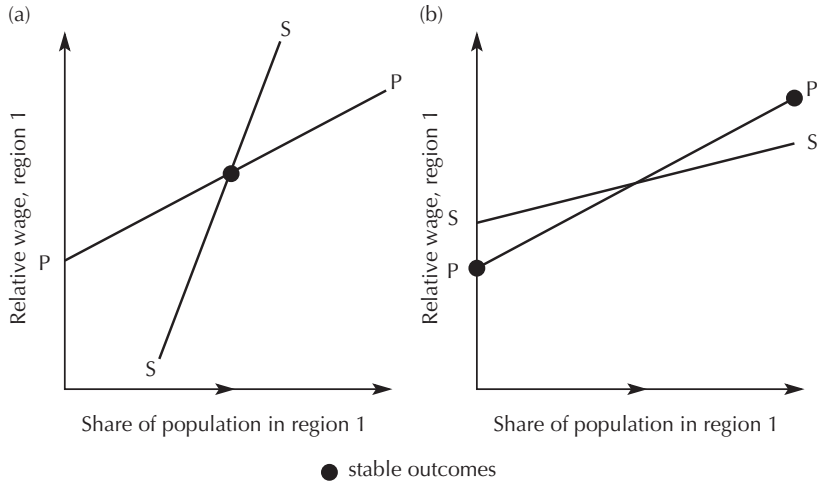
Regardless of exactly how mobile firms, capital and individuals become in the future, it is likely that there will be larger agglomerations, and fewer of them. The degree to which there will be greater overall concentration of economic activity in Europe, however, depends critically on the degree of factor mobility relative to the gains from agglomeration.

The general point is simple, but important. Suppose first that labour is the only factor of production, that people are geographically perfectly mobile, and that there are gains from agglomeration. In that case, the only stable outcome is complete concentration: as people concentrate, the income differential between the centre and the periphery will increase, creating ever-greater incentives for concentration. Thus, perfect factor mobility in the presence of gains from agglomeration must necessarily lead to geographic concentration. Contrast this with the extreme opposite case of completely immobile labour. If labour is still the only factor of production, there can clearly be no relocation of production under any circumstances. Location will be determined by the initial population distribution whatever happens – and irrespective of whether or not there are gains from agglomeration.

The issue is illustrated in more general terms in Figure 2.1. Consider two identical regions, and focus on labour. We measure the share of the population and labour force living and working in region 1 along the horizontal axis, and the real wage in region 1 relative to that in region 2 along the vertical axis. We assume that there are agglomeration gains, so the relative real wage in region 1 is higher the more people that live and work there. This is illustrated by the relative productivity curve PP. Let us also assume that there is some, but not perfect, labour mobility, so the share of the population which chooses to work and live in region 1 is an increasing function of the relative real income in the region, illustrated by the labour-supply curve SS.

Consider first the relative positions of the two curves in part (a) of the diagram. The PP-curve indicates what the relative wage will be, depending on how many people live in region 1. The SS-curve indicates what the relative wage must be to induce an extra individual to move to region 1. To the left of the point where the two curves intersect, the PP-curve is above the SS-curve, so the relative wage is so high that people will want to move to region 1. To the right, people will want to move away. Thus, there is a stable equilibrium at the point of intersection, in which some people live in region 1 and some in region 2.

Figure 2.1



In part (b) of the diagram, the only stable equilibria involve complete concentration in one of the regions. To the right of the intersection, the relative wage in 1 is higher than needed to induce people to move to the region; so everyone will move to region 1. To the left, the relative wage in region 1 is so low that everone will move to region 2. In that case, therefore, there are two possible, stable equilibria, each with complete concentration in one region. Which depends on where we start.

For our purposes, the interesting question is not so much the possiblity of several equilibria as the dividing line between the (a) and (b) outcomes. As is seen, whether we get concentration or geographic diversity depends critically on the relative slopes of the relative-productivity and labour-supply schedules. These in turn reflect the magnitude of agglomeration gains and the degree of inter-regional labour mobility, respectively. More generally, therefore, the extent to which we should expect increased economic-geographic lumpiness as the result of economic integration, depends on the gains from agglomeration relative to the mobility of firms, capital and labour. If factors are relatively immobile, we should not expect dramatic geographic concentration even if there are large, potential gains from agglomeration. At the other extreme, if firms and factors are highly mobile, we could have significant concentration even with moderate agglomeration gains.

2.5 Three scenarios

Our discussion of how the different forces interact suggests three quite different scenarios for the future economic geography of Europe, depending on the mobility of labour and other factors of production and on the strength of latent agglomeration forces.

- **The Dispersion Outcome.** If there are modest gains from agglomeration, if these are stronger within industries than between industries, and if labour is relatively immobile, European integration will lead to increased competition

and greater specialization – both at the level of firms and industries. This will induce relocation of companies and to the formation of industrial agglomerations, but it will not lead to greater overall geographic concentration. On the contrary, by exploiting local comparative advantage and developing specialized industrial agglomerations, the regions of Europe will converge in terms of real wages and other factor prices, making geographic diversity robust even if at some later date labour should become more mobile.

- **The Concentration Outcome.** At the opposite extreme, if labour should become highly mobile and latent agglomeration forces should turn out to be strong, we could see substantial geographic concentration, leaving some regions largely unpopulated ('North Dakotas'). Such a scenario is unattractive because of the loss of diversity, but at the level of individuals, it will provide good and equal job and income opportunities for everyone.
- **The Regional Stagnation Outcome.** The third, and most pessimistic, scenario is the one which is likely if there are large agglomeration gains, and if factors of production other than labour become highly mobile, while labour – and particularly unskilled labour – does not. In that case, high-productivity industries are likely to agglomerate, and because critical factors of production are mobile, there will be few counteracting forces preventing overall geographic concentration. As a result, central regions can offer both higher incomes and a much wider range of job opportunities than the periphery. The centre will grow, while some peripheral regions most likely will experience falling wages and long-term stagnation.

Which of the three is more likely? That obviously depends on factor mobility and the magnitude of agglomeration gains, which will be discussed in subsequent chapters. It is important to note, however, that it also depends on policy. That is clearly true for the mobility of goods, services and factors. It is also true for the gains from agglomeration, however. Incentives to agglomerate often reflect market failures – lack of competition in input markets, high costs of trade and communication due to regulation and artificial trade barriers, local shortages of labour with particular skills, etc. Policies that facilitate communication and transportation, that encourage local competition, and that provide an abundant local supply of highly skilled workers can reduce agglomeration incentives. On the other hand, there are many examples of local industrial policies that create artificial incentives to agglomerate.

The future pattern of economic activity in Europe is not, therefore, a question of exogenously given degrees of mobility and potential gains from agglomeration – it is to a large extent a question of the policies pursued by regional and central authorities in Europe.

Before we consider these explicitly, we must consider the evidence about mobility and agglomeration gains. First we look at the mobility of real physical capital – undertaken through the decisions of firms. These are the subject of Chapter 3.

3 The Location Decisions of Firms

3.1 Introduction

Shifts of economic activity across national frontiers can sometimes occur as owners of factors of production (labour and capital) search independently of each other in international markets for improved economic returns. Labour can move from one national market to another, and owners of capital may shift their savings from assets located in one country to the assets of another. These may occur for four kinds of reason:

- Differences in population growth or savings rates between countries may lead some countries to 'export' labour or capital because of diminishing returns to these factors at home.
- There may be autonomous changes in economic behaviour, as when investors decide to increase the international diversification of their portfolios. Available evidence suggests the strong persistence of a 'home market effect' (Lewis, 1999), implying that investors have still to exploit many of the gains from doing so.
- Shifts may occur as barriers to international factor movements are reduced. Reducing such barriers has been an important part of the European Single Market Programme, though, as we discuss in Chapter 4, the extent of labour mobility in Europe has actually fallen over recent decades. Likewise, barriers to cross-border trade in the form of information asymmetries between equity markets remain strong (see Portes and Rey, 1999), though these can be expected to decline gradually over time as markets become more integrated, in a self-reinforcing way. There is also evidence from divergences in accounting rates of return that barriers to real capital flows within the EU have been stronger than comparable barriers between the United States and Canada (De Menil, 1999), though there is controversy over the comparability of international accounting data in generating these findings.
- They may occur instead in response to changes in the pattern of demand for goods and services. Indeed, much of the impact of globalization occurs through changes in demand caused by relative price shifts, which lead in turn to changes in the relative returns to factors in different locations, and may induce corresponding factor flows.

Many of the most important decisions affecting the location of activity are made within firms, however. When firms decide to change the international distribution of the economic activity under their control, they may replace domestic transactions previously conducted within the firm by transactions of two main kinds:

- Market transactions conducted internationally, as when firms outsource the production of inputs to firms located overseas.
- Transactions conducted within the firm, but across international frontiers, between divisions of the firm – either through establishing overseas subsidiaries or through expanding the activity of existing subsidiaries. Such transactions have been estimated to comprise around one third of all world trade (United Nations, 1999, p.xix).

Outsourcing, globally or locally, has become increasingly possible in recent years as production processes have become more fragmentable. This fragmentation has been facilitated by electronic mechanization, by the development of equipment that facilitates the precise monitoring of input components at negligible cost, and by changes in management techniques (see Porter, 1998). These changes have extended the range of production activities which can be more efficiently undertaken externally compared with internally. In Coase-Williamson terms, there has been a shift in the balance in favour of market rather than internal production. Thus we have seen vertical disintegration within firms (we noted the evidence of down-sizing in the previous chapter), with enterprises concentrating on those activities in which profits are greatest. Dell Computers is an oft-cited example of such a company; it has moved progressively into developing marketing and logistics and out of the production of PC components, virtually all of which it now outsources.

Reduced telecommunication and transportation costs have increasingly allowed firms to shift to global outsourcing as a means of benefiting from lower production costs in countries outside those in which they operate, without having to locate their own activities there. Thus the importance of agglomerations based on vertical linkages is potentially reduced. As long as patent knowledge is not at risk, reliable contracts can be written, communications costs are low, and quality can be monitored, it is increasingly irrelevant whether the outsourcing is from a plant 50 or 5000 miles away. As we noted in Chapter 2, the increased use of the Internet for business to business commerce may well serve to increase international trade in components and allow firms to use outsourcing rather than foreign direct investment as a means of benefiting from differences in production costs globally. By facilitating the integrated growth of the sub-supply market it will increase the opportunities for specialised sub-suppliers to emerge, with lower costs associated with those which form part of horizontal agglomerations.

For very large companies, global outsourcing via the Internet is becoming the norm in the United States (e.g. General Motors, General Electric, Boeing) and a similar pattern is likely to follow in Europe. Because of monitoring costs, large firms will seek to limit the number of sub-suppliers of any given input, without leaving themselves open to being strategically dependent on just one source of supply. Where traditionally a large multinational may have outsourced locally, global outsourcing will permit it to improve its bargaining power and cut its monitoring costs. Thus where outsourcing has been traditionally associated with the development of small plants clustering around major companies, forming vertical agglomerations, the future pattern may be one where we have horizontal agglomerations of the large companies, which are closer to the consumer market and which benefit from skilled labour and technology spillovers, and horizontal agglomerations of sub-supply companies, which are likely to grow in size.

In the remainder of this chapter we concentrate on evidence about the forces influencing the second of these channels of globalization, namely international transactions conducted within firms. In terms of its sensitivity to the economic fundamentals, this may well be the most important channel of all. First we discuss evidence indicating shifts in the overall pattern of FDI, and then consider what can be inferred from firm-level studies of the forces that determine where FDI takes place.

3.2 The level of FDI and firm structure in Europe: some stylized facts

Dunning (1977) has developed a useful organizational device to explain why firms become multinational. This eclectic approach is often referred to as the OLI-framework, where the capital letters stand for the main forces underlying the internationalization of production. In understanding why a parent firm needs a foreign subsidiary there are three things to explain: first, what the parent can offer to the subsidiary; second, what the subsidiary can offer to the parent; and finally, why the link between the two needs to be through being part of the same firm rather than through market-based transactions.

- **O** stands for 'ownership advantage', which refers to some kind of knowledge capital associated with the parent firm. This could be a research and development capacity, but also an advanced organization of production, marketing, brand name, etc. It explains what the parent can offer to the subsidiary, given that there are costs of establishing production abroad (see Hymer 1960, who stresses the significance of imperfect competition, without which it would never be profitable for the parent to incur these costs).
- **L** stands for 'location' and reflects the advantage associated with locating production abroad. The firm always has an option to produce at home, exporting some of its products to foreign markets, instead of producing in foreign affiliates. Such locational advantages can be attributed a large numbers of factors: trade barriers, the importance of proximity to large local markets, pecuniary and non-pecuniary externalities, taxes, and access to immobile production factors, to mention a few.[1] They explain what the subsidiary has to offer to the parent.
- Finally, the **I** stands for 'internalization' of transactions within the firm. Instead of contracting production to a licensee, or purchasing inputs directly from the market, firms choose to organize production within their own affiliates. This has to do with the particular character of their knowledge capital (contained in the 'O' above), which often requires investments that are specific to the production activity. To appropriate the return of these specific investments, firms must be assured that they will not be exposed to 'opportunistic behaviour' by their foreign partners, the fact or even the mere threat of which might erode their value. In negotiating with a potential licensee firm, a whole range of such problems related to asymmetric information, incomplete contracting, moral hazard and adverse selection may arise. Consequently, it may be more convenient to retain the transaction within the parent firm (see Markusen 1995 for a more detailed elaboration of this point). In essence, it is an argument based on Coasian transactions costs (Coase, 1937; Hymer, 1960; Williamson, 1975, 1985; Teece, 1982; and Casson, 1986).

1 Braunerhjelm and Svensson (1996) introduce agglomeration into the OLI-framework.

Table 3.1 Global inward FDI stocks and its regional distribution, 1980–98 (current prices)

		1980	*1985*	*1990*	*1995*	*1998*	*Average annual growth rate, 1995–98*
World	Billion US$	507	782	1768	2790	4088	13.6
	% of GDP	5.0	6.9	8.7	9.9	11.7*	
North America	Billion US$	137	249	507	659	1017	15.6
	% of GDP	4.6	5.7	8.4	8.8	9.4*	
	% of total FDI–stock	27.0	31.8	28.7	23.4	24.9*	
EU–15	Billion US$	185	236	738	1067	1486	11.7
	% of GDP	5.5	8.6	11.0	12.7	15.2*	
	% of total FDI–stock	36.5	30.2	41.7	38.2	36.4	

Source: United Nations (1999)
*1997

Tables 3.1 to 3.8 cast light on the role of these three kinds of factor in determining the changing character of FDI in recent years. Tables 3.1 to 3.3 begin by looking at the characteristics of stocks and flows of FDI as these have evolved over time. First of all, Table 3.1 shows that global stocks of foreign direct investment rose more than five times in current dollar terms between 1985 and 1998, and those in the EU rose more than six times during that period. Table 3.2 shows that the industry composition of FDI flows has changed to an important degree since the late 1980s, with the share of services rising by nearly nine percentage points from 38.9% to 47.7%. FDI has predominantly increased in formerly protected sectors such as services (banking, insurance, telecommunications, business services, all of which use human capital relatively intensively) and also in R&D intensive sectors.[2] Indeed, Table 3.3 shows that services account for over 60% of all inward FDI to the EU. Furthermore, 40% of the FDI in manufacturing is in the relatively high-technological sector of refined petroleum, chemicals and rubber. Other recent studies have confirmed that both intra-EU FDI and FDI from external countries fit this pattern (Dunning, 1997). In addition, R&D-intensive goods seem to have been located in high-income countries.

What can we say about the characteristics of the firms that are driving this process? Table 3.4 shows how the regional distribution of the nationality of the world's 200 largest firms has evolved since 1986: the share of Europe has remained roughly constant, while the share of Japan has grown strikingly and that of the US has just as strikingly declined.[3] Table 3.5 provides a similar breakdown of the largest 200 firms within Western Europe; its most prominent feature is the decline in the share of UK firms, though these still remain as numerous as

2 Note, however, that capital-intensive sectors will be more highly represented in the FDI stocks than they are in output. This is particularly true for sectors such as chemicals.

3 More recent data are not available, but it is likely that the share of Japanese firms has somewhat declined since then.

Table 3.2 World inward FDI-flows 1988 and 1997, by industry (percentage share)

Industry/sector	*Percentage of inward FDI–flows*	
	1988	*1997*
Primary	*8.6*	*4.5*
Manufacturing	*44.0*	*42.0*
whereof:		
Food, beverages and tobacco	5.4	2.8
Textiles, clothing and leather	3.0	1.1
Chemical and chemical products	7.6	9.4
Machinery and equipment	4.4	3.5
Electric machinery	4.0	2.6
Transport equipment	0.0	1.5
Unspecified industries	4.3	9.2
Rest of the manufacturing industries	15.3	11.9
Services	*38.9*	*47.7*
whereof:		
Trade	*6.9*	*8.2*
Electricity, gas and water	–	4.9
Finance	11.3	12.8
Business services	6.1	5.5
Other services	14.6	16.3
Unspecified	*8.5*	*5.8*
Total	**100%**	**100%**

Source: United Nations (1999), pp. 418–21

Table 3.3 Inward FDI flows to the EU 1995–6, by industry (percentage share)

Industry/sector	*Percentage of inward FDI–flows*
Primary	*1.8*
Manufacturing	*30.0*
whereof:	
Food products	1.1
Textiles and wood	4.3
Refined petroleum, chemicals and rubber	12.0
Metal and mechanical	2.4
Office machinery, radio	3.2
Motor vehicles, other transport equipment	3.1
Miscellaneous	3.9
Services	*63.3*
whereof:	
Trade and repairs	10.0
Telecommunications	2.4
Financial intermediation	24.7
Other services	26.2
Not specified	*4.9*
Total	**100%**

Source: United Nations (1999), p. 41

Table 3.4 World's 200 largest firms by origin (total turnover)

	1986		*1992*		*1994*	
	No.	*Share of turnover*	*No.*	*Share of turnover*	*No.*	*Share of turnover*
United States	79	44.1	63	34.0	64	34.1
EU–12	61	31.5	62	34.5	60	30.7
Japan	36	15.8	49	21.7	53	25.9
EFTA	12	4.0	14	4.8	9	3.4
Other	12	4.6	12	5.0	14	5.9

Sources: Davies and Lyons (1996) and Panorama of EU Industry (1997)

Table 3.5 Europe's largest firms by member states (total turnover)

	1986		*1992*		*1994*	
	No.	*Share of turnover*	*No.*	*Share of turnover*	*No.*	*Share of turnover*
Germany	42	26.2	41	26.4	41	27.6
France	44	20.8	49	22.6	48	22.8
Italy	10	8.8	14	11.1	12	9.1
Netherlands	9	7.5	11	6.7	12	6.6
Bel/Lux	5	1.6	7	1.9	6	2.0
Core EU	*110*	*64.9*	*122*	*68.7*	*119*	*68.1*
United Kingdom	59	24.4	44	18.2	48	18.4
Switzerland	11	4.6	10	4.9	11	5.1
Sweden	11	3.6	10	4.9	10	3.6
Norway	2	1.1	2	0.8	2	0.9
Spain	4	0.7	8	3.1	5	2.2
Finland	2	0.6	3	0.8	3	0.8
Austria	2	0.6	–	–	2	0.8
Denmark	–	–	1	0.1	–	–

Sources: Davies and Lyons (1996) and Panorama of EU Industry (1997)

those of France or Germany. Table 3.6 shows that Europe is somewhat more strongly represented (and Japan less so) among the upper half of this group of firms, being the home to 45 of the world's 100 largest firms. In sectoral terms these firms are still heavily concentrated in manufacturing, especially in such sectors as chemicals, electronics and the automotive sector, as Table 3.7 shows. An interesting feature of the table, though, is the fact that the most multinational firms are not necessarily the most highly technological ones. Food and beverages firms have the highest index of transnationality of all, indicating that the importance of firm-specific assets does not necessarily come solely from R&D intensity, but can involve other activities such as brand reputation or advertising.

Table 3.6 Country breakdown of the world's 100 largest MNCs, 1990, 1995 and 1997

Country	*1990*	*1995*	*1997*
EU			*45*
whereof:			
France			13
United Kingdom*			11
Germany			11
Sweden			3
Italy			3
Netherlands*			5
Belgium			1
North America			*30*
whereof:			
United States			27
Canada			3
Japan			*17*
Rest of the world			*8*
Total	**100%**	**100%**	**100%**

Source: United Nations (1999), p. 82
* Due to dual nationality, Royal Dutch Shell and Unilever are counted as an entry for both the United Kingdom and the Netherlands.

Table 3.7 Industry composition and transnationality of the world's 100 largest firms, 1997

Industry	*Percentage share*	*Index of transnationality*
Chemicals and pharmaceuticals	21	65.9
Electronics/electric equipment	18	55.9
Automotive	14	46.7
Petroleum refining/distribution and mining	13	48.9
Food and beverage	9	72.5
Diversified	7	42.3
Telecommunications/utilities	4	40.7
Remaining industries	14	–
Total/Average	**100%**	**55.4**

Sources: United Nations (1999)
Note: Average transnationality index for the world's 100 largest multinational firms. The index is based on foreign assets in relation to firms' total assets, foreign sales to total sales and foreign employment to total employment.

Nevertheless, Table 3.7 gives no reason to doubt the general finding of existing studies that MNCs' endowment of knowledge capital is abundant in comparison with that of non-multinational firms, and that multinationality seems to be driven by the desire to control knowledge intensive firm-specific assets. Furthermore, multi-plant economies of scale seem to be essential and transac-

Table 3.8 Majority cross-border M&A purchases 1991 and 1998, by country/region of purchaser (percentage share)

Countries	*1991*	*1998*
(Value million US$)	(49 062)	(410 704)
EU	*64.4*	*59.9*
whereof:		
France	22.8	6.4
Netherlands	7.7	7.9
Germany	9.5	8.3
United Kingdom	12.0	26.8
Rest of the EU	12.4	10.5
North America	*17.2*	*31.8*
Rest of the World	*18.4*	*8.3*
Total	**100%**	**100%**

Source: United Nations (1999), p. 530

tions tend to be internalized for new and technologically advanced products (Teece, 1982; Lall, 1980; Mansfield and Romeo, 1980; Davidson and McFetridge, 1984; Dunning, 1997). There is also scattered evidence that most FDI is horizontal, is intra-industry and occurs in both directions (as in the case of Europe and the United States), in other words that it is likely to represent an exchange between large and similar countries

The fact that existing large firms are still concentrated in manufacturing while FDI is increasingly directed towards services, particularly in Europe, is just one sign that both the ownership and location of industry in Europe have far from settled down to any kind of long-run equilibrium. Another piece of evidence is provided by Table 3.8. It shows that majority cross-border M&A acquisitions worldwide increased by more than eight-fold in dollar terms between 1991 and 1998. The share of the United Kingdom more than doubled to 26.8%, while that of North America nearly doubled to 31.8% – these two being the countries whose share of the world's largest firms had most conspicuously declined during the 1980s.

What, therefore, seems to be driving the location decisions of these multinational firms? In particular, is there any evidence of an agglomeration effect – the lure of other firms engaged in similar activities? There is ample evidence, from the United States and to a lesser extent from Europe, of a tendency of firms in similar activities to cluster together more than could be explained by chance, particularly where knowledge-intensive production processes are involved (Feldman, 1994, von Hagen and Hammond, 1994; Audretsch and Feldman, 1996; Ellison and Glaeser, 1997). It is difficult to know, however, to what extent this is due to firms' being attracted by each other's presence, as opposed to the other familiar components of comparative advantage, access to markets and so on. Head et al. (1995) have provided evidence that Japanese manufacturing firms investing in the United States tend to site their plants in areas where there are existing concentrations of previous Japanese investment in the same industry or by their keiretsu affiliates. Braunerhjelm and Svensson (1996) show that agglomerations appear to attract FDI in high-technology industries. Bradley and Taylor (1996) show the presence of

feedback effects whereby the presence of high-skill workers in a region attracts further high-skill workers through in-migration related to job opportunities.

European data are more sparse, but Santangelo (1999) considers evidence from concentrations of patent applications in European regions. She concludes that corporate research and development activity tends to be concentrated in specific regional locations to benefit from local spillovers not only between firms in the same industry, but between firms in industries sharing the same functional skills, and also between firms and universities. As production processes increase in complexity, incentives for dispersion of R&D activity may actually increase as firms seek to take advantage of skills located in regions outside their previous areas of activity. Nevertheless, regions differ enormously in their overall levels of R&D activity, and even if innovation shows no tendency to cluster in a single place it is far from evenly distributed across space. The extent to which there are likely to be many as opposed to a few clusters of knowledge-based innovation will clearly depend on the extent to which variety in locally-available skills is itself valuable to firms. Audretsch and Feldman (1999) provide evidence from the United States to suggest that local diversity in economic activities is more conducive to innovation than narrow specialization. This in turn implies that fewer rather than more centres of innovation are likely to emerge over time, to benefit from the greater diversification that is made possible by scale. The map in Figure 3.1 shows that, in terms of R&D expenditure as a proportion of GDP, the EU already has four or five distinct centres of innovation: R&D has not all agglomerated to one point in Europe, but neither has it spread anything like evenly across space.

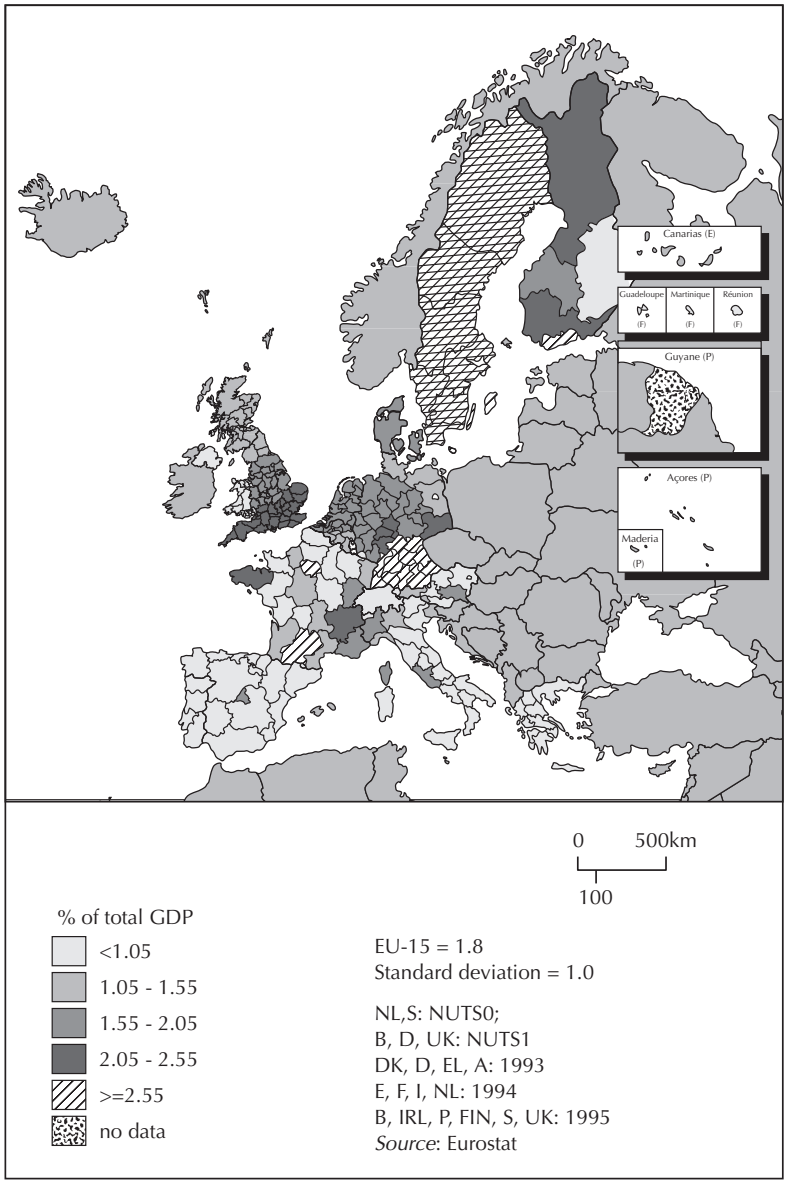
Other studies in the literature have documented features of regions that make them attractive to investors independently of agglomeration effects. Wheeler and Mody (1992) conclude that the quality of infrastructure and the degree of industrialization are positively related to FDI. Martin and Rogers (1995) shows that the presence of high-quality infrastructure (roads and telecommunications) is positively associated with inward direct investment. Differences in financial infrastructure are harder to document, but there is some evidence that the presence of venture capital activity (which is in any case much more highly developed in the United States than in Europe) is important both for encouraging investment and firm growth, and for increasing the productivity of other government policies (see Lerner, 1996).

Most available studies use data on regions, including on investment, innovation or production in the region concerned, to estimate the factors that make one region more attractive to firms than another. In the next section we report evidence from a firm-level study that examines directly the determinants of different local characteristics on the investment decisions of the firm.

3.3 Empirical analysis: the determinants of firm location

In this section we report the results of an analysis of the location decisions of Swedish multinational firms from the 1970s to the 1990s, drawing on the work of Braunerhjelm (2000). Swedish firms have been active in multinational production since the late nineteenth century. This study provides an unparalleled insight into the factors motivating their decisions. The study examines detailed information on all Swedish MNCs in the manufacturing sector, including data for each foreign

Figure 3.1 R&D expenditure, 1995



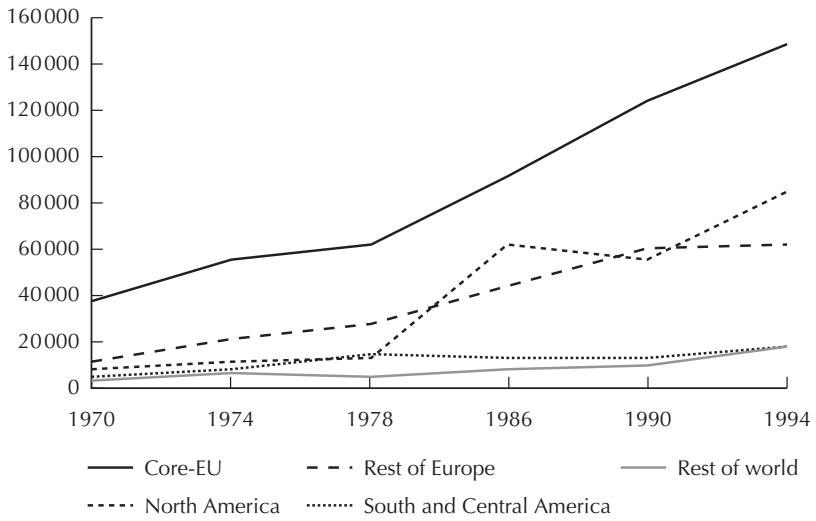
affiliate on five different occasions (1974, 1978, 1986, 1990 and 1994)[4]. Table 3.9 illustrates the number of parent companies covered, the number of countries in which they operate and the number of observations (this is just the number of

4 An MNC is normally defined as a firm that has operation in foreign affiliates. A foreign direct investment (FDI) is according to . . . defines as the acquistion of at least 10% of a foreign firm's shares. FDIs can either be vertical (downstream or upstream in the production value-added chain) or horizontal (producing the same products as the acquiring firm). In the current data set the definition is somewhat stricter: to qualify as an MNC the firm must have at least one consolidated production unit abroad.

Table 3.9 Coverage of the data set on MNCs and number of observations

Year	*Number of parent companies*	*Number of countries*	*Observations*
1974	99	34	3 366
1978	109	34	3 706
1986	102	34	3 468
1990	115	34	3 910
1994	127	38	4 826
Total			19 276

Figure 3.2 Foreign production by Swedish manufacturing affiliates, distributed on regions, 1970–94 (millions of SEK, 1991 prices)



Sources: IUI's databases and SCB
Note: Core-EU: Belgium, France, Germany, Italy, Luxembourg and the Netherlands

parents multiplied by the number of countries for each year). All parent companies with at least one producing foreign affiliate are included in the data set for each of the years. Altogether that yields almost 20 000 observations, although a majority of these are zeros, reflecting the fact that most parent companies do not produce in all or even in most countries. Figure 3.2 shows how that total production of Swedish multinationals has evolved since the 1970s.

The number of firms varies over time, yielding an unbalanced panel. These data are combined with country-level information for up to 38 host countries, several of whose variables are distributed on eight manufacturing industries.[5]

5 These are: industry 1 (ISIC 311, 313); industry 2 (ISIC 351, 352, 353, 354, 355, 356); industry 3 (ISIC 371, 372, 381); industry 4 (ISIC 382); industry 5 (ISIC 383); industry 6 (384); industry 7 (341,342); industry 8 (314, 321,322, 323, 324, 331, 332, 361, 362, 369, 385).

For each firm, the study aims to explain the share of the firm's total employment which is located in a particular industry and a particular country. The main explanatory variables are the following:

A variable capturing the firm's characteristics:

- R&D-intensity of the parent firm, defined as the firm's total R&D-expenditure divided by its total production.

A range of variables capturing relative costs in the host and parent countries:

- Labour costs in the country and industry concerned, expressed as a proportion of Swedish labour costs in the same industry.
- Corporate taxes as a share of GDP in the host country.
- An index of the price of investment goods in the host country.

A range of variables capturing agglomeration effects in the host country:

- An index of relative concentration, capturing the extent to which the host country specializes in the industry concerned (this is its share of a country's production in that industry compared to its share of world manufacturing production).
- An index of absolute concentration of manufacturing production in Europe by industry.
- R&D-intensity of the industry concerned in the host country

A range of variables capturing characteristics of the host country, some of which are policy variables under the control of host country governments

- GDP, capturing overall market size (note that this could be considered an agglomeration effect, but need not since it may just represent the fact that larger countries are statistically more likely to contain attractive investment opportunities).
- Average years of schooling of the population.
- The share of public expenditure in GDP.
- Trade as a proportion of GDP.
- Import duties, measured as the share of duties levied in total imports.
- The non-residential capital stock per worker.

The details of the estimation procedure, definitions of the variables and two tables of regression results are reported in the Appendix to this report (and more fully in Braunerhjelm 2000). A large number of observations consist of zeros, and it is likely that the decisions by firms about whether or not to undertake foreign direct investment at all in a given country involve substantial elements of fixed costs. The factors influencing whether a firm sets up an affiliate in a given host country may not, therefore, be precisely the same as the factors determining any expansion or contraction in the level of investment there. So, we report separate estimates of the determinants of these two decisions. In fact very similar factors are influential in the two decisions, though their relative importance and statistical significance varies.

The analysis was conducted first using just cost and agglomeration variables for European countries only, and then using all variables for both European countries and the full sample of 38 countries in the world that are host to the overwhelming part of Swedish FDI. When the analysis was conducted for all countries, dummy variables were used to identify the effects related to European integration. Data are not available for all variables for all countries, so the results

for Europe and the world are not precisely comparable. The general picture that emerges from these results is, however, very clear:

- Firms undertaking R&D are significantly more likely to undertake FDI. This corroborates the O part of Dunning's OLI hypothesis.
- Relative labour costs are an important determinant both of the probability of undertaking FDI, and of the amount undertaken. Within Europe the elasticity of employment with respect to relative costs is about equal to one – a 10% rise in local wages would reduce the equilibrium employment in that country by about 10%. For the world, as a whole the sensitivity of investment to wages is somewhat less than half as great, indicating that European locations are closer substitutes for each other than are locations in the world as a whole (see Brainard and Riker, 1997).
- Controlling for differences between countries increases the magnitude and significance of the labour cost effect, indicating that countries with high real wages tend to have other attractions to compensate.
- Relative corporate taxes have a negative, but only weakly significant impact on investment. It should be acknowledged, however, that the effective tax rate is hard to measure comparably across countries, so taxes may be more important than our measures have revealed.
- Measures of the costs of investment do not show up as significant.
- Agglomeration effects show up as strongly positive and significant, especially once country variables are controlled for. Firms are clearly attracted by the presence of others in the same industry.
- There is an important positive effect of host country market size, as measured by GDP.
- An educated workforce is clearly attractive to investors in all sectors. This effect is large, in that a 10% increase in average years of schooling increases local employment by the parent firm by 22% (world estimates) or 45% (European estimates).
- The impact of R&D activity in the host country is significantly higher for firms in high-technology sectors.
- Other things equal, investors are attracted to countries with a high capital stock per worker, and are driven away from countries with high levels of public expenditure. This latter effect is somewhat weaker, as one would expect since it is likely to capture both the negative impact of high taxation and regulation (Kirzner 1997; Fölster and Trofimov, 1998) and the positive attraction of any public goods provided out of those tax revenues.
- Firms are attracted toward open countries with low trade barriers, except for more distant countries.
- Between 1985 and 1990, a period characterized by uncertainty as regards Sweden's future association with the EU, production by Swedish firms increased substantially in the EU-countries. Moreover, the sensitivity to differences in relative wage costs increased substantially in this period. The former effect was reversed and the latter vanished in the subsequent period 1990 to 1994, a period which was characterized by two conspicuous events. First, Sweden applied to become a member of the EU, which reduced the uncertainty about its future association. Second, Sweden was struck by its worst recession since the 1930s.

3.4 Conclusions and implications

What do these results tell us about the overall balance of the forces of agglomeration and dispersion in Europe today? First of all, they provide strong evidence of these forces at work. Firms are clearly attracted by the presence of others in the same industry (independently of any general attraction of large markets), and firms in high technology industries are to a larger extent drawn towards existing R&D activity. At the same time, to the extent that agglomeration may tend to drive up real wages in host countries, investment may be driven to disperse itself. To put the results in perspective, suppose that a given country increases its share of European production in a given industry by 10% – say from 8% of European production to 8.8%. Then it would take a rise of about 6% in real wages in that industry – compared to real wages in that industry elsewhere – to offset the increased attractiveness of the country to Swedish multinational investors and dampen a 'snowball effect' of the change to inward investment. This is not a small increase to envisage, but it is also a large compensating wage rise. To take an example we shall consider in a later chapter, Ireland has seen an increase in its share of European production of pharmaceuticals from 3.2% in 1985 to 7.6% in 1997.[6] During this time real wages in the industry have risen by amounts that are comparable to those of other EU countries.[7] If our figures are even approximately correct this would explain why Ireland has been able to maintain a high and growing share of EU inward FDI during the whole of this period: the snowball forces of agglomeration have proved strong and enduring.

To be sure, there are a number of reasons why the estimates reported above may not capture exactly the agglomeration effects at work. First and most obviously, Swedish firms may not be typical of all foreign direct investors, especially those from outside the EU. For example, both US and Japanese firms may be more sensitive to language differences between countries and less to differences in real wages. Nevertheless, the findings we report are consistent with the message that comes from analysis of regional (rather than firm-level) data for investors of all nationalities (see the important recent study by Midelfart-Knarvik et.al., 1999).

Second, the fact that we have been able to use only broad sectoral definitions may underestimate agglomeration effects between more closely related firms. On the other hand, what appear to be agglomeration effects may just be standing in for other features of the economies concerned, which happen to be attractive to firms in a particular industry, and which do not become more attractive if more such firms happen to undertake FDI. Indeed, some such features may become less attractive – for instance, if there are shortages of skilled labour or congestion of the local infrastructure, neither of which these estimates have been able to control for.

Third, the character of agglomeration effects between firms may be changing as information technology revolutionizes the link between production processes and the skills required to undertake them. For example, software engineers employed by computer companies may have more in common with similar

6 *Source*: Irish Petro-Chemicals Federation.

7 *Source*: US Department of Labor, Bureau of Labor Statistics. Ireland's wages have risen by more than in several EU countries and less than in several others.

people employed by banks or telecommunications firms than either have in common with the rest of the employees in their respective industries. It is likely that agglomeration in the future will increasingly take the form of functional specialization rather than sectoral specialization. The results we have reported here do not allow such a conjecture to be tested directly, but it is important to bear it in mind in interpreting the findings.

One of the other findings is, however, even more striking if interpreted in the light of increasing functional specialization. This is the finding that the presence of a skilled workforce has a large and highly significant impact both on the probability of foreign direct investment and on the amount of investment undertaken. There could be no clearer signal of the kinds of policy that European governments need to be bear in mind if they hope to be able to attract inward investment, rather than relying on inter-regional transfers to avoid the risk of polarization in the future.

We have seen that total cross-border flows of real capital investment have increased substantially in recent years. The behaviour of labour flows, however, has been strikingly different. It is to this subject that we turn in Chapter 4.

4 The Mobility of Labour

4.1 Introduction

Factor mobility plays a crucial role in the proper functioning of the market mechanism. The ability of factors to move unencumbered to the sector or to the location where their net return is highest should in general be associated with greater economic efficiency. Conversely, lack of labour mobility can easily mean that factors are trapped in low productivity activities or left unemployed, which is worse. Although the freedom and the willingness to move are, however, undoubtedly beneficial, theory suggests caution before we conclude that the more movement of labour we observe, the better. First, lack of mobility may simply reflect intrinsic household preferences and technological constraints, rather than the effects of market distortions. Second, the geography literature has pointed out that factor mobility is typically associated with economic polarization. In the presence of increasing returns or more generally agglomeration economies, factors may quickly concentrate in selected locations, emptying and depopulating remaining areas. Whether this is a likely or desirable outcome has already been addressed in the previous chapters.

The fact is that, notwithstanding the potentially perverse implications of factor mobility, it is the lack of factor mobility that has been a recurrent source of concern in the European context. The argument is that European countries and regions can no longer count on exchange rate adjustments to alleviate the effect of idiosyncratic regional shocks. Given the notorious lack of wage flexibility, factor immobility would then imply a substantial and persistent impact on unemployment. The long-run consequences of factor immobility would be even more severe. First, the process of resource reallocation would be hampered, preventing European economies from fully benefiting from the effect of economic integration. Second, high unemployment could prompt a 'perverse' regional policy response, which could further lower mobility and cause temporary shocks to have long-lasting effects.

In this chapter, we first briefly review the evidence about labour flows. We find that the conventional wisdom, namely that European migration flows are of limited size compared both to their past levels and to those of the United States, is indeed correct. We then check whether the small size of migration flows in Europe reflects simply the behaviour of the traditional determinants of labour mobility. The answer is clearly in the negative: as we showed in Chapter 1, income differentials within Europe are higher than in the United States. Unemployment differentials are also higher in Europe, with a coefficient of vari-

ation of 0.55 versus 0.24 for the United States (see Banco d'Italia, 1998). The fact that, in spite of these differentials, labour flows are much more limited in size than in the United States is perhaps the most convincing proof that European mobility is worryingly low. After offering a list of potential culprits for the lack of labour mobility in Europe, we then turn to the crucial questions of whether policy-makers should be concerned about labour mobility, whether they can do something about it, and what the outlook for European migration is. The answers are: yes, a lot, and substantially brighter than normally assessed.

4.2 The endangered bird: the European migrant

The fall in actual migration within Europe over recent decades is virtually undisputed. All available indicators concur in showing that both international and internal migration have registered a substantial decline over a prolonged period of time. Let us first focus on international labour flows. Figure 4.1 shows the evolution of gross emigration flows from Southern Europe. During the 1950s and the 1960s, this area was the main source of migrant workers – more than 12 million of them – who flocked to Northern Europe. Two facts stand out. First, labour flows have been quite large in the past, accounting for a sizeable portion of the sending country's population. Second, the flow of migrants has declined markedly since the early 1970s. The decline in inter-European migration could be attributed to the sudden and dramatic shift of immigration policies in receiving countries, following the first oil shock and the surge in domestic unemployment. Yet, the fall in international migration is mirrored in an analogous decline in *internal* migration. Figure 4.2 highlights the declining trend in both internal and international emigration from Southern Italy. Obviously, this evolution cannot be accounted for by the restrictive stance of immigration policies. Bentolila and Dolado (1991) provide analogous evidence for the case of Spain. Moreover, in the context of the EU, immigration policies can no longer impose any restrictions on mobility from Southern Europe.

Figure 4.1 Migration rates from Southern Europe, 1961–88 (per thousand population)

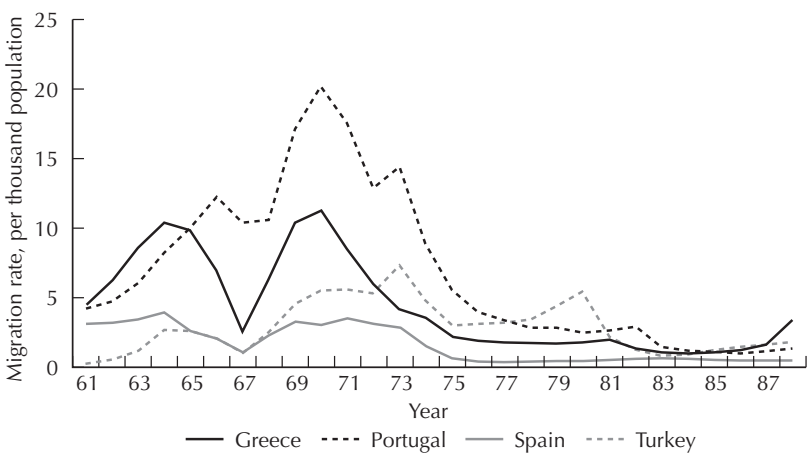
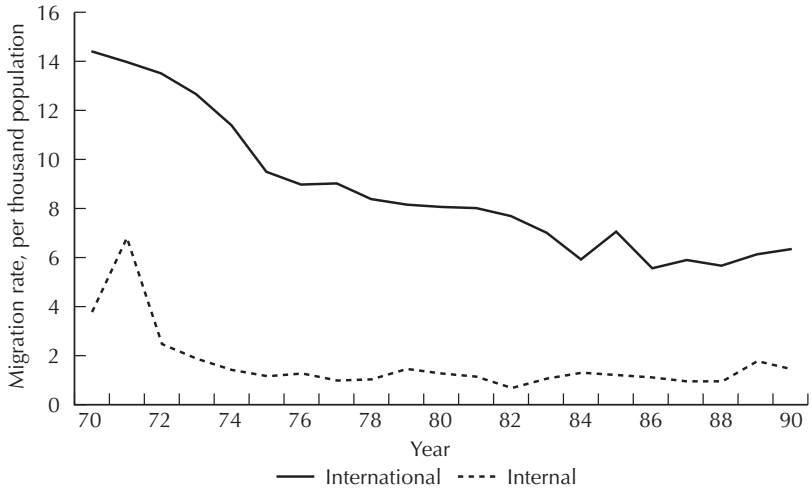


Figure 4.2 Migration from Southern Italy, 1970–90 (per thousand population)



The fall in intra-European labour flows is not limited to traditional sending regions. In Germany gross migration flows between Länder fell from 18.4 per thousand people in 1979, to 13 in the period 1975–80 and 10.5 in 1984–88 (Livi Bacci et al., 1996). More recent data are not fully comparable because of the influence of German unification. Similarly, for France, inter-regional labour flows declined steadily from 18 per thousand in the period 1968–75 to 16 in 1983–90. In the United Kingdom, however, the pattern of labour movements does not show a clear trend, though it seems to be relatively more affected by the cyclical position of the economy. Inter-regional flow declines during recession, but recovers markedly when the economy picks up and aggregate unemployment falls. Spain also shows a similar cyclical pattern (see Bentolila and Dolado, 1991).

The declining trend in European migration is unmistakable. A different but related issue is whether Europeans tend to move less than residents of other industrial countries. Unfortunately, international comparisons of migration are hampered by the lack of comparable data. Sources typically differ in their coverage and nature. Moreover, the size of *gross* migration is affected by the size of the area under consideration. Obstfeld and Peri (1998) have compiled some information on *net* inter-regional migration (see Table 4.1). They find that net migration flows are larger in the United States and Canada than in Germany and Italy – with the United Kingdom ranking, somewhat surprisingly, at the bottom of the list. Census data that details the changes in residence in the year previous to the census are more reliable and also more comparable. Measured in this way, population flows reach 17–19% of households in Australia, New Zealand and the United States, fall to 9.5% for French and UK households and decline further to 6–8% in other European countries. To sum up, the conventional wisdom that European migration flows are of limited size compared either to their historical standards or to other industrial countries is indeed correct.

Table 4.1 Net migration rates (percentage of regional population)

Period	*United States*	*Germany*	*Italy*	*United Kingdom*
1980–9	0.84	0.34	0.33	0.26
1990–5	0.87	0.31	0.4	0.2

Source: Obstfeld and Peri (1998)

Table 4.2 Mobility attitudes in Spain, unemployed workers (percentage of workers willing to take a job in a different location)

	Male	*Female*	*Total*
Illiterate	29.4	14.8	24.8
Primary education	36.8	23.7	29.4
Secondary education	41.3	27.8	34
University education	51.8	41.3	45.7
Total	34.5	21.5	28.4

Source: Palafox et al. (1995)

Further insights into the pattern of European mobility comes also from an analysis of mobility attitudes. In the quarterly labour force survey, unemployed workers are asked whether they would be willing to take a job in a different location. We tabulate the responses for Italy and Spain in Tables 4.2 and 4.3. The conspicuous finding is that unemployed workers are, to say the least, reluctant to move in response to a job offer in another location. In Spain, only 28.4% of unemployed workers responded that they would accept such a job offer. Conversely, 42.3% would not be willing to move to a different location, if offered a job there. Unsurprisingly, mobility is lower for women (because of their nature as 'tied' movers) and is higher for educated people. The data for Italy paint a similar picture, but add further details. Table 4.3 shows that Southern Italian unemployed workers are more willing to take a job in a far-away location than their Northern Italian counterparts, irrespective of gender and skill conditions. Interestingly enough, though, unemployed workers in the South are less willing to take a job in a neighbouring city. Finally, unemployed youth are not significantly more mobile (as is apparent from Table 4.4).

4.3 Why are European migration flows so small?

The immediate economist's response is that if production factors do not move it is because they do not have the incentives to do so. Put differently, the absence of substantial migration flows, documented in the previous paragraph, is not necessarily a cause for concern. It could simply reflect the lack of incentives to move and does not exclude the possibility that European *mobility*, namely the responsiveness of migra-

Table 4.3 Mobility attitudes in Italy, unemployed workers (percentage of workers willing to take a job at the stated location)

	Males		*Females*	
	North	*South*	*North*	*South*
Basic education				
Own town	39.8	32.9	53.6	61.0
Nearby town	44.2	36.1	41.0	28.5
Everywhere	16.0	31.0	5.4	10.5
	100.0	100.0	100.0	100.0
High school				
Own town	27.7	23.8	36.3	44.8
Nearby town	46.5	33.5	52.0	31.1
Everywhere	25.8	42.7	11.7	24.1
	100.0	100.0	100.0	100.0
University				
Own town	20.7	26.9	27.9	31.8
Nearby town	27.6	30.8	44.3	38.6
Everywhere	51.7	42.3	27.8	29.4
	100.0	100.0	100.0	100.0

Source: own calculations on ISTAT labour force survey

Table 4.4 Mobility attitudes in Italy, first-time job-seekers living with their parents (percentage of workers willing to take a job at the stated location)

	Males		*Females*	
	North	*South*	*North*	*South*
Basic education				
Own town	47.1	29.4	53.2	56.7
Nearby town	40.0	35.1	38.7	27.8
Everywhere	12.9	35.5	8.1	15.5
	100.0	100.0	100.0	100.0
High school				
Own town	27.8	24.3	39.8	36.6
Nearby town	44.3	32.4	47.6	32.1
Everywhere	27.9	43.3	12.6	31.3
	100.0	100.0	100.0	100.0
University				
Own town	13.6	25.0	27.3	35.7
Nearby town	31.8	30.0	39.4	25.0
Everywhere	54.6	45.0	33.3	39.3
	100.0	100.0	100.0	100.0

Source: own calculations on ISTAT labour force survey

tion flows to incentives, is high.[1] To shed more light on this issue, we must turn to theory to compile a list of the possible incentives to move, and their role in the European context. The first suspects in this list would include, in the spirit of the Harris-Todaro model, wage and unemployment differentials. In the case of Europe, however, little mileage can be gained from pursuing this line of analysis. The behaviour of unemployment and wage differentials between sending and receiving regions cannot reasonably account for the declining level of European migration. It is true that in some cases, say France and Spain or Northern and Southern Italy, wage differentials have fallen considerably since the early 1970s. At the same time, however, unemployment differentials have risen at an even faster pace. Therefore, on an expected income basis (namely when weighted by employment probabilities) wage differentials have, if anything, increased substantially between sending and receiving regions and cannot explain the falling trend in migration.

The behaviour of wage and unemployment differentials cannot explain the relatively low level of mobility in Europe compared to say the United States either. First, econometric analyses provide convincing evidence that the *response* of European migration to wage and unemployment differentials is more muted than in the United States (Eichengreen, 1992, Bentivogli and Pagano, 1999). Second, and perhaps more crucially, differences in incomes and – even more strikingly – in unemployment levels are larger among European regions than among states in the United States.[2] To sum up, the traditional explanations for the pattern of migration flows, namely wages and unemployment differentials, cannot explain why European workers move less than they did in the past and less than US workers do.

To understand why European labour is not highly mobile we must look for more exotic explanations. Demographic and cultural explanations first spring to mind, but do not provide much insight into the issue. For instance, it is often argued that Europeans are intrinsically less mobile because of cultural and linguistic differences hampering inter-European mobility. This approach is unconvincing on two counts. First, it cannot account for the fall in internal migration, which cannot obviously be explained by language differences. Second, it cannot explain why Europeans have been highly mobile in the past, with more than 12 million people crossing national borders during the 1950s and 1960s.[3] Demographic explanations emphasize the role of aging (the falling weight of the relatively mobile young cohorts should reduce overall mobility) and female labour force participation. There is limited evidence, however, that the youth are significantly more mobile. Similarly, the low female participation rates in much of Southern Europe should boost overall mobility.

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1 Obstfeld and Peri (1998) stress the need to distinguish between shocks and responses. It could be argued for instance that regions in the United States are more exposed to idiosyncratic shocks since they are more specialized than correspondingly sized areas in Europe. The larger flow of migration in the United States would then simply reflect the higher incidence of regional shocks. This approach is suggestive, but finds little support in the data. There is only limited evidence that United States regions are more vulnerable to idiosyncratic shocks (Bayoumi and Prasad, 1997). Furthermore, the fact that even unemployed workers in Europe are largely unwilling to move seems to indicate that lack of mobility rather than the limited size of shocks lie behind the small size of European migration flows.

2 We draw on the elaborations of Bentivogli and Pagano (1999).

3 Mobility fell the most in the traditional emigration countries. Could that be explained by the fact that migrants from Southern Europe had lost all their appetite for further migration after returning home in the early 1970s? There is no way to answer this question, given the lack of systematic evidence on the mobility attitudes of previous migrants.

A more promising line of argument emphasizes that the *levels*, rather than the differentials, of wages and unemployment rates affect the migration decision. Pissarides and Wadsworth (1989), Bentolila and Dolado (1991), and Decressin (1994) argue that rising unemployment levels are (or have been) responsible for the fall in mobility in the United Kingdom, Spain, and Germany, respectively. The mechanism at work is simple. For given inter-regional differentials, a high level of national unemployment implies a lower probability of finding a job in the destination region. Migration becomes riskier and, as a result, a risk-averse household would be less willing to take its chances and move to the 'lower' unemployment region. Moreover, during a recession, credit market conditions and widespread rationing may make it difficult for perspective migrants to finance their mobility costs. Table 4.5 reports a simple econometric exercise showing that aggregate unemployment does indeed affect mobility attitudes in Spain. We regress the share of 'immobile' unemployed workers, namely those unwilling to take a job in a different location, on aggregate unemployment and on the interaction term between unemployment dispersion among regions and aggregate unemployment. The estimates show that lack of mobility is positively and significantly related to national unemployment, but negatively associated with the interaction term. For given aggregate unemployment, therefore, an increase in the regional dispersion of unemployment should boost migration propensities.[4] In a similar vein, the earlier finding, in Section 4.2, that Southern Italian unemployed workers are unwilling to migrate to a neighbouring city, can be explained by the depressing impact of high unemployment rates throughout the Mezzogiorno region.

Table 4.5 Unemployment and mobility attitudes

Dep. var.: share of unemployed workers unwilling to move to a different location *Expl. var.*	*Coeff.*
Constant	0.52
	(2.81)[1]
Unemployment rate	3.91
	(2.42)
Interaction term[2]	–1.06
	(2.43)
R^2	0.70
DW	1.78
LM test	0.80
Sample period	87:3–98:3

Notes
1: T–statistics in parenthesis
2: Aggregate unemployment rate * standard deviation of regional unemployment

Source: own calculations on ISTAT labour force survey

4 Low aggregate unemployment rates can also explain why mobility is relatively higher in the United States.

Higher wage *levels* in the sending region may also have depressing effects on the propensity to migrate, even with unchanged wage differentials. European households have become much better off in economic terms in recent years. They are, no longer, forced to emigrate by poverty and deprivation at home. Higher economic welfare in turn means that potential migrants put increased emphasis on the non-monetary costs of migration. They are, therefore, less willing to afford the loss of social relationships, the need to adapt to a new and unfamiliar milieu and the difficulties arising from different cultural, religious and linguistic traditions. This is equivalent to saying that cultural and linguistic factors can play a role in discouraging migration, provided however that home income is sufficiently high and households are willing to substitute home amenities for a further rise in wages through migration. In other words, an increase in home income should be associated with a fall in the propensity to migrate. Migration equations should thus control also for the effect of the wage *level* in the origin region, with the latter expected to have a negative influence on migration. Faini and Venturini (1993) provide some econometric evidence to this effect.

Regional, housing and labour market policies also act to discourage mobility. Inefficiencies in the housing markets are often substantial, due to punitive taxation and rent controls. Oswald (1998) argues that the high housing ownership rate in Europe is tightly linked to low mobility and high unemployment rates. Labour market policies are also likely to have a marked effect on mobility. In particular, inefficiencies in the job search process can easily hamper mobility. In some countries, public employment agencies still hold a monopoly position despite their blatant ineptitude at providing unemployed workers with information on job vacancies in other regions.

Unemployment benefits may also play a role. They are typically more generous in Europe than in the United States. Antolin and Bover (1997) have shown that, in the case of Spain, (registered) unemployed are relatively less mobile. The role of unemployment insurance, however, should not be over-emphasized given that, at least in most of Southern Europe, it is available only for tenured workers. The insistence on unemployment insurance cannot account therefore for the low mobility among the youth (Faini et al., 1997), who are typically not entitled to such benefits.

A more plausible explanation for low mobility in Europe is the availability of family support. Families are more cohesive in Europe than in the United States and are, therefore, more likely to provide financial support to temporarily unemployed members, thereby allowing them to stay on and to avoid migration.[5] Policy actions are likely to play a significant role in this context by boosting the ability of families to support protracted unemployment spells of some of their members through substantial government transfers – often under the guise of pensions and disability payments (Attanasio and Padoa-Schioppa, 1991). The role of regional policy may be even more perverse. Following a negative shock, regional policy will typically step in with measures (say, public employment and higher transfers) that may further reduce the incentive for mobility and make unemployment even more persistent. Even if the shock is temporary, therefore, it may have long-lasting effects due to the regional policy response (Obstfeld and

5 The argument for family support cuts both ways, however. Indeed, intra-household transfers could well be used to cover relatively high migration costs. Southern Italian families with a relatively higher share of income earners have indeed a higher rather than a lower propensity to migrate (Faini et al., 1997).

Peri, 1998). Moreover, the sheer hope of obtaining a permanent job in the public sector, or in a public enterprise, may encourage (young) workers to stay in their present location waiting for such a favorable occasion to materialize (Brunello, 1992). The incentive not to migrate will be even stronger if information about vacancies in other regions is very limited, and households tend to rely on a local network of friends and relatives in their job-searching activities. Clearly, in this context, any inefficiencies in the job placement system will exacerbate the inefficiencies of the regional policy. There is a strong case, therefore, to argue that lack of mobility in Europe can to a large extent be seen as a rational response by households to a set of policy-distorted incentives.

It cannot be excluded that workers and households are less prone to move in Europe simply because they do not need to do so. In response to a regional shock, European households may prefer to remain temporarily unemployed (or to temporarily withdraw from the labour force) rather than migrate. This may indeed be the optimal response provided that the shock is temporary, migration entails substantial costs, and the household can rely on alternative sources of income, including borrowing, unemployment insurance, and family support to finance a protracted period of joblessness of some of their members. This is not necessarily a cause for concern, unless the incentives to which households are responding reflect significant policy-induced distortions. Judging the magnitude and gravity of distortions is not easy, however. For example, financial markets are less developed in Europe than in the United States. It is, therefore, unlikely that European households can avoid migration simply because they can rely on well-functioning capital markets, whereas their US counterparts are forced to migrate because of a binding credit constraint.[6] Part of the response of governments to regional shocks could, however, be seen as 'filling in' for the inadequate credit markets that might otherwise allow households to borrow in order to ride out temporary economic shocks. While there may be some element of truth in this, we are skeptical that the actual operations of public policy have been so far-sighted; if anything, they have helped regional unemployment differentials to persist, as we argued in Chapter 1. These points are taken up again in Chapter 5.

To sum up, the evolution of the traditional determinants of migration behaviour, namely the wage and the unemployment differentials, as well as demographic factors, cannot account for the pattern of mobility in Europe. Overall, low labour mobility should be attributed to a combination of three kinds of phenomena:

- Distortions induced by the stance of regional housing, labour market and industrial policies.
- The persistently high level of aggregate unemployment in many European countries.
- The increasing role that the preference for home amenities plays in affecting the locational choice of European households.

6 Bentivogli and Pagano (1999) find that uncertainty factors are more influential on European than on United States migration. They argue that this can be attributed to more widespread role of credit constraints in Europe.

Ranking the role of these factors is difficult. We suspect that aggregate unemployment is the key determinant among them. The emphasis on aggregate unemployment is consistent with the existing evidence for many European countries, including Spain, the United Kingdom, Italy and Germany. It can also explain why labour mobility has declined so markedly in Europe and why it is substantially lower in Europe than in the United States. Clearly, though, more research on these issues is called for.

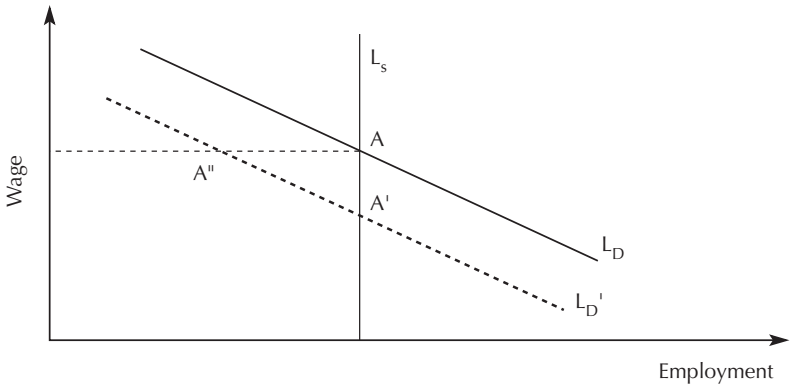
4.4 What are the implications of low labour mobility?

From a welfare point of view the crucial question is whether low labour mobility should be indeed a cause for concern. If limited mobility simply reflects the intrinsic (and increasing) preferences of European households – say for preserving their network of cultural and social relationships – then it should not be a matter of concern. Alternatively, if low mobility reflects mainly pervasive distortions that raise the costs of migration and, more specifically, misguided policies that limit the incentive for mobility, then policy intervention is imperative. The question cannot be definitively settled. First, existing evidence is not conclusive, although the discussion in the previous paragraph highlighted that policy distortions as well as household preferences are likely to account for the low level of labour mobility. Second, a definite answer would require a fully specified economic model. While we are some way short of this objective, we can nonetheless rely on some simple arguments that highlight the implications of different assumptions about factor mobility.

Blanchard and Katz (1992) have provided a simple framework to assess the role of both capital and labour mobility. Consider the case of a small economy open to gradual factor movements, where short-run labour supply is fully inelastic and labour demand is well behaved. The equilibrium is at point A in Figure 4.3. Suppose that the economy is hit by a negative shock that shifts the labour demand schedule downward to L_D'. There is a range of possible equilibria depending on factor price flexibility and factor mobility. If wages are perfectly rigid, the new equilibrium will lie at point A", with unchanged labour costs, lower employment and higher unemployment. Firms are unlikely to move into the region – since production costs are unchanged – unless they are attracted by the pool of unemployed workers. More probably, though, workers will move out of the region in search of better employment opportunities elsewhere. The L_S-curve shifts to the left until unemployment is back to its original level. If, however, workers do not migrate and firms do not move in, unemployment is likely to be protracted.

At the opposite side of the spectrum, we have the case of perfect wage flexibility. Following the downward shift in labour demand, real wages fall and the equilibrium is at point A'. The decline in wages may prompt firms to move in, shifting the labour demand curve back to its original position. Moreover, outmigration may not be as large as in the previous case if we make the plausible assumption that household locational choices are more responsive to unemployment than to wage differentials. With no migration, the new long-run equilibrium will be unchanged at point A. In general, though, the final equilibrium will therefore lie in the AA' A" region depending on the relative degree of wage flexibility and capital and labour mobility.

Figure 4.3 The effect of a labour demand shock



Following the lead of Blanchard and Katz (1992), there is now plenty of empirical evidence on the working of the adjustment mechanism in response to localized shocks. This vast literature can be simply summarized. In the United States, regional shocks appear to have a permanent impact on employment. In terms of Figure 4.3, the new equilibrium will not lie between points A and A'. This can mean one of two things: either wages are not flexible enough, or capital (i.e. firms) is not sufficiently mobile or a combination of both. At any rate, the initial impact of a negative shock will be felt on unemployment. The rise in unemployment will then prompt workers to migrate, until the unemployment rate returns to its steady state equilibrium value. In Europe, the picture is much less reassuring.[7] Following a negative shock, unemployment rises substantially, because of pervasive factor price rigidities, and it tends to be stubbornly persistent, because of limited labour mobility. Unemployment returns to its steady state level in the long run not because of migration, but because of a fall in the participation rate. The combination of rigid wages and low capital and labour mobility means that unemployment (in the short to medium run) and participation (in the medium run) bear the brunt of the adjustment.

Overall, the short- and medium-term implications of low labour mobility seem quite unfavorable. Lack of factor mobility together with pervasive wage rigidities can indeed be blamed for protracted spells of unemployment and falling participation rates following an unfavorable regional shock. This seems to be an accurate description of the European case, where the adjustment process is agonizingly slow and apparently temporary shocks appear to have permanent effects. In the long-term, furthermore, the costs of low labour mobility are likely to be even more severe. The changes in the economic landscape in Europe attendant on the process of further integration will probably lead to greater specialization, both at the regional and especially at the sub-regional level. This will require a combination of substantial gross job flows both among sectors and among regions, and significant changes in the structure of relative wages and prices. The lack of labour mobility together with widespread factor price rigidities could well imply that Europe would find it extremely hard to benefit fully from increasing economic integration.

7 There is a vast literature on the subject. See in particular Decressin and Fatas (1995) and Mauro et al. (1999).

4.5 The outlook for labour mobility

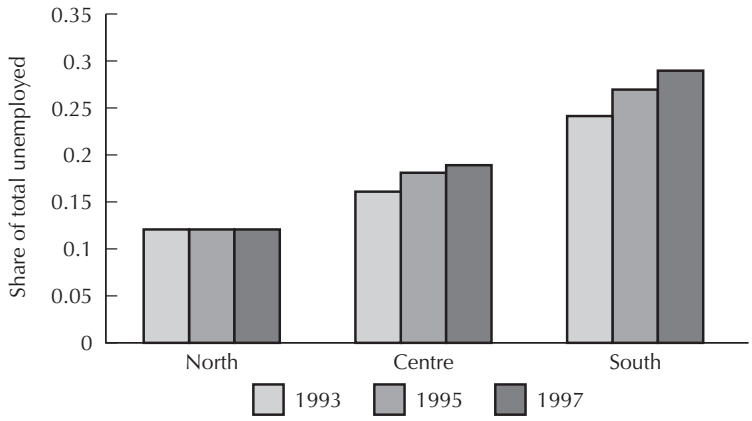
We have seen how low labour mobility in Europe is likely to reflect a combination of high aggregate unemployment, intrinsic preferences against mobility, and policy-induced distortions. These last include in particular housing market policies, impediments to the activities of job placement agencies and, more generally, the attempt by regional policy to cushion the effects of regional shocks.

Many of these factors are not irreversible. To the extent that they reflect policy-induced distortions, they can be affected by policy reforms. Similarly, if these factors are related to the state of the economy, they may be influenced by ongoing improvements in the economic outlook. Even preferences against mobility should not be taken for granted. Overall, there are already several indications that the factors hampering labour mobility are losing part of their strength.

- Improving macroeconomic conditions and far-reaching labour market reforms may lead to a marked fall in aggregate unemployment. Labour market conditions have already improved substantially in many European countries. This could spark a virtuous circle where the decline in unemployment fosters labour mobility, which in turn leads to a better allocation of resources and a further fall in aggregate unemployment.
- Changes in policy regime may foster mobility. Binding fiscal constraints, attendant on the Stability Pact, imply that regional policy will find it increasingly difficult to cushion the effects of regional shocks through permanent transfers. Temporary transfers will become the main, if not the only, tool to alleviate the impact of idiosyncratic shocks. Accordingly, the hope of getting a primary sector job in the public sector or in a public enterprise should fall, with a boosting effect on the propensity of people to migrate.
- Reforms of the labour markets could also have a direct effect on mobility. More effective job placement agencies could improve the inter-regional flow of information about vacancies and lead to an inward shift in the Beveridge curve. Moreover, in Southern European countries, labour market liberalization, in particular the softening of employment protection regulations and the greater emphasis on local rather than on national wage bargaining, may help shift employment from the informal to the formal sector, where information about job opportunities is more easily available. Again, this would improve the efficiency of the inter-regional job matching process. The shift away from centralized wage setting towards regional wage contracts should also enhance wage flexibility and the responsiveness of wages to regional shocks.
- Reforms in the housing market may reduce mobility costs and boost migration. Potential migrants are often discouraged from moving to a new location by the unavailability of adequate housing facilities and the pervasiveness of non-price rationing mechanisms in that market.

There is already some evidence that these influences are beginning to work in fostering labour mobility. Net migration from Southern Italy was equal to 170 thousand over the 1990–5 period. In only three years, between 1996 and 1998, this

Figure 4.4 Mobility attitudes in Italy, share of unemployed willing to migrate to any destination



number reached more than 200 thousand. Figure 4.4 shows the changes in mobility attitudes between 1993 and 1997, confirming that unemployed workers in the South are increasingly willing to take a job offer in a distant location. Indications that mobility is on the rise also come from Spain. The regional differentials in unemployment have shown a substantial downward trend in the United Kingdom, reflecting both lower unemployment and labour market reforms.

Overall, therefore, the outlook for labour mobility in Europe is not as grim as generally portrayed. It is true that labour mobility is indeed substantially lower than in the United States. European regions as a result are more vulnerable to idiosyncratic shocks and may find it difficult to reallocate resources on the scale needed to benefit fully from new economic opportunities. Yet, many of the factors hindering labour mobility are under the influence of policy-makers. A determined effort to reform European labour markets would boost mobility both directly and indirectly, through its effects on aggregate unemployment. Other factors may also contribute to rising mobility. It is often argued that non-EU migrants are relatively mobile, to the extent that they are self-selected and have looser links with their destination region. The projected increase in the foreign-born population in the EU may then contribute to raise the labour mobility in Europe. At this stage, however, this is little more than speculation.[8] The principal conclusion is that a major determined effort is needed in terms of economic policy. More will need to be done, particularly at the supra-national level:

1. Regulations that affect intra-European mobility will need to be changed. Facilitating pension transfers can ensure that intra-European migrants are not penalized by punitive regulations in this field. Similarly, overly rigid regulations and lack of recognition of professional qualifications still hinder the mobility of skilled personnel (Table 4.6).
2. Linguistic and cultural barriers can be an obstacle to mobility. Yet, their effects are not immutable. The Schengen Agreement has already had at least a

8 At least in the US case, migrants are not more mobile than natives (Borjas, 1999), reflecting presumably the strong links with the ethnic community in their destination.

Table 4.6 Obstacles to mobility

Item	*Status*	*Proposed actions*
Residence cards	Essential for employment, but often difficult to acquire and subject to frequency renewals	Grant residence cards to all workers and their dependents
Recognition of academic and vocational qualifications	Achieved for 7 professions (including doctors, nurses, dentists, mid-wives, pharmacist and architects)	(a) Full implementation of the relevant Directive (b) Adoption of a single General Directive
Social assistance	Benefits are typically not portable. Unemployed will lose benefits if they move to a different member state	Interpret Reg. 1408/71 in a broader way to encompass social assistance
Supplementary pensions	Long vesting periods (up to 10 years). Workers are penalized if they change employers	(a) Shorten vesting periods (b) Modify regulations to prevent workers from being penalized if they move to another member state

symbolic value on mobility, as all intra-European travellers are now free to cross intra-European borders without being subject to controls. A more radical, but also more effective means to reduce the impact of such barriers would be to introduce a European curriculum at the compulsory school level. This would be a highly effective way to familiarize skilled and unskilled workers with the history, the culture and the language of other European countries, in the end facilitating labour mobility. It must be recognized, however, that considerable political determination and vision would be required for the implementation of this kind of reform.

Having considered the mobility of factors of production within Europe, we must now examine the policies that have been implemented by governments at various levels to try to influence the regional pattern of economic activity. In Chapter 5 we look at policies of the EU and at two examples – one apparently very successful, one apparently not – of policies pursued by national governments.

5 The State and Regional Development

5.1 Economic policy and regional convergence

Given what we have seen in earlier chapters about the underlying forces shaping the geographical distribution of economic activity across Europe, do governments have any significant influence over the outcome? More specifically, can the risks of polarization be reduced by the systematic action of governments? It is important to remember that while the rate and pattern of regional convergence within the EU is affected *directly* by regional policies operated at EU and national levels, it is also affected *indirectly* through the regional effects of general economic policies. Although stated objectives of all national and EU regional policies support the reduction of income disparities across regions, the extent to which these policy interventions achieve these objectives may be quite limited, especially if the general economic policies have contrary effects. Thus, while it is possible to look at whether there has been increased growth and convergence in the EU and whether polices have achieved their stated goals, it is difficult to attribute causation to different elements (market access, increased competition, EU transfers, national regional policies) in the total process – see European Commission (1997a).

Recognition of the potential regional impact of national economic policies on the location decisions of firms is important, especially if there are marked endowment differences across regions within a country. For example, a national wage policy may involve a wage settlement, which is suited to a more developed region while being completely inappropriate to a less developed one, and consequently impacts negatively on the location decisions of firms with respect to that region. National economic policies, which focus on aggregate national objectives (achieving competitiveness, faster growth and lower unemployment), include labour market policies, education and training policies, support for R&D and for environmental improvements. While it is often difficult, if not impossible, to measure precisely the importance of such policies for the regions, it is essential to identify in a particular context whether they counteract or reinforce regional policies. For instance, we discuss in Section 5.3 below the way in which a policy of national wage-setting in Italy may have caused damage to the prospects of the Italian Mezzogiorno region that more than outweighed the efforts of Italy's explicit regional policy.

In terms of firm-specific polices, the horizontal and sectoral state aids (allowed under EU state-aid rules and supported by EU funds) may reinforce the existing patterns of industrial location if the recipient enterprises are

already based in the more developed areas of the EU.[1] Clearly for new enterprises the impact will be neutral. While in small peripheral countries the horizontal aids do not account for a large share of state aid (circa 20–25%), in several of the core European countries, these aids are used extensively, and account for more than half of all state aids to manufacturing industry (see European Commission, 1999). Overall, horizontal and sectoral aids account for 43% of total state aid to manufacturing. To monitor the impact of such state aids on the location of economic activity in Europe, data on the regional distribution of these horizontal and sectoral aids would have to be collected to establish how these policies interact with specific regional policies and, in particular, whether they reinforce or counteract them.

If regional policy is to be successful, it must result in the benefiting regions having relatively more economic activities within their boundaries. Differences in endowments and degrees of market failure across regions ensure that shifting activities between regions can result in a net welfare gain overall. Thus, the success of one region's strategy is not necessarily at the expense of another. A targeted strategy which builds on the potential of the region and promotes the location of economic activities suited to that region is likely to achieve greatest benefit to the region and to the EU overall. The European Commission increasingly insists that countries receiving EU regional aid should give regions more autonomy, in order to ensure that expenditures are better targeted on the needs of the region. While the European Commission attaches considerable importance to achieving greater regional convergence, it is increasingly critical of the growing use of regional incentives, in the form of state aids, which it sees as potentially undermining competition within the EU (European Commission, 1998a).

In this chapter we look at different components of regional policy in the EU, having noted that national policies can impact positively or negatively on regions, in terms of their ability to attract economic activities. We distinguish between two forms of regional policy – regional *investments* which enhance the attractiveness of the region as an economic environment for potential investors, and regional *incentives* which provide a financial inducement to the investor to locate in a specific region (see Box 5.1). Policy in the form of regional investment is generally a datum for all potential investors. Only in exceptional cases is it not; for example if the timing and location of a specific regional investment (such as the development of an airport or seaport) is used to encourage a specific company to invest in a region. Policy in the form of regional incentives is, however, investor focused, either generally or specifically (see Box 5.2). We conclude this chapter by looking at two regions of the EU, which have operated active regional policies in an attempt to raise income levels and reduce unemployment levels in their regions over the past forty years with different degrees of success.

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1 The horizontal aids are associated with the promotion of R&D investment, the development of small and medium enterprises (SMEs), and the expansion of export markets in non-member countries (especially by SMEs). Sectoral state aids cover steel, shipbuilding, coal and transport.

BOX 5.1 Typology of regional policy instruments

Regional policy instruments are generally of two forms: regional investments and regional incentives.

- **Regional investments** are designed to improve regional competitiveness, primarily by upgrading a region's economic (physical and human-capital) infrastructure. Since they can benefit all economic activities in an area, they are viewed as being non-distortionary in terms of competition policy. Assuming that the infrastructural investments are sensible, they impact positively on the location decisions of individual firms directly by enhancing the productivity of investments in the region, and hence its profits, and indirectly by attracting other firms to the region, opening up the possibilities of agglomeration effects occurring.
- **Regional incentives** are intended to compensate individual economic enterprises for a region's locational disadvantages. Since they are firm specific, they are seen as being potentially distortionary in terms of market competition (for example, if the assisted from has a dominant position in the market) and may be distortionary in terms of economic efficiency, if the policy instruments used are inappropriate (for example, if they encourage an inappropriate factor mix). Regional incentives impact directly on the profitability of the firm, by lowering its direct costs. They may also indirectly benefit the firm if other firms are attracted to the region, thereby generating agglomeration economies.

BOX 5.2 Regional incentives and the firm's location decision

Regional incentives are designed to attract a firm to locate in a specific region. If, say, an extra-EU firm is considering locating in the EU, it will look at the range of regional incentives available across the Union. While there are a myriad of such policies on offer (see Yuill et al., 1997), we can categorize the policies on offer under four main headings:

- **Degree of sectoral selectivity**: Regions may have targeted sectors which they are promoting, or they may be promoting investment activities generally in the region. Thus a US firm – say, in the electronics sector – is likely to look closely at Ireland and Scotland, as English-speaking countries which are promoting the development of this sector over areas which have no specific policy to build up the electronics sector.
- **Degree of scale selectivity**: Regions may be targeting large scale investment projects (possibly to replace an industry which is in decline), attempting to promote the development of networks and clusters of SMEs, or potentially open to investments at all scale of production.
- **Financial forms of aid**: Generally aid will be linked to capital or labour, or sometimes both factors of production. Thus a pharmaceutical or chemical company will

(continued)

(Box 5.2 continued)

typically be interested in regions which give capital rather than training grants, while the opposite will be the case for a more labour-intensive company (e.g. software).

- **Application of aid**: In most countries regional incentives have historically been implemented in an automatic/fixed manner, i.e. a grant is available to any or all investors at a fixed rate, as long as they are operating in the appropriate sector/scale category. Increasingly, incentives are implemented in a discretionary/flexible manner, where the specific support is granted in a form which attempts to match the interests of the firm and the region's policy-makers. Thus the aid package which the firm receives might involve a combination of a capital grant, a labour-training subsidy, support for R&D, etc.

  When sectors are targeted and aid is provided in a discretionary/flexible form, a bargaining process inevitably results, with the firm bargaining for greater support on the basis of what it can contribute to the region (employment/taxes/linkages) while the policy-makers attempt to win the project for the region at the lowest possible cost.

5.2 Expenditure on regional policy

5.2.1 EU regional policy

While there has always been a specific regional dimension to EU policy, prior to the mid-1980s the Commission's regional policy role was rather passive, limited essentially to providing modest funds to support the stated regional policy objectives of individual member states. In the process of planning the programme for the Single European Market (SEM), it was recognized that, while the SEM was clearly going to benefit the Community overall, it would put pressure on regions which were particularly underdeveloped or where there was a high concentration of industries likely to decline with integration. Furthermore, the impact was likely to be magnified in the case of the four cohesion countries (Spain, Portugal, Greece and Ireland) where the scale of underdevelopment was greatest (see European Commission, 1997b) Since then, an EU-wide regional policy has been developed, and is reflected in the growth in the share of the EU budget spent on regional objectives — from under 30% in the 1989–93 period to over 35% in the 1994–9 period (see Bachtler, 1995). The policy is aimed primarily at speeding up the process of convergence, by reducing disparities (measured in terms of GDP per capita and unemployment rates — see the maps in Chapter 1, Figures 1.2 and 1.3) across regions.[2] Its focus has been primarily on the cohesion countries, and those regions of the EU core that lag strongly behind the EU average, such as Southern Italy and the East German Länder. Crucial to this process is that:

2 The need for convergence between richer and poorer regions in the 1980s was evident from the ten wealthiest regions in the Community having more than three times the GDP per capita of the ten poorest regions in terms of GDP per capita, while there was a fourfold difference in unemployment rates across regions.

- the aid given is determined by the region's position relative to the EU average rather than to its own country average;
- the aid involves the regional and national governments in partnership with the Commission;
- the support comes as part of a regional development programme (over a four-year time-span) rather than as project aid.

EU aid is provided in the form of both regional investments and regional incentives (see Box 5.1). The scale of aid given is closely, but not precisely, related to the designation of the region in terms of development criteria (see Box 5.3). Countries seek particularly to maximise the areas eligible for Objective 1 status, as about 70% of EU regional aid goes to the Objective 1 regions (comprising mainly the four cohesion countries, the Mezzogiorno, and the East German Länder), primarily in the form of infrastructural investment and incentives for private sector enterprises. See Martin and Steinen (1997), who also suggest that regional incentives are becoming relatively more important in terms of total EU regional aid, particularly for peripheral areas.

The 'single-region' Objective 1 designation of the three smaller cohesion countries (Ireland, Portugal and Greece) in the late 1980s has clearly maximized the potential gain to these countries from the EU regional funds. It has, however, inevitably limited the extent to which strong regional differences within these countries are addressed by these funds. In the case of Portugal, where internal

BOX 5.3 EU regional policy terminology

On the basis of a classification by EUROSTAT, EU regional policy recognizes three different sets of regions which are eligible for assistance:

- **Objective 1** regions: those regions suffering general underdevelopment, as reflected in having GDP per capita less than 75% of the EU average.
- **Objective 2** regions: those regions suffering a concentration of declining industries, as reflected in higher average unemployment, higher dependency on industrial employment and observable job losses in specific industries.
- **Objective 5b** regions: those predominately peripheral rural areas, as reflected in a high share of agricultural employment, low level of agricultural incomes, etc.

At present, the population coverage of the three regions eligible for Objective 1, 2 and 5b status is approximately 27%, 15% and 5% respectively of total EU population. While the determination of Objective 1 status is quite rigidly based on EUROSTAT statistics, and independent of the regional balance within a member state, the determination of Objective 2 status is more flexibly determined and, in recent times, subject to influence by member states, in agreement with the Commission. The determination of Objective 5b regions is yet more flexible and the agreed sums to be transferred has been the source of major negotiations between individual governments and the Commission. See Wishlade (1993) for a full discussion of the problem of achieving coherence in the EU in terms of area designation during the 1990s.

regional differences are marked, this has led to a restructuring of national regional policy. In the case of Ireland, the benefits to the Eastern area of the country from EU expenditures over the past decade has led to the internal reclassification of the regions within Ireland for the 2000–2004 round of the EU funding. By contrast, in the larger EU countries, the designation of specific regions as having Objective 1 status has potentially had a much more marked influence on achieving regional convergence within the country concerned.

5.2.2 National regional policy

Each EU member state operates a regional policy, which involves the promotion of the economic and social development of individual regions, typically by addressing their particular problems and potential capabilities. Their use and focus depends on national priorities, the extent of regional disparities within a country, and the degree of centralization versus local regional autonomy. The greater the degree of regional autonomy, the greater is the likelihood of correct targeting, and correspondingly, the greater is the risk that regions within a country may engage in expenditures which are welfare-reducing for the country as a whole.

While member states are completely free to determine the level of aid they give in the form of regional investments, nationally funded regional incentives are increasingly subject to EU rules as they constitute *state aids* to individual enterprises in terms of EU competition policy. Under Article 92, state aids are allowed (in order to reduce regional disparities) in the form of regional incentives to enterprises in the *least favoured regions* and the *development areas* respectively. The least favoured regions are determined by comparing per capita GDP in the region with the EU average, while the designation of development areas takes account of the region's position relative to the country (rather than the EU) average. While historically there was not a coincidence between Objective 1 and 2 regions and the least favoured regions and development areas respectively, following recent negotiations and changes in procedures, these areas now broadly coincide.[3]

The Commission limits the amount of state aid *from any source*, which may be given to an individual enterprise in each member state. These limits are intended to ensure that product market competition is not damaged and that excessive bidding between regions for footloose investment projects is avoided. The Commission also seeks to increase the transparency of the system of aids in each region and actively polices the granting of such aids, through a complex notification process. Aids which are linked to new investment and employment are preferred by the Commission, as these are not classified as 'operating aids', which might continuously support the production of output. Thus, through a process of area designation, assignment of financial limits, and determination of preferred forms of aid, the Commission attempts to balance its twin objectives of reducing regional disparities (by transferring resources to the less developed regions) and of maintaining competition (by limiting the potential distortions associated with

3 See Wishlade (1993). The rationale for their coinciding is, however, unclear since some parts of Objective 1 regions are relatively prosperous by national (though not EU) standards and at best, therefore, they have only a weak claim to national rather than EU regional policy consideration. See Besley and Seabright (1998).

regional state aids given by national governments). Indeed it is arguable that the impact of the Commission on EU Objective 2 regions is greater through the application of the state aid rules than through the use of EU regional policy aids.

5.2.3 EU and national regional policies – *who spends what?*

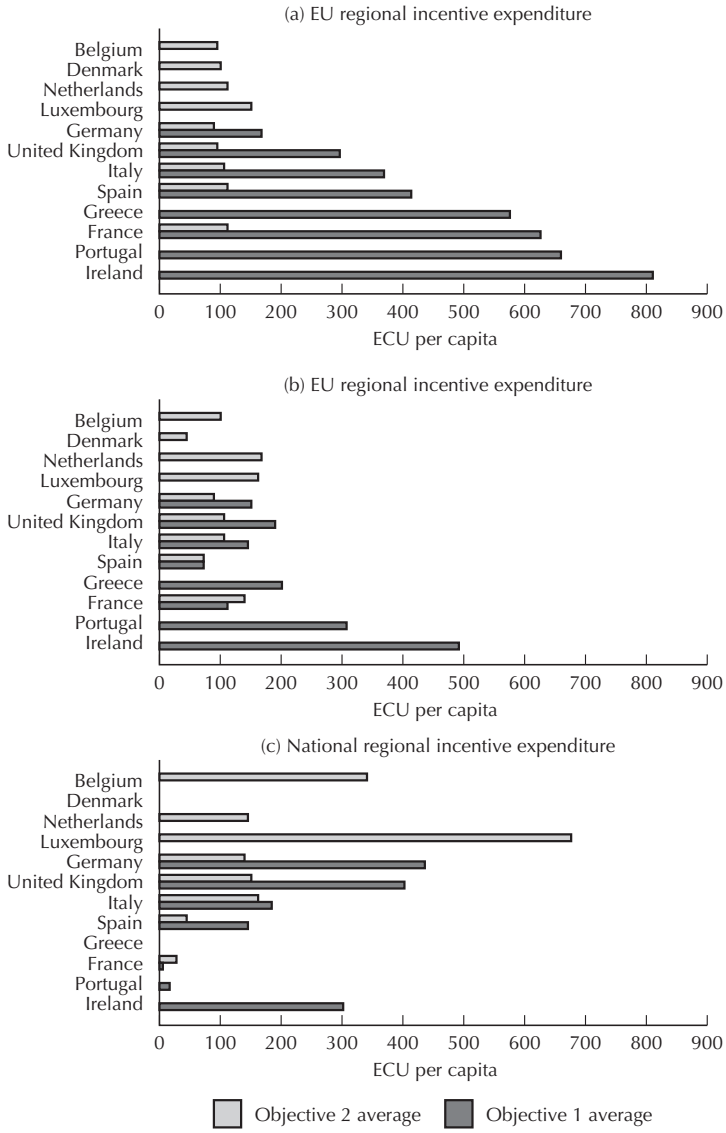
The crucial difference between the regional policies of the EU and individual member states is that the former aim to reduce income disparities across the EU (and hence give greater assistance to regions which are poor compared with the EU average). The latter assist regions that are poor in terms of the *national* average (which may be above or below the EU average). Recent work (Martin,1998) shows the expenditure on different measures of regional aid per capita provided by the EU and national governments over the period 1989–93, and according to whether the region has Objective 1 or 2 status.

The overall pattern of EU regional policy spending (Figure 5.1 (a)) follows precisely the pattern that might be expected of the Commission, which is trying to achieve regional convergence in terms of EU GDP per capita. Objective 1 regions receive more EU aid than Objective 2 regions, and the cohesion countries are major aid recipients. It is noteworthy that the absolute amount of aid received by Ireland, which has subsequently achieved considerable success in terms of convergence, is the highest, suggesting the potentially positive impact of regional policy on economic development. Figure 5.1(b) shows that EU regional incentive spending by region is relatively more significant in Objective 2 regions, reflecting the lower need for infrastructural spending in these regions and the co-financing of these polices by the national governments.

In addition to regional incentives schemes co-financed with the Commission, countries also operate strictly national regional incentive schemes (Figure 5.1(c)). The high rankings of Belgium and Luxembourg indicate significant emphasis on regional policy objectives at national level, as attempts are made to reduce intra-country regional disparities. Martin (1998) notes that the actual patterns of regional aid at national level reflect two factors: need for support and ability to spend. This is very evident in the case for Ireland which, in the period covered, had very limited ability to finance regional expenditures from domestic sources.

In a related paper, Martin and Steinen (1997) show that the core countries of the EU spend as much as, or more than, the peripheral countries on total (sectoral, horizontal and regional) state aids per capita, reflecting the more limited availability of resources in the peripheral countries. (Because, as noted above, data are not collected on regional patterns of expenditure for sectoral and horizontal state aid, this analysis cannot be extended to the sub-national level.) In the overall context of state aids, regional aids may interact positively with horizontal aids to achieve more *focused targeting*. For example, many countries promote small and medium-sized enterprises (SMEs), which are treated more favourably than larger firms by the Commission, as they create no competition policy problems. Some countries (such as Ireland and Italy) focus on building networks and clusters; and others include a *sector specific* element, by encouraging investment in particular sub-areas of manufacturing (such as Scotland in electronics). When horizontal or sectoral state aids go to depressed areas, they reinforce the positive impact of regional policies, assuming that the policies involved are addressing appropriate targets and are sensibly implemented.

Figure 5.1 EU and national regional policy expenditure compared



Notes:
1) Expenditure figures for all charts are in ECU per capita during the 1989–93 period.
2) For chart (b) national money provided on the basis of additionality is included.
3) For chart (c) the figures for Italy excludes Lazio. Data for Denmark and Greece are not available.

5.2.4 Regional policy implementation – *how is the money spent?*

The impact of regional policy depends on its implementation. For any given level of expenditure, it seems reasonable to expect that overall success will depend on having a positive and reinforcing relationship between regional investments and regional incentives. Regional investments can be expensive and wasteful, especially if not appropriately linked to the emerging economic

structure of the region. As a region begins to develop successfully, regional incentives may be wasteful if resources are spent compensating each firm individually for regional infrastructural deficits which impact negatively on firms. There is, therefore, an inherent attraction in combining both regional investments and regional incentives in an overall plan, the process required by the European Commission for regions seeking resources under the structural funds programmes.

Despite the choices open to governments, Bachtler (1995) argues that there has been increasingly a 'homogenization of national regional policies' over the past two decades, with broadly similar policy instruments in use across regions, despite differences in the nature of their problems.[4] Furthermore, he notes that regional policy is viewed increasingly in terms of the expectation that it will contribute to national competitiveness and growth, rather than simply having equity or redistribution goals.

The homogenization noted is perhaps not surprising as the forms of regional aid given by member states are increasingly influenced by the copy-cat behaviour of policy-makers, who monitor each other's regional policies in terms of their success in attracting mobile projects, and by the Commission's strong preference for investment aid linked to the generation of new activities. Regional aid in the form of 'once off' investment grants is preferred as 'operating aid' is not permitted under Article 92(3)(c) even when such 'once off' grants may not be appropriate to a particular circumstance or the evolution of a particular sector. For example, the current use by the Irish government of equity participation (in the context of an overall support package) may be prohibited if it is deemed as operating aid, despite its apparent success.[5]

Despite increased homogenization, regional incentives still vary across EU member states. Table 5.1 provides a summary of some key features of regional policies in a number of EU countries. The incentives tend to have *broad targeting* – for example, increasing employment or investment in manufacturing (and increasingly internationally traded services) – and typically come in the form of capital- and labour-related subsidies. Column 1 shows that capital grants are the dominant form of assistance, with Ireland and the United Kingdom being unique in their use of both types of regional incentives (see Column 1). The basis on which they are applied may be *automatic/fixed* (the same incentives available to each activity irrespective of its specific characteristics) or *discretionary/flexible* (the scale and structure of incentives offered depending on the specific characteristics of the activity). Column 1 shows that most systems are now *discretionary/flexible*, reflecting the belief in government agencies that it is possible to distinguish intra-marginal from marginal projects, and allowing a relatively more enterprise-centred approach, while potentially introducing some uncertainty into the policy process.

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4 He cites as examples the increasing proactive roles of central government, the increased focus on regional incentives rather than regional investment and the focus on capital investment and employment creation.

5 Use of equity participation has many benefits, including: ability to monitor the enterprise, rationing of state resources and obtaining a greater return to the state's support for successful ventures, placing natural limits on requests for aid, etc.

Table 5.1 Summary of regional policies in selected European countries

	Column 1 Financial support		*Column 2 Project-type coverage*	*Column 3 Max. rates of capital grant awarded by area*[6]		*Column 4 Grant spend as % of GDP (1996)*	*Column 5 Grant spend as p.c. (ECU 1996 prices)*
	CG[3]	*LRS*[3]	*RR–M*[4]	*Max. capital grant awarded (%)*	*Max. EC aid ceiling (%)*		
Denmark[1]	Y[2]	N[2]	N	Pri: 25	25 nge		
	D[2]			Ord: 25	16.9 nge	0.008	7.0
Germany	Y	N	IG[5] N	A: 35	35 gross	0.2	106.9
	D		ERP[5] Y	B: 28	28 gross		
				C: 18	18/15/12 gross		
Ireland	Y	Y	N	Des: 60	75/71.4 nge	1.062	179.1
	D			Non-Des: 45	57.3 nge		
Italy	Y	N	Y	Mez:50/40 nge	50/40 nge	0.355	137.1
	D			Mol: 40/30 nge	35 nge		
				Abr: 30/25 nge	25 nge		
				C-N: 20/15/10 nge	10 nge		
Netherlands	Y	N	Y	Fle: n.a	25 gross	0.015	17.9
	A[2]/D			IPR-N: 20/15	20 gross		
				IPR-T: 15	15 gross		
Portugal	Y	N	Y	70	75 gross	0.118	31.9
	A/D						
United	Y	Y	Y	NI: 50	47.4 nge	0.067	GB 30.9
Kingdom	D			Dev.Ar: 30nge	30 nge		NI 60.7
				Int. Ar: 20 nge	20 nge		

1) The regional development grant and municipality soft loan were abolished as from 1 January 1991, together with the rest of the Danish regional incentive package. Ad hoc support may be available to potential inward investment projects that locate in the former Development Areas.
2) Y: Yes, N: No, A/D: incentives with both automatic and discretionary components; D: administrative discretion in awards.
3) CG: capital grant; IRS: interest–related subsidy.
4) RR: rationalization and reorganization; M: modernization.
5) IG: Investment grant; ERP: ERP regional soft loan.
6) Pri: Priority Regions; Ord: Ordinary regions; A: Problem Area A; B: Problem Area B; C: Problem Area C; Des: Designated Areas; Non–Des: Non–Designated Areas; Mez: Mezzogiorno; Mol: Molise; Abr: Abruzzi; C-N: Centre-North; Fle: Flevoland; IPR-N: IPR-northern area; IPR-T: IPR–transitional; NI: Northern Ireland; Dev. Ar: Development Areas; Int. Ar: Intermediate Areas; nge: net grant equivalent after tax.

* Figures are for 1990.

Source: Yuill et al. (1998)

A key issue for most policy operations is whether, in addition to support given in all countries for new and expanding companies, aid is also available to support rationalization and modernization in existing firms. Column 2 indicates that most countries use some resources to build on existing regional activities (which may involve an element of 'shoring up') rather than encourage the generation of new projects in developing regions. While all countries include infrastructure, building and plant, some countries (Ireland, Italy and the United Kingdom) also give financial support for industrial land.

The active use of discretionary grant systems may be expected to result in average grant rates being below the grant rate maxima set. Evidence for this is found in Column 3, which shows the considerable gap between the maximum capital grant award and the maximum European Commission ceiling (measured in terms of net grant equivalent (nge) in certain areas. Finally, Columns 4 and 5 show the variation in the patterns of expenditure across different regions, as

measured in terms of investment and employment. These measures indicate clearly that, in terms of total spend, regional incentives in Ireland have been very significant and much higher than in Portugal, the other cohesion country included in the table. Italy ranks second to Ireland in terms of expenditures to GDP and total population – in terms of the relevant regional population and income, the expenditure ratios would be much larger.

In the remainder of this chapter we focus on two of these economies: first, we look at Italy, as a large core-EU country which has operated significant regional policies for five decades in attempting to counteract the disparities between the wealthier North and the poorer South (the Mezzogiorno). Many different approaches have been adopted over the decades with limited success. Secondly, we look at Ireland, as a small cohesion country, whose uniquely successful record as a peripheral economy has renewed interest in the potential ability of state intervention at regional level to influence the pattern and pace of development. By contrast with Italy, Ireland's approach has been characterized by policy consistency over the past four decades.

5.3 Italy: The Mezzogiorno

5.3.1 The evolution of policy since the 1950s

Regional development policy in Italy has gone through many different phases since its inception in the early 1950s, in an attempt – not always successful – to learn from experience and adapt to a changing environment.

Phase I: Regional infrastructural investment policies

The first phase, during the 1950s, stressed the need to endow the Mezzogiorno with an adequate stock of infrastructure. In the view prevailing at that time, the South, compared to the North, was penalized by the lack of positive externalities, much of it linked to the lack of productive infrastructures.

Phase II: Regional investment incentives

Views changed substantively in the early 1960s and the emphasis shifted toward direct promotion of the industrialization process. Incidentally, a similar shift had occurred in mainstream development economics and in the operations of the World Bank. In 1957 and in 1961 two new laws were passed granting generous fiscal and financial incentives to firms investing in the South. The underlying philosophy was simple. Infrastructure was a necessary, but not a sufficient condition for industrial development. Industrial location also depended on the presence of a network of firms, specialized suppliers and a pool of skilled labour. The creation of new infrastructure had, therefore, to be supplemented by direct incentives for industries so as to build an initial industrial base that would generate sufficient externalities and trigger a process of self-sustaining industrial growth.

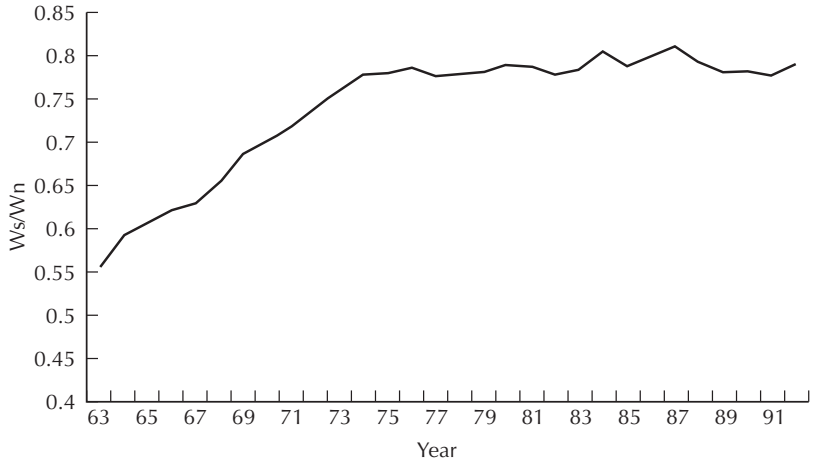
Investment responded rapidly to the new set of incentives. The share of manufacturing investment located in the South rose from 19% in 1961–2 to 30.2% in 1964–5. The impact on employment was more limited, since much of the new industrial undertakings were capital-intensive – largely reflecting the bias in the structure of fiscal and financial incentives. Moreover, the completion of major

infrastructural projects and the consequent fall in trade costs meant that labour-intensive activities in the South were subject to increasing competition from Northern firms (Graziani, 1978). Finally, buoyant growth in the North meant a rapid growth in employment opportunities there, and led to large migration flows from the Mezzogiorno. The outcome was rapid productivity growth in the South, fostered both by large migration and capital-intensive investment, and income convergence with respect to the North.

Phase III: Public enterprise investments and wage-subsidy policies

The third phase of regional development policy began in the late 1960s. It was marked by the greatly enhanced role of public enterprises and by the reliance on wage subsidies as a new instrument of industrial policy. The turning point came in 1968 when, under pressure from trade unions, a national wage agreement was signed setting a common wage throughout the country. This was a crucial step in the process of wage convergence between the various regions of Italy (see Figure 5.2). The union push toward wage equality was allegedly motivated by equity considerations. The desire to reduce migration toward the North, however, may also have played a role in the trade union strategy.[6] Contrary to initial fears, the increase in the Mezzogiorno relative wage did not affect the income convergence process with the North, notwithstanding the fact that regional wage equalization came at a time of major national wage push. The Southern Italian economy continued to grow faster than in the North. In only three years, from 1970 to 1973, per capita GNP in the South gained two percentage points relative to the national average.

Figure 5.2 The shrinking differential: relative labour costs between Southern and Northern Italy



6 With capital and/or labour mobility, unions have an incentive to set the wage in the backward region to a higher level than otherwise, to prevent workers in the South from competing with workers in the North through lower wage. For a formal model see Faini (1999). For an application to the case of Germany see Akerlof et al. (1991).

Two factors help explain the positive performance of the Mezzogiorno economy in spite of the wage shock. First, part of the increase in labour costs was absorbed by the national budget through a reduction of social security contributions for firms located in Southern Italy. Second, this period was characterized by a major investment push in the South led by public enterprises. Between 1971 and 1973, the share of manufacturing investment located in the South rose to almost 40%, against 27% in the period 1968–70. Public enterprises took the lead in the process, doubling their investment expenditures in the South in only two years and accounting for 54% of Mezzogiorno industrial investment. This evolution was hailed as laying the foundations for a 'new model of development'. While private enterprises were plagued by declining profitability and had still not recovered from several rounds of national wage increase in the late 1960s and early 1970s, public enterprises were still able to boost their investment spending and act as a vehicle to address the problems of the laggard regions of the Mezzogiorno.

With hindsight, it is easy to say that the boom in the Mezzogiorno economy was not sustainable. Two main factors of vulnerability can be singled out. First, the output expansion in the Mezzogiorno was primarily due to public enterprises. Their financial and industrial structure showed visible signs of deterioration, however. Whereas, private firms were increasingly reluctant to increase their workforce due to higher wage costs and increasing rigidities in the use of labour, employment in public enterprises increased by 49% in only four years. More than a third of this increase came from rescuing ailing private enterprises. Moreover, the pattern of public enterprise expansion was quite unbalanced, with 60% of new investment in the steel-making sector. Second, the 1968 wage agreement had introduced a major rigidity in the Mezzogiorno economy by tightly linking its wages to the cost of labour in Northern Italy. The South was, therefore, deprived of the necessary wage flexibility to respond to any eventual idiosyncratic shock.

That shock came sooner than had been expected. In 1974, the first oil shock struck the Mezzogiorno economy. It did not take long for the economic conditions in the South to suffer a major deterioration. Public enterprises, burdened by overmanning and over-exposed in the energy-intensive sectors, were particularly vulnerable to the rise in oil prices. Wages could not be counted upon to alleviate the shock, having been linked to those in the North, despite the fact that the rise in oil prices had a substantially more disruptive impact in the Mezzogiorno. Similarly, adjustment could not take place through migration, as falling growth in the North, as well as in most of Europe, meant a rapidly shrinking demand for migrant workers. Regional wage equalization had also reduced people's willingness to migrate.

Phase IV: Promotion of SMEs

The policy reaction came along two main lines, marking the fourth phase in the history of post-war regional policy. First, a new law was enacted to facilitate restructuring in the industrial sector following the change in the constellation of factor prices. Second, the emphasis on large enterprises and capital-intensive investments was all but abandoned. The new policy stressed the role of small and medium-sized enterprises as well as of new start-ups. To a large extent, this policy shift reflected an attempt to emulate the experience of the regions in the North-East and the centre of Italy, which were adapting remarkably well to the aftermath of the oil shocks thanks to a network of small and medium-sized firms, and were enjoying rapid growth. To this end, the set of fiscal and financial

incentives was overhauled, to favor small initiatives. The new policy was also intended to create industrial parks to favor the concentration in a single location of small enterprises, allow the exploitation of agglomeration economies and optimize on the use of basic infrastructures.

Unfortunately, this policy shift came too late to be effective. Starting in the mid-1970s, the gap between Northern and Southern Italian income began to grow again. The convergence process had come to a halt and was even being reversed. Many factors combined to discourage the growth of new economic initiatives in the South. High wages and stifling employment protection regulations were instrumental in discouraging entrepreneurship and fostering a culture that shunned risk-taking activities and privileged wage employment. The increasing tax burden, the rapid decay of social and productive infrastructures, the rise in crime and the inadequate supply of non-traded inputs to firms combined to discourage entrepreneurial initiatives in small and medium-sized enterprises. Contrary to the optimistic expectation of some observers, the pattern of growth in the North-East and the centre of Italy could not be replicated in the Mezzogiorno.

Phase V: Income supports

The failure of regional policy to achieve its stated objectives of fostering convergence between Northern and Southern Italy forced policy-makers to come to terms with the new situation. The political consensus that had supported the effort to foster economic growth in the South was waning. During the 1980s, regional policy had all but relinquished its main ambitions and limited itself to provide income support through fiscal transfers, mostly under the guise of pension payments and public employment, to the regions of the Mezzogiorno. This pattern was, however, not sustainable. Budgetary restraint and a growing tax burden provoked increasing opposition in the North to continuing income transfers to the South.

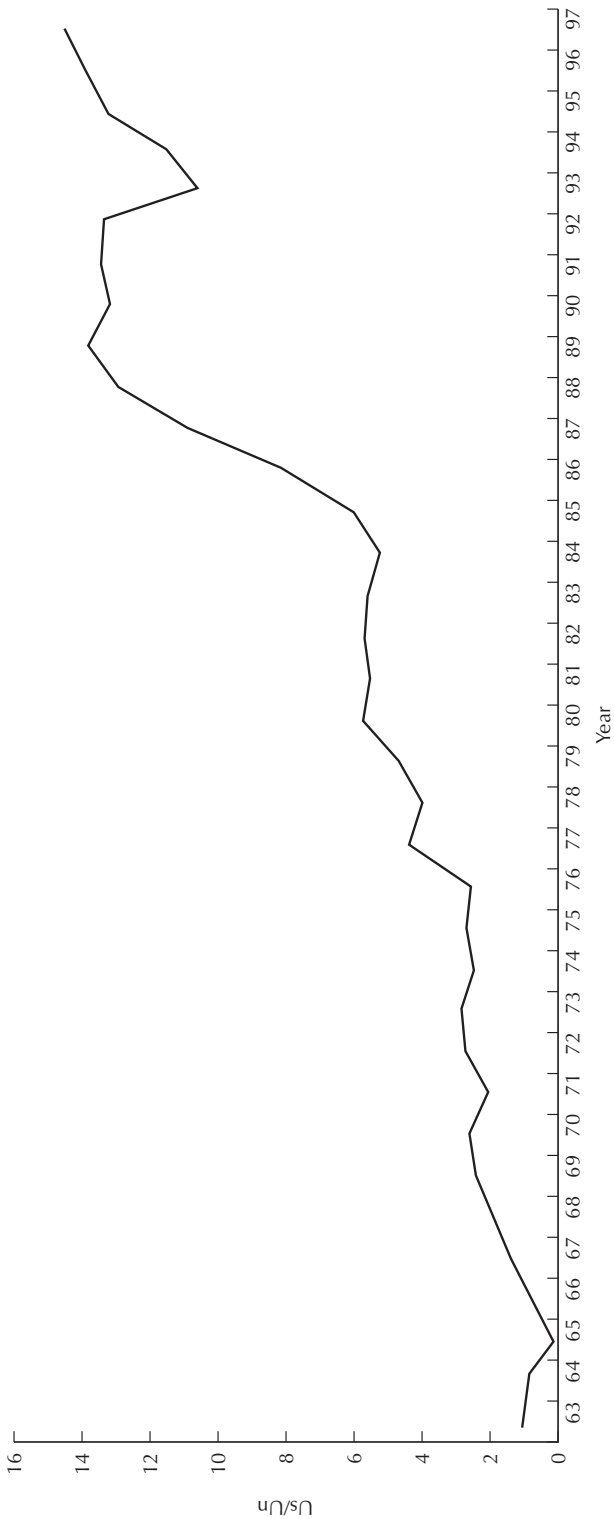
Phase VI: Dismantling regional policy

The fiscal non-sustainability of the income support policy led to the beginning of the sixth phase of the regional policy in the Mezzogiorno, namely its complete dismantling. A further blow to regional policy came when the European Commission ruled that wage subsidies to firms in the South, as 'operating aids', were distorting the pattern of competition and had to be phased out. The elimination of wage subsidies in the 1990s meant a further deterioration in the competitiveness of the Southern Italian economy, coming moreover at a time where its economy was hit hard by the recession in Europe and the real depreciation in Italy. The unemployment rate continued to climb reaching 22.2% in 1997. The differential in unemployment between the North and the South had risen from 2.5% in 1970 to 14.6% in 1997 – the most visible indicator of the regional policy failure (see Figure 5.3). Overall, per capita income in the South lost further ground with respect to the North, falling from 57.8% % in 1980 to 54.9% in 1996.

5.3.2 Why did the policies fail?

Overall, economic growth in the Mezzogiorno presents many unresolved puzzles. The main one is why the economy failed to converge with the rest of the country, despite the massive inflow of capital for several decades. Regional policy has at different times emphasized the provision of productive and social infra-

Figure 5.3 The unemployment gap, Southern versus Northern Italy



structures, the mobility of labour toward the North, the process of industrialization through the movement of firms toward the South, and the creation of a network of small and public enterprises in adequately equipped industrial parks. None of these strategies seems to have worked, perhaps because they were tried too late or for too short a period of time. The Mezzogiorno did not only benefit from massive capital and income transfers. It also enjoyed the benefits of a favorable policy environment. Contrary to Ireland, the Mezzogiorno did not face the distortions of trade protection policies in the 1950s, but could enjoy the benefits brought by the increasingly liberal trade regime attendant on the process of European integration. Where the Mezzogiorno suffered was from having to adopt some institutions, particularly in the labour market, that were perhaps suited for the North but not for an emerging economy.

Regional wage equality did not mean only an increase in production costs in the South. More crucially, it implied a binding rigidity that prevented the economy from responding to a number of idiosyncratic shocks. The Southern economy was hit hard by the two oil shocks because of the disproportionate weight of energy-intensive sectors. The Northern economy was able to react and growth resumed again after 1984.

Paradoxically, the economic recovery in the North may even have hurt the South. First, the Mezzogiorno economy was left behind in the midst of a yet unaccomplished process of industrial restructuring. Second, the economic recovery in the North prompted an increase in real wages that took a further toll on employment in the South. While unemployment started falling in the North after 1985, it picked up in the South and kept rising until the early 1990s. The 1992 devaluation was a new major shock to the Mezzogiorno economy. With an undeveloped export sector, the real depreciation did not provide a boost to regional demand and output. Its effects were more akin to a substantial deterioration in the terms of trade, and would have required a compensating adjustment in the relative wage of the Mezzogiorno. Without this, the regional unemployment differential continued its climb from 11.6% in 1994 to 16.2% in early 1999.

Wage rigidities were an important, but not the unique factor in accounting for the disappointing economic performace of the Mezzogiorno economy. Human capital of the South, which we identified in Chapter 3 as one of the key ingredients in making a region attractive to external investment, also played a role. A recent study by Coppola et al. (1998) shows that human capital has been growing at a faster rate in the Mezzogiorno than in Northern Italy. This has not been enough to fill the initial gap, however. Table 5.2 illustrates, showing years of schooling in Northern and Southern Italy over three decades from 1961. The Mezzogiorno has, therefore, suffered from a combination of factors, namely a low initial endowment of human capital, the increase in the skill premium (which has benefited the skill-abundant regions in the North) and the slowdown in the convergence process of human capital after 1975.

This comparison relates only to the rest of Italy, but Italy's overall investments in education and human capital have not been high by the standards of the rest of the EU. Table 5.3 compares overall expenditure on education for 1960 and 1995 by 13 EU countries (excluding Luxembourg and Germany – for the latter comparable data could not be obtained). Several features stand out from the table. First of all, even the lowest spending countries in 1995 spent proportionately more than most of the countries had done in 1960. Second, by 1995 there was a striking gap between the three Scandinavian countries and all others.

Table 5.2 Average years of schooling in Northern and Southern Italy, 1961–91

	1961	*1971*	*1981*	*1991*
North	4.05	4.94	6.2	7.48
South	2.85	3.79	5.26	6.53
North/South	1.42	1.3	1.18	1.15

Source: Coppola et al. (1998)

Table 5.3 GDP share of education expenditure, ranking of 13 EU countries

	1960 (%)		*1995 (%)*
United Kingdom	4.9	Denmark	8.3
Finland	4.7	Sweden	8.2
Belgium	4.6	Finland	7.6
Netherlands	4.5	Ireland	6.3
Sweden	4.3	France	6.1
Denmark	3.2	Belgium	5.7
Ireland	3.1	Austria	5.6
Italy	2.9	Portugal	5.4
Austria	2.9	United Kingdom	5.3
France	2.4	Netherlands	5.2
Portugal	1.8	Spain	5.0
Greece	1.5	Italy	4.7
Spain	1.1	Greece	3.7

Notes
1) UK figures for 1965, 1960 unavailable.
2) Belgium figures for 1994.
3) Germany figures unavailable for all years.

Source: UNESCO (via University of Durham r-cade database).

Third, Italy in 1965 lay eighth out of 13 countries, but by 1995 had slipped to twelfth position. Finally, and remarkably, the EU country that by 1995 spent a higher percentage of its GDP on education compared to all others except the Scandinavian trio was a cohesion country, namely Ireland. The story of Ireland's economic catch-up is the subject to which we will shortly turn.

5.3.3 Future prospects

Italy's entry as a founding member into EMU may mark a new phase, where regional policy is again at the forefront. The new policy regime emphasizes a number of reforms in labour and credit markets. While lack of competition in financial markets has indeed played a role in slowing down growth in the Mezzogiorno economy (Galli and Onado, 1990), the landscape of the financial markets in the South has changed markedly in recent years. In particular, the process of banking consolidation in the last few years has brought new external

players to the banking sector in the South. Similarly, labour market reforms have led to the liberalization of temporary and part-time labour contracts, with the beneficial effects felt relatively more in the South. The selection of restricted areas (through '*i contratti d'area*' and '*i patti territoriali*') is designed to provide (some) firms with much needed flexibility in labour use and wages and also to favour industrial concentration and increase effectiveness in the provision of new infrastructures. The present policy is also intended to address the issue of decaying social and productive infrastructures, by relying to a larger extent than previously done on the expertise of local government bodies. Whether as a whole this approach will work is too early to tell. The lack of a social consensus for a general flexibility in wages throughout the Mezzogiorno, rather than just in a number of selected areas,[7] inevitably casts a negative shadow on its prospects for success.

5.4 Ireland

5.4.1 Economic performance

Ireland's recent economic performance is exceptional in EU and even US terms.[8] Between 1987 and 1997 Irish GNP grew by almost 70%, compared to an EU-15 growth rate of 24% and a US growth rate of 27%. Since the mid-1980s, the extent of 'catch up' with average European GDP per capita is such that the whole country taken as a region will no longer qualify for Objective 1 region in the next round (2000–2004) of structural funds. The Eastern region, with current per capita GDP of around 95% of the EU average, accounts for 60% of the total population. The Western region, accounting for the remaining 40%, has a per capita GDP of around 72% (less than the 75% cut-off) and thus retains Objective 1 status. The Eastern region will qualify as an Objective 1 region 'in transition' – a concept which recognizes that the rapid rates of growth which have led to the catch up overstate the true level of economic development (basic infrastructure, and so on) in the Eastern region.

How did Ireland achieve its relative success? In the next section we consider Ireland's approach to regional policy in terms of its objectives, its approach to policy, its policy instruments and its success.

5.4.2 Industrial and regional policy objectives

Perhaps of all EU countries, the Republic of Ireland has been most pro-active in fostering economic development using regional policy tools. For almost 40 years, its economic development strategy has focused on employment creation and has been characterized by actively promoting:

1. The development of a modern export-led-growth manufacturing sector (and latterly internationally traded services) through financial and fiscal support.
2. New greenfield investment by foreign companies in the manufacturing and internationally-traded service sectors, producing output specifically for export markets.

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7 Furthermore, the wage flexibility envisaged in the 'contratti d'area' and in the 'patti territoriali' is to expire after a short period of time.

8 See Barry (1999) and Gray (1997) for accounts of this performance.

3. The establishment of up-stream linkages between foreign and indigenous companies, leading to the creation of industrial clusters in certain sub-sectors of manufacturing and internationally traded services.[9]
4. A pattern of economic development which brings private sector investment to the lesser developed (Western) areas of the country.

The development strategy was introduced gradually at the end of the 1950s when the Irish-owned manufacturing sector was orientated towards the domestic market (heavily protected by tariffs and quotas) and the only significant foreign-owned projects were pre-independence investments. The pro-FDI strategy, which followed on from a period when foreign direct investment (FDI) was heavily controlled, arose from widespread recognition of the real failure of the protectionist strategy, which lasted from the early 1930s to the mid-1960s. Key to the strategy adopted around 1960 was that the economy should move to free trade and that foreign investment should play a key role in this process.

Effectively, Ireland's strategy has been driven by the need to create employment, in order to reduce historically high rates of unemployment and net out-migration from the country overall and particularly from the more peripheral areas. It has centred on using industrial incentives to promote export-led growth, driven by FDI firms (in manufacturing, and more recently, internationally traded services) locating a production base in Ireland from which to serve the European market. Throughout the period regional policy has essentially been centralized and developed as an integral part of industrial development policy, with industrial dispersal encouraged where it is consistent with the financial viability of the enterprise.[10] With some rare exceptions (for example, limited decentralization of government departments), the regional development strategy adopted in Ireland has centred on bringing mobile manufacturing and internationally traded services to the regions, with regional infrastructural investments being linked to the developing economic base in the different areas of the country. Examples of these are the location of regional technical colleges to build up human capital in the regions and the development of Cork harbour in tandem with the location of a cluster of pharmaceutical and chemical firms in the 1970s.

This general strategy of using investment incentives to promote market-led activities and following with major infrastructural investments has operated consistently since the early 1960s. In the past decade, EU regional policy resources have supplemented funds both for regional infrastructures (roads, bridges, ports) and for regional incentives, at a time when the fiscal resources of the national government were highly constrained. EU policy has not had a strong impact on regional incentives, because of Ireland's designation as an Objective 1/Article 92(3)(a) region. Consequently virtually all state aids to industry in Ireland have

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9 In this approach the policy-makers had implicitly anticipated intra-sectoral Hirschman linkages for indigenous and foreign firms of the type formalized in Markusen and Venables (1999)

10 Historically, there have been two exceptions to this centralization. The Midwest region has had much greater regional autonomy (with its own development agency) as has the Gaeltacht (Irish speaking) area. In terms of the issue of regional incentives, however, their approaches have essentially followed that used throughout Ireland by the centralized agencies. In very recent times, there has been some further regional decentralization under the EU structural funds programmes, with certain very limited funds being made available to local enterprise boards to support local initiatives.

been given in the form of regional rather than horizontal aid. EU aid limits for Ireland in terms of net grant equivalent are currently 71% (75% Gaeltacht (Gaelic-speaking) area, which accounts for less than 1% of the total population). National aid limits are set at 60% for the less developed (*designated*) areas, which account for 28% of the population, and 60% for the more developed areas. In practice, actual aid levels are typically in the 20–30% range.

5.4.3 The policy approach

While projects in all manufacturing and internationally tradable service sectors are in principle eligible for support, policy has operated in with increasing discretion, with the level of support to projects varying according to their firm-specific characteristics, sector and location. Since it has been intended, and expected, that FDI would lead the process of modernization in the Irish manufacturing sector, investments were sought in new sectors with global growth potential and where FDI opportunities were strong. In the early 1970s the electronics and pharmaceutical sectors were identified as providing the most promising opportunities for foreign investment projects for Ireland. These were sectors exhibiting high growth rates and for which transportation costs were relatively low – arguably the ideal projects for a peripheral, island location in Europe (See Görg and Ruane, 2000). Furthermore, the United States was identified as the most likely market source for such projects and Ireland was actively promoted as an export base for United States companies within the EU. As the policy developed, the deliberate creation of industrial clusters (in effect, the generation of agglomeration economies) especially in electronics and pharmaceuticals became central to policy, with both strong links among the FDI companies and with out-sourcing linkages to domestic firms in these sectors. A specific proximate target is to have the Irish operation the sole or key production/distribution centre for the extra-EU companies in the EU, ideally involving headquarter and R&D functions, in order to increase the strategic significance of the Irish plant in the company's operations world-wide.

The process of project selection has evolved naturally from the identification of key sectors. Within these high growth sectors, agency personnel initiate contacts with the companies, for whom investment in Ireland could be a credible strategy, and seek to persuade them to visit Ireland in the context of a specific project proposal. Implicit in the approach adopted was the O-L-I type of framework subsequently developed by Dunning (see Chapter 3 above). The discretionary financial support system (see below) has led to a bargaining process between state-agency executives and potential investors subject to maximum limits. Information on the amount of financial support given to companies is in the public domain, so that transparency is assured about the final out-turn of the negotiations though not the process of arriving at it.

With increasing pro-activity and selectivity, the role of institutions in the process has become greater. (The institutional structures have changed several times in the past decade; at present *IDA Ireland* is the agency that deals with foreign-owned industry and *Enterprise Ireland* deals with indigenous industry.) In the case of indigenous companies, institutional supports have increasingly taken the form of assisting the establishment of SMEs and building the capability of larger medium-sized firms through the provision of information, support for networks, and so on. Often the provision of 'soft' financial supports is associated

with this. In the case of foreign firms, the institutional approach has been to facilitate the establishment of the company in Ireland, by minimising bureaucratic costs, and by providing information and contacts.[11] The financial support system (see below) results in a continuing relationship between the foreign-owned companies and *IDA Ireland*, which agency personnel use to promote the development of clusters and agglomerations. This is achieved by having potential investors visit companies already operating plants in the same sector in Ireland. Incumbent plants facilitate these visits, as they expect to benefit from the further agglomeration; and IDA Ireland operates informal mechanisms to ensure that a newly-establishing plant does not unduly poach labour from any single plant, thereby avoiding any existing firm suffering costs as the agglomeration develops. In addition, to foster linkages, information on sub-supply is provided to both foreign-owned and indigenous firms, and potential for sub-supply linkages contributes to favourable treatment for financial supports.

5.4.4 Policy instruments

The pro-active development strategy adopted in Ireland has comprised *fiscal incentives* and *financial incentives*.

Fiscal incentives

The main industrial incentive for Irish and foreign manufacturing companies (and since the late 1980s for internationally traded service companies) is a highly favourable regime of corporate taxation. This comes as a preferential tax rate of 10% on all corporate profits, compared with a standard rate (which has reduced from 50% to 28% over the past decade). While this incentive does not constitute a state aid in terms of EU competition policy, its continued operation is subject to agreement with the European Commission. Thus, it is not factored into any of the calculations of state aids (as set out in Figure 5.1 and Table 5.1) in determining whether assistance to companies (foreign or domestic) in Ireland falls within the allowed maxima. Indeed, its introduction in 1980 resulted from negotiations with the Commission, which involved the termination of an existing 15–year tax holiday on profits related to export sales only; the export bias in this tax incentive was in breach of the Treaty of Rome. A further re-negotiation in 1997–8 led to the agreement to introduce a standard rate of tax of 12.5% for *all* corporate income from 2003, with the 10% rate 'grand-parented' up to 2010 for all companies already in operation. (Although the 10% tax rate was trade neutral, it was not neutral as between traded and non-traded goods and services.) While not a state aid, the low corporate tax rate is widely recognized as a crucial instrument in attracting mobile FDI projects to Ireland, and recognition of its attractiveness to FDI companies is evident in recent reductions in corporate tax rates in the United Kingdom and plans for reductions in Germany.[12] In contrast with many other EU countries, it is operated in a totally automatic and transparent manner.

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11 In effect *IDA Ireland* provides a 'one-stop-shop' for foreign companies, whereby all aspects of establishing in Ireland are handled in the agency. Legislation in August 1999 provides additional powers to the relevant ministry to ensure that planning delays as minimized for strategic projects seeking to locate in Ireland.

12 *IDA Ireland* personnel suggest that tax incentives are particularly popular with US firms. A Deloitte & Touche Tohmatsu survey (Deloitte & Touche, 1996) found that almost 60% of foreign companies interviewed found the 10% rate to have been very influential in their location choice. See also Hannigan (1998).

Financial incentives

Financial incentives to support investment come primarily in the form of cash grants, which are non-repayable as long as firms meet the initial targets agreed by them and the state agencies. In the 1960s and early 1970s these operated as *automatic* investment grants, paid as a fixed percentage of the cost of the new plant and machinery, and available to higher maxima in the *designated areas* – reflecting regional policy objectives. Over the past two decades, the system has become much more *discretionary*. First, the range of financial aids has widened to meet the specific needs identified by the project promoters. In addition to investment grants, the policy package available to foreign and domestic firms now includes training grants, subsidized rents, low-interest loans, technology-transfer supports, R&D grants, etc. (see Yuill et al., 1997). Second, the scale of actual grants given varies widely, based on a fairly formal process of project evaluation, which takes account of factors such as employment potential (in terms of both job numbers and skill mix), location of the projects within Ireland, the profits tax potential and the strategic potential of a particular project to Ireland's development process. Thus, a key investment project, such as Intel, might expect to receive a higher rate of grant than a routine project in the electronics sector (see Honohan, 1998). The allowable maxima are set in terms of 'grant per sustainable job equivalent' as well as 'grant per unit investment' to ensure factor neutrality. Thus even if the grant is paid ostensibly towards capital, the grant may have to be repaid should the associated job targets not be met in the agreed time-frame, thereby ensuring that the grant per job maximum figure is not violated. For this reason, the agencies monitor all supported investments.

Balancing discretion and certainty

The key elements of the Irish system have been its discretionary and project-centred approach, leading to a policy culture that focuses on the requirements/demands of the firms, and is thus popular with investors, as it is perceived as flexible (see Box 5.2). The potential uncertainty associated with discretionary policy has been minimized through exceptional policy continuity over the decades, facilitated by the widespread consensus nationally on the merits of this development strategy. Specifically, fiscal certainty has been achieved by providing the investing firms with a long and certain time horizon (for example, 10–15 years) during which there was a commitment that the corporate tax policy would not change, irrespective of macro cyclical fluctuations. Financial uncertainty has been minimized by having very rare changes in grant rates maxima and by the payment of the cash grant up-front, with repayment required only if the company fails to meet its agreed employment objectives.[13]

5.4.5 Have Irish policy objectives been met?

Ireland set itself a very precise set of proximate policy objectives as a means to generating the ultimate policy objective of increased employment. What success has it had in generating employment, using this approach?

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13 The government's money is secured by tying the grant payment to the fixed assets lest the project fail. Recent examples of major grant repayments arose with the relocation of a Seagate plant to Hungary and part of Fruit of the Loom's production activities to Morocco.

1. *Export-led growth in the Irish manufacturing sector (and latterly internationally traded services)*

Undoubtedly Ireland has succeeded in developing a rapidly-growing, export-based manufacturing sector. In the 1970s and 1980s, annual average growth rates in industrial production (excluding construction) in Ireland were 4.5% and 6.3% respectively, compared with EU-11 averages of 3.0% and 1.7% respectively. Since 1992, growth rates in industrial production have ranged from 5.6% to 15.3%, with the corresponding range for EU-11 of –1.1% to 5.2% respectively. The manufacturing export-output ratio is high and continues to grow. In 1996, exports represented 48% of the manufacturing output for indigenous firms and 91% for foreign-owned firms; the corresponding figures for 1991 were 37% and 87% respectively.

2. *New greenfield investment by foreign companies in export-oriented manufacturing and internationally traded sectors*

The success in winning FDI companies is reflected both in their importance in the manufacturing sector overall and in its changing sectoral composition. Foreign companies accounted for 77% and 47% of output and employment respectively in manufacturing in 1996, compared with 70% and 44% in 1991. Employment in foreign-owned and indigenous firms increased by some 33% and 8% respectively between 1988 and 1998, resulting in a net increase in manufacturing employment of 19%. This contributed to the overall growth in total employment in the same period of 23%, in a period when employment overall in the EU-15 grew by only 3 % and in the US by 17%.

The share of total net output generated by foreign-owned companies varies sectorally (from less than 15% in non-metallic minerals to around 90% in the targeted *high-tech* sectors), reflecting differences in the degree of international mobility of investments across sectors and the selective approach to policy implementation. Because the sectoral composition of FDI overall is relatively more concentrated in high-tech sectors, these sectors have grown as the FDI component in manufacturing has increased. Both employment and output figures confirm the importance of the high-tech sectors, with three out of every four jobs in the chemical, office machinery and electrical machinery sectors accruing to foreign-owned companies.[14]

Employment in foreign firms in the electronics sector has increased by over 70% between 1988 and 1998, while employment in Irish-owned firms increased by over 37%; employment growth patterns in the chemicals sector were broadly similar. As would be expected, the export ratios of foreign-owned firms in the electronics and chemical sectors are high (94% and 98% respectively), while the corresponding ratios for indigenous companies are lower (60% and 47%), reflecting their greater dependence on the domestic market. The positive net changes in employment hide a considerable amount of job creation and destruction, as discussed recently by Strobl et al. (1998) across all sectors including the high-tech sectors targeted by industrial policy. This

14 The foreign share of net output by sector exceeds the foreign share of employment in all but one sector. These differences could be due to (i) differences in sub-sectoral activities, (ii) differences in factor intensities in the same sectoral activity, resulting in foreign firms being less labour intensive than indigenous firms, or (iii) transfer pricing. Because of the latter, employment shares, rather than net output shares, are a preferred indicator.

appears to reflect several factors including intra-sectoral restructuring, downsizing of employment in plants (due to changing technology and outsourcing) and the natural dynamics of firm turnover. This suggests that if the present contribution of FDI firms to output and employment is to be maintained, Ireland will probably have to maintain a policy-active stance.

The significance of MNC investment for the Irish economy overall is very evident in the relationship between Ireland's GNP and GDP. Since the early 1980s, the gap between GNP and GDP has been rising steadily and currently the ratio stands at 85%, down from 90% in 1990. For this reason, Ireland always argues that GNP rather than GDP is the appropriate measure to be used in its case in making cross-country comparisons, as the latter overstates the real welfare of the economy. The scale of the gap may also result in part from the incentive for transfer pricing created by the low corporate tax rate.

3. *Establishment of up-stream linkages between foreign and indigenous companies and creation of industrial clusters in pharmaceuticals and electronics*

Over the past decade, the local sourcing of raw materials by foreign companies in non-food manufacturing has grown more than three-fold in real terms; approximately 20% of total raw materials are now sourced in Ireland, compared with 15% in 1988. Available data make it impossible, however, to identify whether this increased up-stream local sourcing reflects Hirschman-type development linkages (i.e., between downstream FDI firms and upstream indigenous firms) or reflects the development of industrial agglomerations/clusters based on vertical relationships between FDI companies. Given the scale of multinational presence in many sectors in Ireland, it is to be expected that at least some are MNC linkages. Econometric evidence, using firm-level data, suggests that firms based in Ireland increase the extent of outsourcing from companies based in Ireland over time, and that the presence of foreign firms has had a positive effect on indigenous firm entry-levels. (See Görg and Ruane, 1999; and Görg and Strobl, 1999)

While linkages and clusters have been promoted since the 1970s, it is only in the late 1980s and early 1990s that the establishment of clusters in electronics and pharmaceuticals has become significant. This points to the long lead-time required to realise the benefits of promoting an agglomeration strategy, as well as to the inappropriateness of export-biased tax holiday operating until the 1980s. For example, *IDA Ireland* had targeted recent high-profile investors in Ireland, such as, Intel, Hewlett Packard, Gateway, Dell, Compaq and IBM, for many years prior to their establishing plants in Ireland. The multinational clusters in electronics are both horizontal and vertical, resulting from a deliberate policy of encouraging investment by firms at each stage in the production process and across the full spectrum of factor intensities. The spread of employment in the electronics sub-sectors of multinationals in 1995 was: semiconductors (17%), peripherals and media (13%), PCBA (4%), instrumentation (4%), consumer electronics (6%), computers (12%), components (7%), telecommunications (9%), software production (14%), software developments (14%) and services (5%). (See Görg and Ruane, 1999). This contrasts with the regional development strategies elsewhere, where horizontal clusters only have been developed (such as Kyushu in Japan which has semiconductor firms only). In recent years, significant numbers of indigenous firms have entered those sub-sectors where local linkages are possible, i.e, all sub-sectors

apart from semiconductors, helping to reduce earlier concerns about the duality in the economy as between the foreign and indigenous sectors.

4. *A pattern of development which brings investment to the less developed areas of the country*

As a result of the high levels of unemployment nationally and the emphasis on overall growth, regional targets were subsidiary to national targets until the late 1990s. Or, to put it another way, the only regional policies in operation were those which contributed to economic development overall. Despite this, progress has been made on increasing incomes and reducing unemployment in the less developed regions. Of Ireland's eight sub-regions, three (the West, Midlands and Border regions) will retain Objective 1 status for at least the next four years. Certain areas within other regions could be seen as more in need of area-specific aid, but these were excluded by Commission rules.[15]

In the recent period of rapid growth (1990–7) industrial employment in these three regions grew by over 36%, almost twice the rate of the remaining regions. The impact of policy on regional employment is, however, moderated by the fact that employment growth has been very significant in services and the remaining regions achieved larger increases in employment in services on a larger base (22% compared with 15%). This may point to growing limitation of the focus on industrial jobs and consequently industrial incentives for achieving regional employment targets.

Walsh (1999), reviewing the two decades 1977–97, finds that there has been a significant redistribution of employment across Irish regions, with growth rates for the period ranging from only 6% to almost 35% (East region, including Dublin). He argues that this pattern is more akin to the United States (if less markedly so) than to other EU countries. He finds strong evidence of European-type persistence in unemployment rates across the regions over time, but not so for employment rates. Adopting the framework used by Blanchard and Katz (1992), he analyses the labour market dynamics for Irish regions and concludes that, by comparison with other European countries, 'Irish regions adjust relatively quickly to shocks' in labour demand. He suggests that this can be attributed in part to the high propensity of Irish people to migrate and in part to the success of regional policy in bringing new employment opportunities to areas of high unemployment.

In terms of the distribution of manufacturing jobs across regions, the role of FDI historically has been very important, with some of the largest concentrations of employment in peripheral regions being in MNCs, although this has given rise to some concerns about excessive dependency on individual plants. Killen and Ruane (1998) find evidence that the success rates of MNCs, in terms of plant and job survival, are no lower in the Western periphery than in the Eastern core. To the extent that clusters become increasingly important, regional balance may be further affected if these clusters are predominately in the more developed regions. *IDA Ireland* has recently promoted the location of international call centres in Ireland, with a view to locating these in the less developed areas of the country.

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15 The government tried and failed to convince the Commission to have a greater area covered. Drudy and Punch (1999) analyse regional income patterns and conclude that there are very depressed areas outside the newly-defined Objective 1 regions.

5.4.6 Policy evaluation

It is not possible to attribute Ireland's recent economic success confidently to any particular aspects of the strategy adopted. The policy has evolved over 40 years and the modest success in winning projects prior to Ireland's entry into the EEC in 1973 suggests that Ireland as an individual small economy on the periphery of Europe had very little to offer to FDI projects. Undoubtedly, Ireland's entry into the EU gave it a new role as an English-speaking, politically-stable, export base within the EU market, making it especially attractive to US companies despite its small local market. While the 1970s were generally successful in terms of investment, the 1980s saw a strong downturn, followed by an exceptional upturn in the 1990s. The poor employment performance in the 1980s with a massive resumption in emigration and rapid increases in unemployment rates led many to question whether the maintenance of a consistent industrial/regional policy was really serving the economy well. Indeed, it is striking, and maybe ironic, that this recent FDI growth has taken place at a time when the *relative* value of Ireland's incentives has been eroded. This erosion stems both from domestic reductions in incentives and from the increasing use of regional incentives elsewhere in the EU. Does this point perhaps to the fact that incentives in themselves may be necessary but not sufficient to attract internationally mobile investment? Since there was no major change in the industrial policy regime, and such changes as there were reduced Ireland's relative attractiveness, one has to look elsewhere for the source of the recent turn about in growth.

There are several *external factors* which have favoured Ireland's recent success. These include:

- the spectacular world-wide growth of the high-tech sector, well above what might have been expected;
- the fall in telecommunication and transport costs, which have reduced the real costs of peripherality;
- the boom in the US economy, which has translated into a boom in the Irish economy;
- the provision of very substantial EU funds to support regional investments and incentives at a time when the Irish economy could *not* have provided these resources without undermining its corrective macro policies.

All four combined to support the development of Ireland as an ideal production base for increasing numbers of US companies engaged in producing weightless products (see Quah, 1997) primarily for the integrating EU market.

Three *direct policy factors* seem to have worked exceptionally well:

- the strategy of deliberately creating horizontal and vertical agglomerations, using incumbent investors to signal location satisfaction to potential entrants, has yielded greater success over time;
- the extension of fiscal and financial incentives to cover internationally traded services (as these grew in importance) was timely;
- the benefits of developing a pro-FDI reputation, based on having operated a pro-active, efficient and consistent industrial policy over a long period of time, were realized.

These three combined to give policy an effectiveness, which it had lacked in the 1980s.

In terms of *general economic policy*, several factors were crucial:

- The establishment of appropriate macro policies in the 1980s and a restrained wage-setting environment, which recognized the country's labour-market problems, were of paramount importance.
- The introduction of competition policy and deregulation in the early 1990s played an essential role in ensuring growing cost competitiveness for Irish-based industrialists trading their outputs on international markets.
- Major investments in telecommunications in the 1980s and 1990s, mostly in response to the demands of industry, and MNCs in particular, also facilitated growth.[16]
- Finally, and arguably most importantly, investments in education from the mid-1960s onwards, which were driven more by equity than efficiency arguments, began to have a major impact on labour productivity in the 1980s and 1990s. Increasing numbers of people, who had completed second-level education and gone on to third-level education, entered the labour force. These included returned emigrants who had left Ireland because of limited job opportunities, and married women. Durkan, et al. (1999) provide estimates of the education-adjusted labour force for Ireland and argue that during the period 1986–96, the *effective* working population grew by 2.7% per annum (compared with a growth of 1.7% in the measured working population).[17] The real significance of education for economic growth has come to be recognized by policy-makers in recent years, leading to increased focus on investment in education on the grounds of economic efficiency rather than social equity.[18]

While no individual policy could explain the recent success, the various policies worked in a reinforcing manner in the late 1980s. Policy actions were broadly consistent – the old line about the chain being as strong as the weakest link comes to mind. And, as has been pointed out by Krugman (1997), Ireland was also lucky. Its strategy of wooing Intel and Microsoft paid off, providing the basis for the consolidation and growth of the electronics sector. In the absence of these two investment projects, might the performance of the Irish economy over the past decade have been much less spectacular and more akin to that experienced by Portugal and Spain, whose levels of per capita GDP have experienced more modest convergence to the EU average?

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16 The absence of investment in other areas of infrastructure (for example, roads) is now posing one of the biggest threats to continued growth.

17 Using census data, they show that whereas primary education was the highest level of completed educational attainment for 56% of people aged 45–64 in 1981, this share had fallen to 42% by 1991; the corresponding shares for individuals aged 25–44 in 1981 and 1991 were 28.7% and 48.6% respectively. The share is well below 10% for the current population aged 15–19, as completion of secondary-level education is the accepted target.

18 Its overall impact on the labour force has been magnified by the re-entry into the work-force, in large numbers, of educated women who had been engaged in child-rearing, as the female participation rate in Ireland approaches the EU level. Overall the educational attainment level of women is higher than men in Ireland – in 1996, over 51% of women had third-level education compared with under 43% of men.

5.4.7 Future prospects

The dramatic increase in employment in Ireland in the last three years, has, for the first time since the 1950s, raised real questions for policy-makers about the focus on employment as a policy goal for industrial policy in general and FDI in particular. Ireland's particular success in attracting FDI over the past decade has led to new questions.

- Has it generated too much dependency?
- Are the present levels of sectoral and nationality concentration, with three quarters of all FDI in the electronics and chemical sectors and over four fifths of all new FDI jobs in US-owned companies, appropriate?
- Are the state aids redundant for FDI companies, given the preferential 12.5% corporate tax rate and Ireland's current stage of development?

While additional resources are being directed towards building-up indigenous industry, the promotion of FDI remains a key objective. Concerns about dependency are voiced, but no alternatives are perceived as realistic at this juncture. Rather than broadening the sectoral or source-country patterns of FDI (the direct product of the deliberate selective strategy adopted in the 1970s), there is increased emphasis on the quality of the jobs being created and the potential contribution of the potential entrants to existing agglomerations. Furthermore, in terms of the two elements of regional policy, Ireland is gradually shifting away from regional incentives towards regional investments. This involves focused improvements to the domestic infrastructure, in terms of both physical and human capital, in order to make Ireland a competitive environment for the type of FDI investment it now has and expects to have into the future. For example, resources which might previously have been allocated as direct aids to firms have recently been allocated to infrastructure supports (such as, supporting research capability in universities; improving the telecommunications systems, etc.).

In any event, the widespread use of state aids throughout the 1980s and 1990s cannot continue, as these are limited since January 2000 to five regions of the country. While state aids will continue to be allowed, they will no longer have EU regional policy funding and their maxima will be limited to a net grant equivalent of at most 20% (compared with 45% at present) for FDI and 30% for SMEs. Even in the three Objective 1 regions the net grant equivalent maxima will fall to 40% for FDI and expansion of large indigenous companies and 55% for SMEs. Since the current levels of grants lie well within the present maxima, the impact of the changes in terms of financial support may not be very large. In the case of FDI, the greater impact of the change may be reflected in a shift towards horizontal aid over regional aids, especially in the context of R&D expenditure.

Finally, a word of caution about the likely continuing success of Ireland's policy of attempting to develop vertical linkages between foreign and domestic firms, thereby generating agglomerations. As noted above, Ireland has benefited from technology changes, which have reduced transportation costs. In particular, the replacement of transistors with silicon chips has reduced the size and weight of a whole range of electronic parts, making location in Ireland, as a peripheral island, relatively more attractive — an illustration of 'the death of

distance'. This has allowed a domestic electronics sector to emerge, for which the existence of local MNCs was a driving force. Reduced transportation costs combined with increased use of Internet technology for business-to-business commerce (noted in Chapter 3), however, may come to destroy the potential for local outsourcing from indigenous firms. Thus, while the technology changes of the 1970s and 1980s served to benefit indigenous firms, the technology changes of the 1990s and into 2000 may reduce the potential spillover benefits, as global outsourcing replaces local outsourcing. Indigenous firms in Ireland are unlikely to prosper unless there are very strong local horizontal agglomeration effects, and the firms can successfully enter their relevant global sub-supply markets.

5.5 Ireland and Italy

As is evident from Table 5.1, Ireland and Italy tend to be relatively high spenders on regional incentive policies, with Ireland spending significantly more in terms of both total and per capita GDP. The regional policy approach currently being pursued by Italy does not look very different from that being pursued by Ireland, and as Table 5.1 also indicates, there is considerable homogeneity among policies pursued across a range of EU countries. The circumstances are very different, however. Italian policies look quite similar to Irish policies today, but that is because Italian regional polices have changed to resemble Irish policies, which have been subject only to relatively minor modifications. Ireland has operated a consistently market-driven approach to regional development for over 40 years, with a broad-based approach to promoting industrial development (supporting both FDI and indigenous investment, large-scale and SME investment, etc.). Investments in regional infrastructure have been made in response to private-sector needs and there has been no emphasis at all on the promotion of state companies as a driving force for development. Furthermore, the general approach in Ireland has been to view regional policy as part of industrial policy (hence production in the regions must be internationally competitive) and to adapt to changing industrial structures by 'letting go' of older industry and using available resources to find replacement industry. Ireland is heavily reliant on FDI from the United States, and a major interruption to this flow would have serious implications for Ireland's continuing growth. In terms of regional distribution, Ireland has been aided by having moderate wage polices, by the increasing skill and productivity of labour and by its being relatively mobile, both nationally and internationally.[19]

The most difficult aspect of Irish policy to evaluate is its selectivity: the focus on two particular sectors, namely, electronics and pharmaceuticals. There was clearly a risk in such a strategy, although the chances of achieving success in

19 OECD data in *Education at a Glance* indicate that in 1995 the share of overall labour force with less than completed second-level education is lower in Ireland than in Italy, which in turn is lower than the share in Spain and Portugal.

new, rapidly-growing markets were probably a better bet than trying to build on Ireland's traditional sectors, whose markets were stagnant or at best growing slowly. It was a gamble that paid off handsomely, but was more than luck involved? On balance a lesson of more general validity does seem to emerge from this experience, namely, that some sectoral focus is desirable in industrial policy. Whatever sectors are involved there are clear benefits from emphasizing the agglomeration links between firms undertaking similar and activities employing complementary skills. Since substantial externalities exist between firms there is a clear role for government. It is not that government can 'pick winners' better than anyone else – and indeed, before a particular sectoral specialization emerges in some region governments are probably ill-advised to try to steer a dogmatically specialized course. Once certain skills and talents have come to characterize a region, however, Ireland's experience suggests that a government's best strategy is to foster and emphasize these skills as part of the process of attracting further investment. Electronics may not have been an obviously good bet for Ireland before the Intel and Microsoft investments arrived, but once they had done so, Ireland was well advised to promote them for all it was worth. Success was facilitated by their willingness, along with other global companies, to assist actively in the promotion of further investment in the Irish electronics sector. This they did in the interests of developing the electronics agglomeration, while ensuring that there was not excessive poaching of labour from any one company as new plants were established.

Italian regional policy contrasts with that of Ireland in a number of ways:

1. As a region within a larger country the Mezzogiorno has benefited from open trade (unlike Ireland in the 1950s). These benefits have, however, been more than outweighed by the burden of some national policies, notably the national wage-setting policies adopted in the 1960s.
2. Equally importantly, Italy's attempts to build a skilled and educated workforce have been half-hearted by comparison with Ireland's.
3. Policy in Italy has suffered from a lack of consistency, possibly because widespread wage rigidities amplified the impact of shocks and forced Italy's policy-makers to look for alternative strategies. Moreover, some of the most promising approaches have been given least time to work.
4. Italy has relied heavily on wage subsidies and the promotion of employment in state-owned firms, neither of which involved any explicit requirement to promote internationally competitive production.
5. Italy's policy has involved substantial subsidies (which are enjoyed by firms whether they are profitable or not). Although Ireland has implemented some explicit subsidies, these have been repayable in the event of failure to meet certain targets (notably job-creation); and the low profit taxes have been of benefit only to profitable firms.
6. Finally, Italian policy has not been sectorally selective in the sense we discussed above. With the exception of some periods of emphasis on industrial parks, there has been much less of a systematic attempt to identify and promote agglomerations based on complementary skills.

This chapter has examined policy intervention from the point of view of individual regions or countries, and has focused on what works and what does not. It is possible, however, that in each seeking to attract economic activity to their own backyard, Europe's nation states may be doing something that is collectively self-defeating. Is competition between regions a good thing, or is there a case for collective self-restraint? It is to this question that we turn in Chapter 6.

6 The Games Governments Play

6.1 Introduction

Economic activity is footloose and restless, as we have seen. Europe's governments at all levels – local, regional, national and supranational – compete to attract it so as to benefit by its presence, directly through tax revenues and indirectly through the votes of their grateful citizens. Are their attempts to do so coherent? Or are they playing a collectively self-defeating game?

In this chapter we consider what governments do to try to attract economic activity from elsewhere – or to encourage the activity that already takes place within their borders. In particular, we ask whether governments inflict costs on each other by doing so. If Ireland has been relatively successful at attracting foreign direct investment, has that been at the expense of its neighbours in the EU? Or has its vigorous growth benefited its neighbours by more than its success at attracting investment has harmed them? Are some policy instruments more 'good-neighbourly' than others? And is supranational action (for instance by the European Commission) justified to stop competition between governments from getting out of hand?

Consider what happens when a multinational firm decides to establish a plant in a particular region of Europe. There will be some direct benefits to the local economy (besides those that are mediated in the normal way through market transactions, such as the production of output for which the firm receives revenues, some of which it passes on to its suppliers). These may consist of pecuniary and non-pecuniary externalities, and also the payment of taxes. There will also be costs, notably the consumption of some local public services, and possibly the increased congestion of some local public goods such as infrastructure. In return for some of the benefits, the government of the locality (which may be a municipality, a region, a nation-state) may supply additional public goods (such as improved roads), the cost of which will therefore be attributable to the establishment of the plant. In addition, however, the government can use a number of instruments to attract inward investment, ranging from its tax rates and the way in which its regulations are enforced, to the skill quality of its workforce and the climate of its industrial relations.

In principle nothing in this catalogue of costs and benefits seems very different from what happens when a firm negotiates with any ordinary supplier of inputs. In this case the input concerned is 'location', a highly complex product which is differentiated from its rivals in many dimensions (but not necessarily more of a differentiated product than is characteristic of many complex industries such as pharmaceuticals or electronics). In most industries it is thought

desirable that there should be more competition rather than less. Are there any reasons to think that competition between locations is subject to an intrinsically different logic? And might there be a case for ensuring that governments compete less rather than more in the future?

6.2 Competition between governments: general principles

In fact the existing literature on competition between locations provides conflicting answers to this question. In a world without externalities and with many rival jurisdictions, Tiebout (1956) proposed the notion that intergovernmental competition would sort citizens into districts reflecting their tastes for local public goods. (Tiebout himself wrote about citizens, but others, such as Oates and Schwab (1991) have developed the analysis for firms). Tiebout showed that competition between governments would lead to Pareto-efficient outcomes provided certain (stringent) conditions were met, notably that the number of jurisdictions was at least equal to the number of types of consumer and that there were no externalities between jurisdictions (see also Pestieau, 1977). While a useful benchmark, the results do not survive relaxation of rather stringent assumptions (see Bewley, 1981).

Oates (1969) expounded the benefits of multi-jurisdictional policy making for somewhat different reasons. Decentralization allows different kinds and levels of public goods to be supplied in different localities. Centralized governments are supposed to be unable to practice such differentiation, either because they lack information about local preferences and conditions, or because they are constrained to make uniform provision for some other reason. They are, however, able to exploit scale economies (important for such public goods as national defence), and to internalize externalities between localities (as when national highways benefit traffic between as well as within regions). For each type of public good, therefore, there will be some level of government that optimally balances these advantages and disadvantages. For many types of good, however, the presence of variations between localities is a positive benefit of decentralization, given the public goods that would be preferred in one location will not necessarily be preferred in another.

A further benefit of competition might come from pressure to supply public goods more efficiently. Direct evidence on this is sparse, but there is a growing literature documenting the benefits of competition in increasing the *productive* efficiency and not just the allocative efficiency of firms. John Kwoka, for example, concludes a recent careful study of the US electricity industry by arguing that, contrary to many people's expectations, private ownership is not systematically superior to state ownership (broadly speaking, private ownership performs better in power generation, state ownership in power distribution). Either form of ownership is, however, made considerably more efficient by the presence of competitive pressure on the firms concerned. 'Competition', he writes, 'imposes cost and price discipline on both privately owned, regulated utilities as well as on those that are publicly owned' (Kwoka, 1996, p.146). To the extent that governments are like firms supplying locational goods, competition might likewise increase the efficiency with which they do so. The knowledge that firms are footloose increases the incentives to avoid waste in supplying public goods to them.

It is, however, undeniable that in competing to attract economic activity, governments can and do impose externalities on each other. For instance, they can use various instruments to promote the interests of domestically located firms to shift rents to their home country. Typically, a government pre-commits to a subsidy which changes prices and outputs in a particular market. The aim is to raise consumer and producer surplus that accrue to their citizens. All countries are, therefore, better off if they can reach and enforce an agreement to forgo such subsidies.

The appropriate remedy depends, however, upon identifying the characteristics of individual markets that give rise to the incentives for such distortions in the first place, and in particular upon diagnosing a substantial negative externality (which typically requires strongly imperfect competition in output or input markets). In principle, this is the rationale for policies to control state aids to industry by individual countries, such as the controls implemented by the EU and the subsidy rules of the World Trade Organisation. Recent cases have achieved considerable publicity, with Commission investigations under way as we write into German aid to Holtzmann and UK aid to the Rover subsidiary of the BMW group. In practice, however, the analysis by the authorities in the past has rarely identified such cross-border externalities systematically (see Besley and Seabright, 1999, for the case of the EU). State aid control in practice, therefore, steers an uneasy course between preventing genuinely beggar-my-neighbour activity and stifling innovation by governments in the provision of an attractive tax and regulatory framework.

Concern has also been expressed, however, about the effects of intergovernmental competition on the *general* structure of taxation and expenditure. Here the externality between governments arises not because of the rents that are shifted between firms, but because firms that move between countries bring with them tax revenues that are significantly greater than the costs they impose on the host country. For this to be true, governments must evidently be imperfect competitors, benefiting from some market power that allows them to charge firms a level of taxes well in excess of the marginal cost of the local public goods and services they consume. Keen and Marchand (1997) consider the impact of the composition of public spending (and particularly its division between public goods valued by citizen/taxpayers and those valued by firms) on the incentives for capital to migrate between jurisdictions. Given that capital is more mobile than citizen/taxpayers, if governments can succeed in attracting capital at one another's expense, this will result in a distortion of all government's activities towards providing more public goods for firms and fewer for citizen/taxpayers than they would otherwise wish.

Other contributions to this literature emphasize the general negative externality inflicted on other countries in the form of a diminished tax base, and conclude that unless tax competition can be restrained, governments will set tax *and* expenditure levels too low. What is required, in this view, is an agreement between government to harmonize taxes at levels above those that would be set if unrestrained competition were allowed to work. Such an agreement may also enable given levels of tax revenue to be shared out more equitably among governments, with less risk of polarization as some governments will attract a large share of activity while others attract much less. Arguments such as these underlie much of the pressure towards tax harmonization in the EU in recent years – with disputes about the withholding tax on savings reaching high prominence in recent months.

Such conclusions depend, of course, on a number of strong assumptions, of which two deserve particular scrutiny:

1. They assume that there is only one main source of externality between countries as a result of tax competition – the reduced tax base in rival countries. In practice there may be multiple sources of externalities. Suppose an investment would be more productive in country A than in country B, and also that the countries trade with each other so that rising income in A increases the demand for exports from B. Then the direct loss of income and tax revenue to B when an investment project locates in A instead of B may be partly offset by the fact that more income and tax revenue is generated in A than would have been generated in B, and some of this spills over to B anyway. For localities that are very close to each other this is often obviously true: a village can benefit more from a factory's location in a nearby town than if it were located in the village itself. Something similar may sometimes be true of regions and even countries, however. Furthermore, competition between the localities may be the only way for to ensure that investments locate where the local benefits are highest.[1]
2. They assume that governments would set taxes at an appropriate level in the absence of competition. Indeed, they also depend on the view that firms *should* be charged more than the marginal cost of the goods and services they consume, in order to fund general activities such as redistribution). Some, however, have argued (like Brennan and Buchanan, 1985) that the normal processes of modern politics are biased towards excessive taxation and the growth of a 'Leviathan' state. According to this view, competition between jurisdictions is, therefore, welcome because it bids down overall taxation to more acceptable levels. Dye (1990, pp.1–3) gives the flavour of this point of view in a US context: 'All governments, even democratic governments, are dangerous…Democratic political processes alone cannot restrain Leviathan…Among the most important "auxiliary precautions" the founders devised to control government is federalism [which] is not only competition between the national government and the states…it is also competition between the states. Indeed it is also, by extension, competition among the nation's eighty-three thousand local governments'.

6.3 Competition and tax harmonization: recent experience

What does the evidence suggest about the way in which competition between European governments (local, regional and national) has operated up to now? How great are the externalities inflicted upon other governments, and how great are the benefits that would be jeopardized by any attempt to restrain such competition?

Let us examine the results of tax competition on the overall level of taxes and their composition as between taxes on capital and other taxes. Table 6.1 com-

1 Besley and Seabright (1999) show that ceilings on allowable subsidies can reduce total amounts paid by governments to firms only by preventing the competitive mechanism from allocating projects efficiently to locations.

Table 6.1 Tax levels and composition for various countries, 1980 and 1994

Country	*Tax burden (% GDP)*		*Share of profit taxes*		*Share of employment taxes*		*Share of sales/VAT*	
	1980	*1994*	*1980*	*1994*	*1980*	*1994*	*1980*	*1994*
Canada	31.6	36.1	11.6	6.6	44.6	54.1	32.6	26.3
France	41.7	44.1	5.1	3.7	55.6	57.4	30.4	27.1
Germany	38.2	39.3	5.5	2.9	64.2	65.6	27.1	28.7
Italy	30.2	41.7	7.8	8.9	61.1	56.6	26.5	28.3
Japan	25.4	27.8	21.8	14.8	53.4	57.9	16.3	15.5
United Kingdom	35.3	34.1	8.3	8.0	46.6	45.6	29.2	35.3
United States	26.9	27.6	10.8	8.9	65.3	61.2	16.6	17.9

Source: *Statistical Abstract of the United States, Comparative International Statistics,* Tables 1358–9.

Note: Employment taxes include individual income taxes and social security contributions.

pares overall tax burdens, and the share of profit taxes in a number of countries between 1980 and 1994 (the latest year for which comparable figures are available). Although the 1980s were widely thought of as a tax-cutting period, the table shows clearly that in the main industrialized countries the tax burden remained steady or went up (a development mirrored in the rest of the OECD as well). The share of business taxes in that burden fell in most countries, however, sometimes dramatically (and since profits themselves were rising the effective tax rate on profits fell even more). What took the strain?

In some countries it was taxes on goods and services, while in others it was taxes on employment. Employment taxes, and particularly social security contributions, rose sharply in Canada, France, Germany and Japan. The rates rose even more sharply than the revenues, because unemployment rates also rose, especially in continental Europe. Also, unemployment was higher in part because *employment* was being taxed more heavily.

To the extent that higher unemployment may have resulted, tax competition between governments has hit the disadvantaged especially hard. In the United Kingdom, the United States and Italy, by contrast, there were increases in the share of taxes on goods and services. This is unlikely to have affected employment, but it may have reduced the overall progressivity of the tax system in a way that hurt the poor. Taxes on goods and services are hard to use for redistributive purposes, since they are typically paid at the same proportionate rate by rich and poor alike.

Reductions in taxes on capital have some merits as well, however. They encourage saving (which normally suffers because saved income is taxed twice, once when it is first earned and again when it yields interest). So, the evidence overall suggests that the effects of tax competition between governments on the composition of taxes are ambiguous – and its effect on the overall *level* of expenditure has been negligible. If anything, the continuing upward drift in the share of taxes in GDP suggests there may be something in the Leviathan view after all.

Would tax harmonization have helped? Maybe, maybe not. A coordinated effort to keep profit taxes higher in Europe might have worked – unless it significantly discouraged investment from outside Europe. Also, it might have relaxed the pressure on governments to make sure they deliver value for money in the public goods and services they provide. The case for a comprehensive centralized approach to taxation as a response to the mobility of capital within Europe remains at best unproven.

What about centralized redistribution? The comparative experience of regions such as Ireland and Southern Italy has shown quite clearly that redistribution – whether within a country or at the level of some supranational entity such as the EU – cannot possibly compensate for the failure of disadvantaged regions to attract economic activity in their own right. Income maintenance has not enabled the Mezzogiorno to catch up with Northern Italy, and the very slight differences in their entitlement to regional assistance per capita cannot explain why Ireland has been so much more successful at attracting foreign direct investment than Portugal or Greece.

It is possible that a coordinated approach to taxation and intergovernmental competition might not only have raised overall tax revenues, but might also have ensured that FDI was shared more evenly among Europe's member states. It is possible, but it is not very likely. If Ireland had been prevented from offering such favourable tax incentives, would more investment have flowed to the Mezzogiorno or to Greece? Most of what we have learned about the factors that attract investment suggest that Ireland, Southern Italy and Greece were not very close substitutes in the minds of potential investors. An improvement in the prospects for Europe's less successful regions has to depend on more than restraining the behaviour of their rivals.

What this implies is that, even if the message to Europe's central authorities from recent history is ambiguous, there are some much clearer lessons for Europe's member states – and for its regions and localities. Exploring these is the task of the next section.

6.4 Effective and ineffective policies: lessons for nations and regions

The arguments and evidence in this book so far have suggested that the coming decades will see a good deal of change in the geographical pattern of economic activity in Europe. National and regional governments could react to these developments in various ways:

- They could try to freeze existing patterns of economic activity, for fear of the consequences for unemployment. They might do this in a variety of ways, ranging from across-the-board measures such as wage subsidies to discretionary state aids to particular firms in difficulty. The experience of countries such as Italy suggests that the former kinds of intervention are expensive and rarely effective, while the latter protect existing firms but do little to encourage new ones. Even if such policies do not generate important externalities between countries, they may be wasteful and damaging to the region or country that undertakes them. More subtly, by favouring existing patterns of activity they may discourage workers and firms from seeking out the new opportunities that are central to generating innovation, employment and growth.

- They could try a range of measures to encourage new activities and combinations of activities, but could do so in an inconsistent way that gives investors little reason to believe in their long-term stability. We have seen that the Irish and Italian development policies differed strikingly not just in the particular measures they employed but also in the degree of consistency and selectivity with which they did so. Italian policies went through several adjustments while the Irish policy climate enjoyed a good deal of continuity. In addition, Ireland was conscious of the need to make fiscal conditions credible over a long timespan, with strong safeguards against changes of treatment of particular firms.
- They could implement consistent measures designed to attract internationally mobile firms and provide a supportive environment for local entrepreneurship, in a way that allows local agglomerations to develop. While there are no guaranteed recipes for success in such ventures, the following ingredients are undoubtedly important in such an approach:

  1. Investment in schooling and the creation of a workforce with flexible and adaptable skills. This is important not just because more skilled workers are more productive, but also for two more subtle reasons. First, better educated workers can benefit more from the transfer of know-how between firms that takes place in local agglomerations. Investors in a region benefit therefore not only from the skills of the workers they employ directly but also from the skills of those who work for other firms. Second, better-educated workers are more mobile and are therefore more likely to shift from activities yielding low returns to those yielding high returns. The willingness to contemplate such shifts will make all the difference between dynamic and stagnant regions.
  2. A tax and regulatory environment that encourages entrepreneurship. This does not necessarily mean very low profit taxes – though they may help – but it certainly requires a simple and predictable tax structure, and a clear link between the taxes firms pay and the benefits they perceive from locating where they do.
  3. Labour market policies that ensure that wages will not fall out of line with productivity trends and undermine regional competitiveness. This was seen as a substantive difference between the Irish and the Mezzogiorno experience.
  4. Redistributive policies that diminish workers' fear of economic change but do not discourage them from moving and adapting. This means using the tax system rather than public employment and subsidies to firms as a method of redistribute income. It also means that benefits and entitlements should not be tied to location in a way that increases the costs of mobility.
  5. The provision of information to potential investors not just about the intrinsic advantages of a region but also about the character of the skills and knowledge-based activities taking place there. Existing firms need to take part in this process, and therefore will need to see newcomers as complements and not as rivals. This may sometimes pose problems of collusion that may concern competition authorities, but they will rarely be serious when the firms concerned are active in international markets.
  6. Any explicit subsidies to investment need to be linked not just to the disadvantages of operating in a region but to the gains to be expected to the region from the activity concerned. Failed regional policies are full of exam-

ples of firms locating at great public expense in a region from which they gain few externalities and for which they generate even fewer. Current EU state aid scrutiny of regional policy concentrates almost entirely on ensuring that subsidies reflect the costs of location to the recipient firm, while doing nothing to ensure that they reflect the wider benefits to the region.

7. Finally, regulatory and other artificial barriers to mobility of both labour and capital should not be seen as a way to 'soften' the consequences of further European integration. As we have indicated they have not so far prevented persistent unemployment in Europe's poorer regions, and they may simply diminish the benefits to be gained from integration while doing nothing to alleviate its transitional pains. Although Europe as a whole has reason to be concerned at such an outcome, Europe's nations also have a common interest in the policies that might avoid it. Policies that knowingly 'beggar thy neighbour' are much less to be feared than policies that inadvertently beggar thyself.

Overall, the evidence suggests that if Europe's regions and nation states manage to implement policies that succeed in attracting economic activity within their borders, they will do so mainly be doing things that would count as good economic management anyway. Their neighbours will have very little reason to complain.

Appendix

The estimation procedure

The dependent variable is the share of affiliate employment of firm *i* in industry *b*, located in country *j* at time *t* (NL_{ibjt}), divided by the firm's total employment (TL_{it}). Dividing by total employment is a way to control for historical factors as well as economies of scale at the firm level. It is also a way to avoid heteroscedasticity. Employment is used in preference to production by the affiliates in the respective host country, because the latter are influenced by exchange rate changes, price differences across countries, industries and periods, etc.

When the firm decides to locate production abroad, it first chooses between a large number of host country candidates. Once that decision is taken, the next step is to choose the level of production in the respective host country. Therefore, in order to avoid selection bias in the estimations, it is necessary to include the countries not chosen – i.e. the zeros – by the firms. To capture this dual feature of the firm's location decision we use a Heckman two-step procedure (Fomby et al., 1986), to allow for differences in probability effects and marginal effects. For instance, the probability that a firm chooses a particular host country because of favorable labour cost reasons may be associated with the degree of openness rather than relative labour cost. Once the host country is chosen, however, openness may have a negligible effect on the marginal effect on production, whereas the influence of relative labour costs may be substantial.

The Heckman method implies that first a probit function is estimated for all observations, i.e. both $NL/TL > 0$ and $NL/TL = 0$ are included in the regressions in order to obtain the probability effects:

$$F^{-1} = (Pr(Y)_{ijt} = J_{ijt} = \alpha_0 + Z'\alpha_1 + \alpha^3 \mathrm{RD}$$

where F^{-1} is the inverse of the cumulative standard normal distribution and Y takes the value of one if $NL/TL > 0$, and zero if $NL/TL = 0$. $Pr(Y)_{ijt}$ represents the probability that firm *i* has production in country *j* at time *t*, given the values of the explanatory variables. The α's are parameters that show the influence of the independent variables on the probability that the firm locates production in a certain country. From these estimates, a sample selection correction variable λ, called Heckman's lambda, is computed for all observations,

$$\lambda_{ijt} = \frac{f(-J_{ijt})}{1-F(-J_{ijt})}$$

where f and F are, respectively, the density and the cumulative standard normal distribution function. Then, the sample is restricted to observations for which $NL/TL > 0$, and a standard OLS regression is run, in which the estimated correction variable, λ, is included:

$$\frac{NL_{ibjt}}{TL_{it}} = \gamma^0 + Z'\,\gamma^1 + \lambda^2_{ijt} + \nu_{ijt}$$

The estimated γ's are here the marginal effects of the explanatory variables on overseas production. Since Heckman's lambda is included, this OLS equation will yield consistent parameter estimates. The estimated standard errors will, however, be inefficient since we use the estimated rather than the actual value of λ. A White (1980) correction for heteroscedasticity is, therefore, required in order to obtain efficient standard errors of the estimated parameters. The residuals are then assumed to have the standard properties $\nu = N(0, \sigma\nu^2)$, $E(\nu_{hjt}\,\nu_{ijt}) = 0$ for $h \neq i$, and $E(\nu_{ijt}\,\nu_{ikt}) = 0$ for $j \neq k$, but $E(\nu_{ijs}\,\nu_{ijt}) \neq 0$ for $s \neq t$. This will not yield inconsistent parameter estimates, but their efficiency will be reduced by this possible autocorrelation. One way round this problem would be to specify fixed effects for each combination of firm and country in the form of additive dummies, but there would be a large loss of degrees of freedom and the estimation procedures would be complex. All variables are in logarithms.

It should be noted that the probit and corrected OLS equations include the same explanatory variables in the vector Z. A possible practical problem is then multicollinearity between Z and λ. Such problems are not inevitable, however, since the latter variable is a *non-linear* combination of Z while OLS is a *linear* estimation technique, and in practice the problem did not arise for the estimates reported here.

Table A.1 Definitions of explanatory variables

(Data for the respective variable are available for 1974, 1978, 1986, 1990 and 1994) cost variables	*Agglomeration variables*	*Policy variables*	*Other variables*
RW, wage per employee in host countries relative to wage per employee in Sweden, industry level US$	CONC, absolute concentration of manufacturing production in Europe measured as a Hoover-Balassa index	EXPEND, governmental expenditures as % of GDP	R&D, researd and development expenditure as a % of sales at the firm level
TAXCORP, taxes on corporate income as percentage of GDP	AGGL, index of relative concentration of manufacturing production in host countries as compared to all countries, industry level, Europe	OPEN, openness measured as the share of exports and imports relative GDP	GDP, real GDP of host countries in PPP terms
PINV, price level of investment, index	HOSTR&D, host countries relative abundance of research scientists and engineers relative total employment, industry level	TYR, average total years of schooling	KAPW, non-residential capital stock per worker
		IMPDUT, the share of import duties levied on total imports	DIST, geographical distance between the capital of Sweden and the capital of the respecitve host country
			RW*EU*86–90 (90–4), relative wage in an EU-country interacted with the time period 1986–90 (1990–94)
			EU*86–90 (90–94), Countries belonging to the EU interacted with the time period 1989–90 (1990–4)
			TD, time dummies for 1978, 1986, 1990, 1994
			CD, ID regional dummies and 8 industry dummies

Table A.2 Regression results

Independent variables	*Probit Pr(Y)*	*OLS NL/TL Europe*	*Probit Pr(Y)*	*OLS NL/TL Europe*	*Probit Pr(Y)*	*OLS NL/TL World*
Intercept	–8.77* (5.42)	–33.21*** (11.49)	–4.88*** (.66)	–27.83*** (2.84)	–4.37*** (.29)	–18.18*** (1.30)
R&D	.09*** (.01)	–	.05*** (.01)	–	.08*** (.01)	–
RW	–.17 (.18)	–.72** (.35)	–.22* (.12)	–1.03*** (.25)	–.14** (.06)	–.42*** (.14)
TAXCORP	–.13* (.08)	–.22 (.16)				
PINV	.27 (.38)	1.09 (.77)				
AGGL	–.03 (.06)	–.11 (.12)	.13* (07)	.61*** (.15)	.13*** (.04)	.51*** (.09)
CONC**	1.37 (1.07)	3.69* (2.20)	1.69 (1.56)	8.04*** (3.39)	–	–
HOSTR&D			–0.6 (.05)	–.29*** (.10)	–	–
HOSTR&D*HT			.07 (.06)	.29** (.14)	–	–
GDP			.15*** (.03	.77*** (.09)	.14*** (.02)	.54*** (.05)
TYR			1.00*** (.12)	4.48*** (.48)	.75*** (.09)	2.22*** (.24)
TYR*HT			–	–	–.06 (.08)	.11 (.20)
EXPEND			–.28 (.25)	–.09 (.54)	–	–
OPEN			–.22** (.09)	–.99*** (.22)	–.23*** (.05)	–.77*** (.12)
KAPW			.24** (.10)	.92*** (.22)	.29*** (.06)	.62*** (.15)
RW*EU			–	–	–.07 (.09)	–.25 (.18)
EU*8694			–	–	–.01 (.05)	–.09 (.12)
λ	–	3.48*** (10.17)	–	4.64*** (.54)	–	2.86*** (.25)
F	–	11.43	–	10.57	–	26.41
Adj R	–	.21	–	.20	–	.29
No of obs	6844	1160	4679	827	14373	1652
L. cens. obs.	5683	–	3852	–	12720	–

Note: Standard errors in parentheses. *,** and *** denote significance at the 10, 5, and 1 percent level, respectively. Dummies for time, industries and regions not shown but available on request.

Table A.3 Regression results, cost, agglomeration and policy variables, all countries

Independent variables	*Probit Pr(Y)*	*OLS NL/TL Europe*	*Probit Pr(Y)*	*OLS NL/TL Europe*	*Probit Pr(Y)*	*OLS NL/TL World*
	–3.56***	–15.98***	–3.82***	–16.75***	–.71	–6.37***
Intercept	(.33)	(1.27)	(.33)	(1.31)	(.62)	(1.63)
R&D	–.08	–.26*	–14**	–.37***	–.16***	–.40***
	(.07)	(.15)	(.07)	(.15)	(.07)	(.15)
RW	–.17	–.72**	–.22*	–1.03***	–.14**	–.42***
	(.18)	(.35)	(.12)	(.25)	(.06)	(.14)
RW*EU86–90	–.15	–.41*	–.21**	–.62***	–.26***	–.74***
	(.11)	(.22)	(.11)	(.23)	(.11)	(.23)
RW*EU90–94	–.05	–.01	–.06	–.08	–.05	–.03
	(.12)	(.26)	(.12)	(.26)	(.12)	(.26)
AGGL	.18***	.71***	.18***	.71***	.16***	.63***
	(.04)	(.10)	(.04)	(.10)	(.14)	(.10)
GDP	.15***	.61***	.06***	.32***	.13***	.54***
	(.02)	(.05)	(.03)	(.05)	(.03)	(.07)
TYR	.69***	2.08***	.72***	2.17***	.56***	1.55***
	(.09)	(.24)	(.09)	(.24)	(.09)	(.24)
TYR*HT	–.03	.18	–.01	.23	–.01	.31
	(.09)	(.20)	(.08)	(.20)	(.08)	(.19)
OPEN	–	–	–.33***	–1.11***	.30**	.93***
			(.07)	(.17)	(.13)	(.32)
IMPDUT	–.033**	–.09***	–.06***	–.17***	–.06***	–.16***
	(.01)	(.03)	(.02)	(.03)	(.02)	(.03)
OPEN*DIST	–	–	–	–	–.06***	–.20***
					(.01)	(.03)
EU*86–90	.02	.22*	.03	.22*	.07	.34***
	(.06)	(.13)	(.06)	(.13)	(.07)	(.14)
EU*90–94	.11	–.44***	–.15**	–.60***	–.05	–.28*
	(.07)	(.14)	(.07)	(.14)	(.07)	(.15)
KAPW	.17***	.28*	.25***	.47***	.11	.001
	(.07)	(.15)	(.07)	(.16)	(.07)	(.17)
MNCR&D	.08***	–	.08***	–	.08***	–
	(.01)		(.01)		(.01)	
λ	–	2.98***	–	2.96***	–	2.86***
		(.27)		(.27)		(.27)
F	–	24.01	–	23.45	–	22.77
Adj R	–	.32	–	.32	–	.32
No of obs	12508	1385	12508	1385	12508	1385
L. cens. obs.	11123	–	11123	–	11123	–

Note: Standard errors in parentheses. *,** and *** denote significance at the 10, 5, and 1 percent level, respectively. Dummies for time, industries and regions not shown but available on request.

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