

**SYMPOSIUM
ON
ECONOMIC GROWTH IN IRELAND:
WHERE HAS IT COME, WHERE IS IT GOING?**

(read before the Society, 26, April 2001)

Openness and Growth: An International Perspective

Nigel Pain*

National Institute of Economic and Social Research

1. INTRODUCTION

International openness via the pursuit of liberal trade and investment policies has become one of the conventional verities of the policy advice handed out by multilateral institutions over the past two decades. Greater international integration is now widely regarded as a pre-requisite for improved economic performance and higher per capita incomes, with the former intellectual consensus that had favoured import-substituting regimes as a means of stimulating industrialisation having been gradually undermined (Kreuger, 1997).

Openness has many possible dimensions. In this paper we concentrate on international trade and foreign direct investment, partly to keep matters to a manageable length. But there are clearly other facets such as the migration of labour that can also matter a great deal for economic development.

The objective of the paper is to provide an overview of some of the theoretical and empirical literature that investigates the link between international openness and economic growth in order to provide an international perspective on recent developments within Ireland. Whilst the evidence points on balance towards a complementary relationship between openness and development, with greater international openness helping to raise per capita incomes, the gains from greater openness are by no means automatic. Openness may be necessary for sustained growth, but is unlikely to be sufficient by itself and needs to be complemented by

* I am grateful to the UK Economic and Social Research Council for financial support.

investments in human capital and institutional reforms tailored to domestic needs and objectives.

The structure of the paper is as follows. In the next section some of the theoretical linkages between openness and growth are drawn out, highlighting differences between the older neo-classical models of growth and location under perfect competition and more recent models of economic growth and trade and location that adopt an imperfectly competitive framework. Section 3 reports selected empirical evidence on the degree of convergence in per capita incomes between countries, the linkages between openness and the level and growth of incomes, and the impact of foreign direct investment on the UK economy. Some concluding comments are given in Section 4.

2. OPENNESS AND GROWTH THEORETICAL ISSUES

In accounting terms there are two principal sources of economic growth – a rise in the quantity and quality of inputs into the production process, and improvements in the efficiency with which those inputs are utilised. Such improvements can be generated by internal organisational change and the elimination of X-inefficiencies, the exploitation of economies of scale, from technical change arising from the development of new ideas and products or through the entry and exit of firms of different efficiencies. All of these may be affected by openness to international markets, defined as the extent of barriers to the free movement of ideas, products and factors of production.

Romer (1993) highlights the means through which openness can help to close idea, object and organisational gaps between countries. Two important channels are foreign direct investment, which may involve the direct transfer of technology or physical capital or new ideas, and international trade, which makes available products that embody foreign knowledge. Firms that participate in export markets might also have access to technical expertise regarding product designs and production methods from their buyers (Egan and Mody, 1992). Exposure to international markets also raises the degree of contestability of national product markets and, in principle at least, this should encourage firms to eliminate remaining organisational inefficiencies (Nickell, 1996).

What then are the benefits to growth if countries adopt policies to raise their international openness? Traditional theories of trade under perfect competition have always indicated that trade can enhance allocative efficiency and welfare in the economy as a whole by allowing resources to be transferred from import-substituting activities into ones in which countries have a comparative advantage. Such a shift could be expected to raise the level of income, but would not have a permanent impact on the growth rate, although faster growth would be observed for a period of time as the economy moved towards the new long-run output frontier. At the level of the individual firm, the ability to access international markets could be expected to enhance efficiency by allowing economies of scale to be exploited

fully. In small countries, or capital intensive industries such as the production of military equipment or chemicals, it is likely that the minimum efficient scale of production is large relative to the size of the home market (Kunst and Marin, 1989; Marin, 1992).

In the standard neo-classical model of growth, technology was treated as exogenous, with common blueprints available to all producers in all economies. The income levels of countries might differ initially because of different endowments, but trade or the mobility of factors of production could be expected to offset these differences. Ultimately, with diminishing returns to capital, growth in incomes per head in all countries should converge to the underlying rate of growth of technical progress. The empirical implication of this model is that countries with lower per capita incomes should grow faster than ones with higher incomes until convergence of income levels has occurred.

Recent advances in trade and growth theory stress the importance of imperfect competition, economies of scale, product diversity and the spread of ideas and organisational techniques across international borders. The creation and exploitation of knowledge are two of the key factors driving the growth process in many theoretical and empirical models of growth and technological change. In models with endogenous growth and endogenous technologies, openness can have long-lasting effects on economic growth by influencing the rate of domestic innovation and by affecting the rate at which technologies developed elsewhere are adopted (Grossman and Helpman, 1991; Aghion and Howitt, 1998).

In this framework, expanding market size can matter not just because it allows economies of scale to be exploited, but also because it affects the returns to innovation. Openness can also raise the resources available to undertake domestic innovation, with access to foreign technologies and ideas providing a larger pool of knowledge that can be used in subsequent research. International knowledge spillovers of this kind can arise from all forms of international contact, including the mobility of skilled labour, inward investment and trade. The scale of outward direct investment may also matter, since mergers and acquisitions provide a way of acquiring location-bound foreign knowledge and expertise. The potentially infinite expansibility of knowledge means that such assets can then be utilised simultaneously across multiple establishments under common ownership. A further testable implication of the new growth theories is that there may be externalities from openness, so that new knowledge can be utilised by firms in the economy other than those who participate directly in international markets.

But the effects of openness need not always be beneficial to growth. For instance, product market competition whilst stimulating efficiency, also serves to reduce the monopoly profits available from innovation. The reallocation of resources across sectors in line with comparative advantage can also have negative effects on growth (Rodríguez and Rodrik, 2000). If countries become increasingly specialised in low-tech sectors in which little or no R&D takes place, then resources may be diverted

away from the activities that help to promote long-term growth. Older, unresolved arguments over the need to protect 'infant industries' also suggest that there are circumstances in which the maintenance of trade restrictions might promote long-run performance.

A further implication of the new theories of international trade and economic geography with imperfect competition and increasing returns to scale is that comparative advantage can be path dependant, with the pattern of growth across countries differing significantly (Krugman, 1991; Fujita *et al.*, 1999). Models of the location of activities under perfect competition cannot explain why regions with similar factor endowments and similar factor prices may have very different industrial structures. Competitive disadvantage can be remedied quickly if location patterns were determined solely by geographical endowments, transport costs and production costs, and there would be few reasons to locate anywhere for long.

In contrast, an implication of the new models of location is that temporary differences in national or regional characteristics, such as investment incentives for foreign or national firms or hysteresis effects on entry and exit from movements in the real exchange rate, can have permanent effects on the location of activities if other firms are subsequently drawn to particular regions by the possibility of obtaining agglomeration economies. Such economies arise from any location-bound economic activity in an area that generates positive externalities for nearby firms. These may arise from the availability of skilled labour, or by proximity to firms in other industries with whom there are close business linkages, or by the existence of clusters of innovating firms. Publicly financed infrastructure may be a further example. Some of the roots of the surge of FDI in Ireland over the past fifteen years can undoubtedly be traced back to the decision to make active use of fiscal incentives, such as low rates of corporation tax and discretionary grants, complemented by carefully formulated, proactive industrial and educational policies targeted at particular sectors (Ruane and Görg, 1999).

The mechanism of cumulative causation, with agglomerations attracting new investments which then influence the growth process by affecting the rate of technical progress (Barrell and Pain, 1997 and 1999), suggests that the size of regional and national economies has to be seen as determined in part by their acquired characteristics rather than just by their endowed characteristics (Hanson, 2000). The policies and development strategies of devolved bodies and central governments thus have to be carefully designed as temporary changes to factors affecting the spatial dispersion of economic activity can have long-lasting effects (Head *et al.*, 1999).

The process of economic integration and trade liberalisation can also have a significant effect on the location of economic activities by changing the balance between centripetal and centrifugal forces. Openness is partly a reflection of supranational policies – in Ireland's case the trade policies pursued by the European Commission and the requirements for membership of the European Economic Area.

Midlefart-Knarvik *et al.*, (2000) document how the process of European integration has raised industrial specialisation within the European Union.

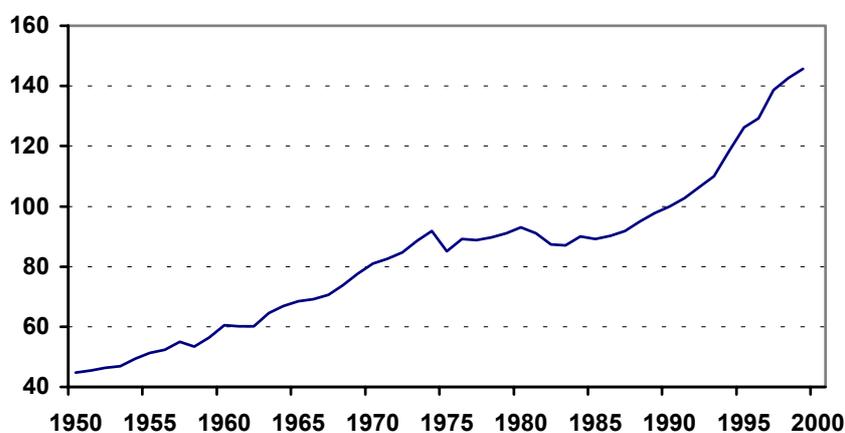
In summary, the new and the traditional models of growth, trade and investment both suggest that greater openness can have a positive effect on per capita incomes. There may be a variety of channels through which international exposure could generate improvements in the relative performance of national firms. Some of these channels, such as competition, economies of scale, entry and exit and knowledge spillovers, are already known to be general influences on productivity growth.

3. OPENNESS AND GROWTH: EMPIRICAL EVIDENCE

Convergence of Per Capita Incomes

The post-war years have seen a steady upward trend in the ratio of global merchandise trade to GDP, expressed in constant prices, as can be seen from Figure 1, although there have been periods, most notably the decade from 1974-84 when trade growth has been comparatively subdued. But this increase in openness does not appear to have been associated with a systematic tendency for poorer countries to experience faster growth than richer ones.

**Figure 1: World Merchandise Trade Volumes
(% of World GDP 1990 prices, 1990=100)**

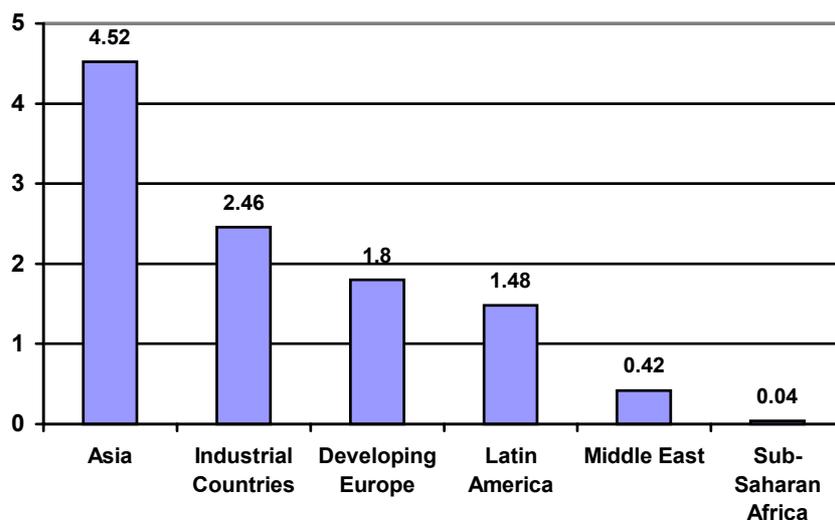


Source: WTO (2000).

During the past thirty years there has been a divergence, rather than a convergence, between the levels of per capita income in the industrialised countries and many developing countries. This can be seen from Figure 2, which shows the average

annual growth rate of per capita incomes, measured in US dollars at 1987 prices and exchange rates in selected regions from 1970 to 1998. Similar results are reported in IMF (2000) using purchasing power parity rates.

**Figure 2: Annual Real Per Capita Income Growth
1966-98 (%)**



Source: Table A2.2 Global Economic Prospects and the Developing Countries 2000, World Bank.

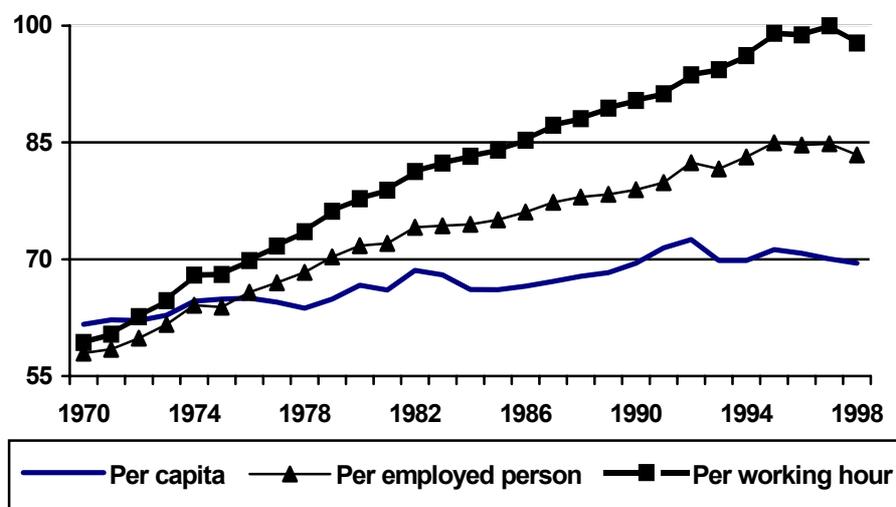
Real per capita incomes rose by an average 2.5 percent per annum in the industrialised countries. This rate of growth was exceeded only in Asia, particularly East Asia where incomes rose by an average 5.9 percent per annum. China had a per capita income growth rate of 7½ percent per annum. Real incomes have risen in developing countries in the Middle East and Latin America, but at a slower pace than in the industrialised countries. Real incomes hardly changed at all in sub-Saharan Africa, and have actually fallen since 1973. Whilst real per capita incomes are estimated to have risen over the period as a whole in the Developing Europe bloc, which includes the transition economies of Central and Eastern Europe, there has been a sharp decline since transition began. In total approximately three-quarters of all the developing economies have recorded slower per capita income growth than the industrialised economies since 1970 (IMF, 2000), although this group comprised only about 30 percent of the total in terms of population, reflecting the relative success of China and, to a lesser extent, India which had a per capita growth rate of 2¾ percent.

Thus whatever benefits openness may bring, it appears unlikely that it is sufficient by itself to promote convergence of income levels between countries. Indeed much of the econometric evidence from the wider economic growth literature strongly suggests that both social capabilities and absorptive capacity matter for growth performance (Temple, 1999).

Even in East Asia, which is commonly regarded as providing a *prima facie* example of the benefits of greater openness, the evidence is subject to some debate. The links between openness and growth in East Asia are reviewed by Lloyd and Maclaren (2000). They argue that the perception that East Asia is an open region largely rests on its openness to merchandise trade compared to other developing countries. East Asian developing economies are generally less open than developed countries inside and outside Asia, and frequently less open to services and FDI than many other developing economies.

The importance of cross-country differences in institutions and societal norms can also be observed from Figure 3, which shows per capita incomes (GDP based) in the European Union relative to those in the United States.

Figure 3: European Union GDP at Current Prices and Current Purchasing Power Parities (USA=100)



Source: Barrell and Pain (2001)

In the so-called ‘Golden Age’, the post-war period from 1950-73, growth in the EU had been considerably faster than in the US, helping per capita incomes rise to two-thirds of those in the US by 1973, from under half in 1950 (UNECE, 2000, Table

5.3.2). But since that time little further convergence has occurred, with per capita incomes in the EU remaining around 70 percent of those in the US throughout the 1990s.

Yet this was a period in which international trade and capital flows between the EU and the US rose rapidly. The value of merchandise trade between the US and the EU (defined in terms of the present 15 members) rose from around \$12½ billion in 1963 to \$389 billion in 1999 (WTO, 2000, Table II.3). Translating these nominal figures into constant prices by using an aggregate manufacturing export price index (WTO, 2000, Table II.1) implies that the volume of bilateral trade between the EU and the US rose by an average 5.9 percent per annum between 1963-99, a growth rate well above the rates of GDP growth in either of them. However, as might be suspected from Figure 1, the underlying trend appears far from uniform. Bilateral trade volumes rose by 8¾ percent per annum between 1963-73, and by 9½ percent per annum between 1993-99, but by only 3.4 percent per annum between 1973-93. The pattern of per capita incomes up to 1993 appears broadly consistent with the slowdown in the rate of convergence since the early 1970s, but the constancy of relative incomes through the 1990s appears at odds with the acceleration in international transactions during this period.

A key question for policy makers in the EU is to understand why the process of convergence in incomes appears to have stagnated. Some insights can be obtained by decomposing output per capita as follows. Letting Y denote GDP (at constant prices), and P population:

$$\frac{Y}{P} = \frac{L}{P} * \frac{E}{L} * \frac{Y}{EH} * H \quad [1]$$

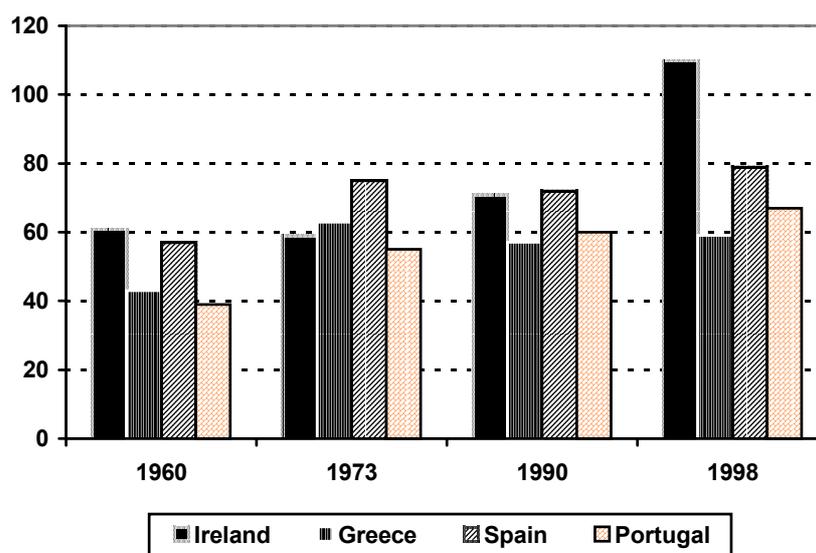
where L represents the labour force, E denotes the number of employees and H hours worked per employee. Figure 3 also shows comparative figures for output per employee hour in the EU (Y/EH) and output per employee ([Y/EH]*H). There is much less evidence that convergence has ended using either of these measures.

Indeed, in terms of output per employee hour there is now little difference between the EU as a whole and the US, whereas back in 1970 the EU level was only about 60 percent of that in the US. The gap between the EU and the US begins to widen once measured in terms of output per employee, reflecting the fact that the average employee in the United States works for more hours a year than the average European. In part this reflects a conscious choice to consume more leisure in Europe. The remaining gap between output per employee and output per capita reflects differences in labour markets which are widely thought to stem in part from institutional differences. Labour force participation is lower in Europe than it is in the United States, as is the employment rate. OECD figures show that in 1998 73.8 percent of the working age population (ages 15-64) were in work in the US, compared to 61.5 percent in the EU (OECD Employment Outlook, 2000). The high

level of output per employee hour in Europe can in part be explained by the lower employment rate and the corresponding likelihood that those members of the labour force with comparatively few skills, and hence lower productivity, are not in work.

Even within the European Union it is clear that domestic institutions matter for growth and convergence. Figure 4 shows per capita incomes (again measured using GDP) in Ireland, Greece, Spain and Portugal relative to the EU average over the period 1960-98. During this period all have entered the European Union, and lowered barriers to trade and capital mobility. Yet the experience of the countries has been quite distinct, with Spain and Portugal converging slowly, Greece making rapid gains between 1960-73 but not in subsequent years, and relative incomes in Ireland accelerating rapidly, but only since the late 1980s. Even if GNP were used instead of GDP Ireland would show marked convergence over this period, although per capita incomes measured using the former were still 5-10 percent lower than the EU average in 1998.

Figure 4: Real GDP per Capita (EU=100)



Source: UNECE (2000), Table 5.3.3

The broad picture from the evidence considered so far offers relatively little support for the hypothesis that greater openness automatically improves growth prospects. It does not appear that it is sufficient to bring about income convergence, even if it may be necessary for it to occur. We now turn to the large empirical literature on the relationship between international openness and growth. We begin by reviewing

the aggregate cross-country evidence before turning to evidence from microeconomic studies of individual firms and specific studies of the impact of inward direct investment on the UK economy.

International Trade: Macroeconometric Evidence

The widespread belief that openness is linked to growth has, at least until recently, appeared to have considerable support in the literature. Ben-David *et al.* (2000, Chapter 1, Annex Table 1) cite twenty empirical studies published between 1977 and 1998 which use cross-country evidence and trade policy indicators and which find that open and outward orientated economies tend to enjoy faster economic growth. The indicators used include trade ratios, tariff levels and indices of price and exchange rate distortions.

In a subsequent study not included in the literature cited by Ben-David *et al.*, Frankel and Romer (1999) also report a significant positive association between international trade and per capita income using cross-sectional data for 150 countries in 1985. Their results suggest that, on average, a difference of 1 percentage point in the ratio of trade to GDP between countries is associated with a positive differential of between ½-2 percent in the level of per capita incomes.

Of course it is difficult to attribute causality in cross-sectional regressions of this kind. If richer countries tend to trade more, or can afford to forego many trade policy restrictions, then causality may run from income levels to policy. One other important point to note about the Frankel and Romer study, and several others, is that it utilises trade shares rather than trade policies. Some countries may have extremely liberalised policies, and contestable markets but still experience low levels of trade relative to GDP because of their size or location. It would clearly be mistaken to view the UK economy as being less open than that of Ireland just because trade accounts for a smaller proportion of GDP.

Rodríguez and Rodrik (2000) have recently questioned the reliability of many of the results concerning the consequences of trade policies (as opposed to the level of trade) for growth. They argue that in some cases the indicators of openness are poor measures of trade barriers, or highly correlated with other variables that are themselves likely determinants of growth, such as the quality of institutions or macroeconomic stability. In other cases the econometric techniques used in some studies are argued to be inappropriate, and re-estimation using different techniques and controls for other policy and institutional variables results in significantly weaker findings. For example, one study they consider is that of Frankel and Romer. Re-estimating their model with additional dummies to control for geographic characteristics such as climate, Rodríguez and Rodrik find that the trade regressor becomes a statistically insignificant determinant of per capita incomes. Similar results are reported by Jones (2000) who finds that trade policy measures tend to become insignificant in cross-country growth regressions which include the

broader measure of the quality of institutions developed by Knack and Keefer (1995).

A further difficulty with empirical studies covering a wide variety of countries lies in assessing whether their findings are really applicable to all economies, or whether they are driven by differences between developed and developing economies. A small number of studies have looked at the experience of developed European economies.

In a series of papers Ben-David (1993, 1996) has emphasised the linkages between formal trade liberalisation amongst the founder members of the European Economic Community in the 1950s, the associated convergence of income levels between these countries and the apparent stimulus trade reform provided to longer term growth.

Hoeller *et al.* (1998) estimate a common production function for a panel of 11 EU economies over the period 1970-95 in which they include the share of total trade in GDP as a proxy for the impact of openness on total factor productivity. This is found to have a significant positive coefficient, with a 1 percentage point change in openness being associated, on average, with a 0.09 percent increase in GDP growth per annum.

The Openness and Growth project at the Bank of England (Proudman and Redding, 1998) used sectoral data to look at the factors driving growth in UK manufacturing industry between 1970 and 1992. Sectors were divided into 'open' and 'closed' groups based on ratios of trade and FDI flows. Those classified as open had an average TFP growth rate of 2.1 percent per annum, whilst those classified as closed had TFP growth of just 0.9 percent per annum. The study also found that the openness measures could collectively account for around one-half of the narrowing of the manufacturing productivity gap between the UK and the US over the period from 1970-90.

Whilst some questions could be asked of all these studies, either about the methodologies employed, or the extent to which other factors have been adequately controlled for, it is striking that the different approaches employed have all pointed towards a similar conclusion – that greater international openness is associated with improved living standards.

International Trade: Microeconomic Evidence

Until recently most econometric work on trade and growth has been undertaken with aggregate data. The benefits of openness and exporting should show up in the performance of individual firms, as well as in the overall level of welfare and growth in the economy. The stylised facts in many economies appear consistent with these arguments; for instance, in most countries exporting firms tend to be larger, older and more innovative than other firms. However they are also consistent

with a counter argument that a self-selection process is at work. It is only the better performing firms that are able to enter international markets because they are the ones able to bear the sunk costs associated with entry into foreign markets and the more intense competitive pressures there. The growing number of firm-level econometric studies on newly available longitudinal data sets permits a direct assessment of the structure of the underlying causal relationships between trade and performance.

Bernard and Jensen (1999) find for the US that exporters and multinational firms tend to be larger and more productive on average than other non-exporting firms. But most of these differences emerge prior to entry into foreign markets, so there is little support for the notion that greater openness through exporting will generate faster economic growth. Exporters do not appear to experience faster growth of productivity than non-exporters, other than in the immediate aftermath of entry into foreign markets. However plants that exit from export markets perform significantly worse than those that continue to export. Instead the benefits of exporting appear to be felt through faster growth of sales and employment and a higher probability of survival. For the economy this matters, since a rising proportion of employment will be in firms with above average levels of productivity, raising the allocative efficiency of the economy as a whole. Related findings for Germany are reported in Bernard and Wagner (1997 and 2001), whilst evidence for developing countries is summarised in Tybout (2000).

If exporting plants have an absolute productivity advantage over non-exporting plants, they are more likely to be close to the production possibility frontier for their industry. Part of the explanation for the faster productivity growth of non-exporters may be that they can benefit from eliminating technical inefficiencies as well as from technological advances. Part of the explanation for the faster growth of exporters in the year or so after entry into the export market may simply be that greater exposure to international competition quickly eliminates many remaining inefficiencies. If learning-by-exporting is more important for young or new plants, with older plants having successfully incorporated knowledge of best practices, then we would expect to see a permanent effect on the level of productivity following export market entry, but not a permanent effect on growth.

An important gap in the microeconomic literature is that the question of potential externalities from exporters has yet to be systematically investigated. It is not yet known whether the survival of exporting companies offers wider benefits to non-exporters.

Foreign Direct Investment

Foreign direct investment can also be an important transmission mechanism for the diffusion of knowledge, both codified and tacit, across national borders. The desire to attract inward investment appears to be one of the few industrial policies pursued consistently by almost all governments throughout the world. Significant levels of

public funds have been committed in order to attract foreign firms in the belief that their presence offers important positive externalities for indigenous firms which will help to raise their productivity.

A notable feature of foreign firms throughout the world is that they tend to be larger, more capital intensive and enjoy higher levels of labour productivity than indigenous firms in the host country. In the UK detailed statistics are available on the operations of foreign firms in the manufacturing sector. The most recent figures available currently relate to 1997. In that year foreign-owned enterprises accounted for 25¼% of gross value added output in the manufacturing sector, 33 percent of net capital expenditure and 17½ percent of total employment. US controlled affiliates accounted for over half of the value-added output produced in foreign-owned firms. Average output per head in all foreign-owned firms was thus almost 60 percent higher than in indigenous firms. The labour productivity of US-owned firms was 89 percent above that of UK-owned ones. Productivity levels in Japanese and EU-owned firms were lower, but still 26 percent and 21 percent above those of UK-owned companies.

These differentials in the average levels of labour productivity in firms of different nationality in the UK are remarkably similar to the aggregate differentials in the level of labour productivity across countries calculated by O'Mahony (1999, Table 2.4). In 1996 for instance, labour productivity levels in the US manufacturing sector are estimated to have been 71 percent higher than in the UK. Thus the growing proportion of high productivity foreign firms in the UK can be viewed as making an important contribution to closing the productivity gap between the UK and the US.

Detailed statistics are not available for the operations of all foreign firms in the non-manufacturing sectors of the UK economy. But it is clear that foreign firms are a significant part of the overall economy, with statistics produced by the US Bureau of Economic Analysis indicating that US-owned firms accounted for 7 percent of UK GDP in 1998.

Even after controlling for factors such as the larger average size of foreign firms, their relative concentration in higher productivity sectors, and their higher levels of capital, skilled labour and intermediate inputs, the balance of evidence suggests that the average foreign-owned firm in the UK manufacturing sector has a productivity advantage of at least 10-15 percent over the average UK-owned firm (see the papers in Pain, 2000), with the differential being largest for American-owned firms. Thus it seems clear that foreign firms have some important firm-specific advantages that allow them to achieve higher levels of productivity than their UK counterparts. These may reflect factors such as better organisational efficiency, greater exposure to international competition and the quality of knowledge-based assets. If foreign firms did not possess such firm-specific advantages, it would be difficult to explain why they are able to take advantage of profitable opportunities in the UK whilst UK-owned firms are not.

A key policy issue is whether there are significant spillovers of knowledge in the form of technologies, working practices or skilled labour from foreign to domestic companies. If that was the case, then inward investment would be associated with significant positive externalities for the economy as a whole, providing a justification for government intervention in the form of investment incentives and promotional activities designed to attract potential foreign investors. There are two broad categories of spillovers that can be distinguished:

- direct spillovers – domestic firms can acquire knowledge of new technologies and working practices from foreign firms; labour mobility from foreign to domestic firms.
- indirect spillovers – examples include the impact of greater competition in product markets, the impact on national innovation and R&D, and the impact on export performance. These issues are discussed in Pain (2000).

All of these are potentially important sources of productivity growth. Blomström *et al.* (2000) provide a comprehensive overview of the literature on spillovers in from inward investment in developed economies. They conclude that ‘the evidence is convincing in showing the existence of FDI efficiency spillovers in host countries, although there is no strong consensus on the associated magnitudes’.

Evidence for the UK is reported in Hubert and Pain (2000, 2001), building on the framework developed by Barrell and Pain (1997). Using a sample of two digit manufacturing industries for 1984-92, Hubert and Pain (2001) find significant intra and inter-industry spillovers from foreign firms in the manufacturing sector, with a 1 percent rise in the volume of output in foreign firms estimated to raise the level of labour-augmenting technical progress, and hence other things being equal labour productivity, in UK-owned firms by 0.5-0.6 percent. The results are found to be robust to the inclusion of R&D and imports. Intra-industry import volumes are found to be significant, but not inter-industry imports. A 1 percent rise in imports raises technical progress by 0.3 percent.

One interpretation of this is that imports bring new technologies (and competitive pressures) that are industry-specific, whilst inward investors have transferred innovative business techniques and management practices that can be applied across a wide range of industries rather than just new processes and products that are specific to a particular industry. This is only to be expected. Ideas such as mass production, just-in-time inventory systems and high quality control standards have been disseminated in part through inward investors in motor manufacturing, and have subsequently been used widely throughout the economy.

The high level of inward investment in manufacturing activities has also been particularly important in the economic development of many smaller European economies such as Ireland (Barry and Bradley, 1997) and Portugal (Farinha and

Mata, 1996). Studies of manufacturing inward investment in other OECD countries such as Australia, Canada and Mexico (see Caves, 1996) also suggest that the presence of inward investors has had a positive influence on the productivity of local firms.

Whilst the evidence appears to point towards favourable effects from inward investment on the level of national income, much more remains to be learnt. There is certainly no reason to suppose that any externalities from inward investment are distributed equally amongst industries or regions (Girma *et al.*, 2001), and in the UK at least, there appears to be little evidence that the average productivity gap between foreign and UK firms has been closed over time. Whilst some gap might reasonably be expected to persist, since the average foreign-owned company operates at a larger scale than the average British company, the apparent failure to narrow the gap does suggest that there may be additional complementary policies or institutional reforms which are required in order to achieve the highest possible level of spillovers and the dissemination of best-practice techniques.

4. OPENNESS AND GROWTH: A SUMMARY

A reasonable summary of the evidence on trade and growth and inward investment might be that it is consistent with the hypothesis that greater openness helps to raise per capita incomes, but there is a large amount of uncertainty regarding the magnitude of the effects and it is likely to depend on a range of host country and external characteristics. There is little evidence in favour of the opposite view that trade protection or capital controls are beneficial for sustained economic growth, suggesting that policies should more appropriately be biased towards ensuring greater openness and contestability of product markets.

There is nothing in the present literature to indicate what an appropriate level of openness might be. In general, smaller economies tend to have higher levels of trade relative to GDP simply because there are fewer domestic consumers for producers to trade with. It is quite possible that significant barriers to trade and capital mobility are costly but more modest restrictions are not. There are clearly some economies such as North Korea which have fallen behind as a result of remaining closed to the outside world for the last fifty years, and others, such as Hong Kong which have experienced sustained growth associated with their openness. However these are extremes, and it may be difficult to generalise from their collective experience.

The available empirical evidence has yet to provide a convincing verification of the endogenous growth models. Most of the evidence points towards permanent effects on the level of technical efficiency. Of course, discriminating between changes which have small, but long-lasting, effects on growth, and others which ultimately have large effects on the level of output may be very difficult to do, given the average time dimension of most data sets.

References

- Aghion, P. and P. Howitt, 1998.** *Endogenous Growth Theory*, MIT Press, Massachusetts.
- Barrell, R. and N. Pain, 1997.** “Foreign Direct Investment, Technological Change and Economic Growth within Europe”, *Economic Journal*, 107, 1770-1776.
- Barrell, R. and N. Pain, 1999.** “Trade Restraints and Japanese Direct Investment Flows”, *European Economic Review*, 43, 29-45.
- Barrell, R. and N. Pain, 2001.** “Macroeconomic Management in the EU”, in Brewer, T. and Boyd, G. (eds.) *Globalizing Europe*, Macmillan Press, forthcoming.
- Barry, F. and J. Bradley, 1997.** “FDI and Trade: the Irish Host Country Experience”, *Economic Journal*, 107, 1798-1811.
- Ben-David, D. 1993.** “Equalizing Exchange: Trade Liberalisation and Income Convergence”, *Quarterly Journal of Economics*, 108, 653-679.
- Ben-David, D. 1996.** “Trade and convergence among countries”, *Journal of International Economics*, 40, 279-298.
- Ben-David, D., H. Nordström, and L.A. Winters, 2000.** *Trade, Income Disparity and Poverty*, World Trade Organisation Special Studies No.5.
- Bernard, A.B. and J.B. Jensen, 1999.** “Exceptional exporter performance: cause, effect or both?”, *Journal of International Economics*, 47, 1-25.
- Bernard, A.B. and J. Wagner, 1997.** “Exports and success in German manufacturing”, *Weltwirtschaftliches Archiv*, 133, 134-157.
- Bernard, A.B. and J. Wagner, 2001.** “Export entry and exit by German firms”, *Weltwirtschaftliches Archiv*, 137, 105-123.
- Blomström, M., A. Kokko, and S. Globerman, 2000.** “The determinants of host country spillovers from foreign direct investment: a review and synthesis of the literature”, in N. Pain, (ed.) *Inward Investment, Technological Change And Growth: The Impact Of Multinational Corporations On The UK Economy*, Palgrave Press.
- Caves, R.E., 1996.** *Multinational Enterprise And Economic Analysis* (Second Edition), Cambridge University Press, Cambridge.
- Egan, M.L. and A. Mody, 1992.** “Buyer-seller links in export development”, *World Development*, 20, 321-334.
- Farinha, L. and J. Mata, 1996.** “The impact of foreign direct investment in the Portuguese economy”, *Banco de Portugal Working Paper* No. 16-96.
- Frankel, J.A. and D. Romer, 1999.** “Does trade cause growth?”, *American Economic Review*, 89, 379-399.

- Fujita, M., P. Krugman, and J.A. Venables, 1999.** *The Spatial Economy: Cities, Regions and International Trade*, The MIT Press, Cambridge MA.
- Girma, S., D Greenaway, and K. Wakelin, 2001.** “Who benefits from foreign direct investment in the UK?”, *Scottish Journal of Political Economy*, 48, 119-133.
- Grossman, G.M. and E. Helpman, 1991.** *Innovation and Growth in the Global Economy*, MIT press, Cambridge, Massachusetts.
- Hanson, G.H., 2000.** “Scale economies and the geographic concentration of industry”, NBER Working Paper No. 8013.
- Head, C.K., J.C. Ries, and D.L. Swenson, 1999.** “Attracting foreign manufacturing: investment promotion and agglomeration”, *Regional Science and Urban Economics*, 29, 197-218.
- Hoeller, P., N. Girouard, and A. Colecchia, 1998.** “The European Union’s trade policies and their economic effects”, OECD Economics Department Working Paper No.194.
- Hubert, F. and N. Pain, 2000a.** “Inward investment and technical progress in the United Kingdom”, in Pain (2000).
- Hubert, F. and N. Pain, 2001b.** “Inward investment and technical progress in the United Kingdom manufacturing sector”, *Scottish Journal of Political Economy*, 48, 134-147.
- IMF, 2000.** *World Economic Outlook May 2000*, International Monetary Fund, Washington D.C.
- Jones, C.I., 2000.** “Comment on Rodríguez and Rodrick”, *NBER Macroeconomics Annual*.
- Knack, S. and P. Keefer, 1995.** “Institutions and economic performance: cross-country tests using alternative institutional measures”, *Economics and Politics*, 7, 207-227.
- Krueger, A.O., 1997.** “Trade policy and economic development: how we learn”, *American Economic Review*, 87, 1-22.
- Krugman, P., 1991.** *Geography And Trade*,: MIT Press Cambridge MA.
- Kunst, R.M. and D. Marin, 1989.** “On exports and productivity: a causal analysis”, *Review of Economics and Statistics*, 71, 699-703.
- Lloyd, P.J. and D. MacLaren, 2000.** “Openness and growth in East Asia after the Asian crisis”, *Journal of Asian Economics*, 11, 89-105.
- Marin, D., 1992.** “Is the export-led growth hypothesis valid for industrialised countries?”, *Review of Economics and Statistics*, 74, 678-688.
- Midelfart-Knarvik, K., Overman, H., Redding, S. and Venables, A. 2000.** “The location of European industry”, report prepared for the European Commission.

Nickell, S.J., 1996. “Competition and corporate performance”, *Journal of Political Economy*, 104, 724-746.

O’Mahony, M., 1999. *Britain’s Productivity Performance 1950-1996: An International Perspective*, NIESR.

Pain, N. (ed.) 2000. *Inward Investment, Technological Change And Growth: The Impact Of Multinational Corporations On The UK Economy*, Palgrave Press.

Proudman, J. and S. Redding, (eds.) 1998. *Openness And Growth*, Bank of England.

Rodríguez, F. and D. Rodrik, 2000. “Trade policy and economic growth: a skeptic’s guide to the cross-national evidence”, *NBER Macroeconomics Annual*.

Romer, P., 1993. “Idea gaps and object gaps in economic development”, *Journal of Monetary Economics*, 32, 543-573.

Ruane, F. and H. Görg, 1999. “Irish FDI policy and investment from the EU”, in Barrell, R. and N. Pain, (eds.) *Investment, Innovation and the Diffusion of Technology in Europe*, Cambridge University Press.

Temple, J., 1999. “The new growth evidence”, *Journal of Economic Literature*, 37, 112-56.

Tybout, J., 2000. “Manufacturing firms in developing countries: how well do they do and why?”, *Journal of Economic Literature*, XXXVIII, 11-44.

UNECE, 2000. “Catching up and falling behind: economic convergence in Europe”, United Nations Economic Survey of Europe, Vol. XX, Chapter 5.

WTO, 2000. *Annual Report 2000, International Trade Statistics*, World Trade Organisation, Geneva.

Mr. Shane Whelan: I would like to thank the three speakers for a most stimulating evening.

I have a question that draws together points made by each of the speakers. First, Professor Kennedy pointed out that the ultimate constraint on economic growth is not one of the traditional factors of production but how much we are prepared to sacrifice on the alter of faster growth. The capital stock can literally be doubled overnight simply by working nightshifts and the pool of labour deepened either by working longer hours or having an even greater participation rate. Professor O’Rourke, while making the point of economic convergence, showed just how divergent economic growth can be in a small economy like Ireland relative to its trading partners and that this divergence can persist for decades. Well, if a small economy can be such an outlier in terms of sluggish economic growth then can it not be equally as extreme an outlier on the positive side? This brings me to Dr Pain who showed a graph that highlighted the significant differences in work patterns that

exist between Europe and the US. In Europe both the working hours and the participation rate are less than the US.

So here is my question. If the Irish want economic growth just as much as the Americans and are willing to make the same sacrifices in terms of longer hours and greater participation, how much of a fillip would this give to GNP? An answer to this could be used to set an upper limit on how much longer the tiger economy can run.