

Introduction and Overview

1 Introduction

Ireland's recent economic growth has been characterised by increases in numbers employed and by growth in productivity. As the potential for employment growth wanes due to demographic change and the limits to migration, productivity growth will be the most important long term driver of Ireland's improvements in national living standards. However the requirements for success in promoting productivity growth can vary across markets, and can be subject to rapid change. The ability to work flexibly, and to redesign and change institutions as required, will be critical in driving Irish productivity growth in the future. In Chapter 1 of this volume, Sexton provides a comprehensive overview of Ireland's productivity performance since 1995, while in Chapter 4 Iparragirre D'Elia reviews the productivity performance of Northern Ireland.

Ireland faces two productivity challenges going forward:

- How do we drive productivity growth in the non-exporting sectors of the economy? The measurement and promotion of productivity growth of these sectors has received relatively little attention, and will require a lot more policy action in the coming years.
- How do we maintain an attractive business environment for high-productivity exporting firms (both Irish owned and otherwise)? While the economic growth of the last two decades has been built on the success of the internationally traded sectors, continued productivity growth in these areas cannot be taken for granted. Increasingly, Ireland is facing significant competition in international markets, and Irish firms are competing on the basis of a higher cost environment.

This volume aims to provide insights that can help policymakers frame solutions for both of these challenges. Section 2 below outlines how competition has helped energise the exporting sector, and asks whether competition can play the same role in the non-exporting sector. In Section 3, we argue that ICT usage can play a vital role in transforming productivity, though to benefit from ICT, organisations need to have the flexibility and management expertise to initiate complementary organisational change. In Section 4 we discuss how industry networks can assist in further developing productivity. In Section 5 we discuss the role that industrial policy must play in the coming years, while the problem of lack of data is discussed in Section 6.

2 Competition is Key

Ireland's economic development strategy over the last number of decades has been multifaceted, characterised by the attraction of green-field investment, the investment in physical and human capital, the adoption of a competitive taxation regime and the creation of an attractive business environment. While these policies will continue to be critical going forward, a dominant theme that emerges from a number of the contributions in this volume is the importance of competition in boosting future productivity.

Boyle and Evans (Chapter 10) show that the strong link between competition and productivity is driven by a number of distinct effects. First, competition stimulates innovation as firms invest in the development of new products or production methods. Second, competition encourages efficiency improvements. As firms face competition they must reduce costs in order to compete for customers. This is achieved by finding quicker or more efficient methods of production. Third, competition promotes diffusion of technology as firms seek to improve productivity by adopting processes or products that may have been developed by market leaders. This diffusion process is prominent in markets that are open to international competition.

The importance of competition also emerges from an examination of those companies that transferred from public to private ownership. The evidence from Ireland (Palcic and Reeves, Chapter 11) and the UK (Parker, Chapter 12) is that the key success of 'privatisation' was not, as the name suggests, changing the ultimate ownership of the companies involved, but rather making the markets in which they operated contestable. In fact, much of the productivity growth achieved by these privatised companies accrued in the years prior to when they were formally divested. This can be seen in the cases of Greencore, B&I and British Airways, amongst others.

It is clear from a number of studies reported in this volume that the industries that work in a highly competitive global environment are constantly evolving in an effort to drive up productivity in response to this competition. For example Kneller (Chapter 23) shows the importance of dynamic entry and exit to an industry's overall productivity performance. While much of the productivity gain in the manufacturing sector of the economy is the result of highly successful firms increasing their productivity (the *within* effect), a very significant amount is due to new firms entering markets and taking share from less efficient incumbents (*net entry*, or the so called 'creative destruction' effect). Both sources of productivity growth may be limited in those industries where supply is 'co-ordinated' rather than subject to competition, for example in healthcare provision.

Unfortunately, there are many areas of the economy where competition is noticeably weak or absent. They are often the sectors where no good measures of productivity currently exist, so it is not possible to definitively conclude the extent of the productivity challenges facing these sectors. The one 'protected' sector where there is no shortage of data and where it is possible to develop robust measures of productivity is agriculture, and the costs of distorted competition can be readily seen. Matthews, Newman and Thorne (Chapter 6) show that with a very high share of farm income coming in the form of direct payments, farmers attention has switched from identifying on-farm technical improvements as a source of increasing income - a reward for meeting consumer demands - to ways of maximising premium income. This has resulted in a decline in total factor productivity in cattle production since 1980. This, however, will need to change. Productivity will increasingly become a focus for Irish farmers as they learn to compete in a much lower price environment in the future, even if the dismantling of the CAP's protective regime is still likely to take some time.

In conclusion, policymakers should recognise the potential of unleashing competition (with appropriate regulation) to deliver benefits to consumers. As discussed by Farrell, Remes and Kehoe in Chapter 2, future productivity growth nationally will require a better performance by a select number of non-exporting industries. The industries in question are among the most important and largest employers in the economy, and include financial services, utilities, health, education and legal services. The key role for the government in these markets should be to protect the wider public interest by setting quality standards, and to act as a purchaser of services for those who could not otherwise afford them for themselves. This does not require

the government to act also as employer or direct provider. Competition in these industries can act as a catalyst for the delivery of great cost efficiencies and the discovery of innovative solutions to consumer needs, and it can guard these sectors from the demands of vested interests.

3 ICT Boosts Productivity, but is not a Silver Bullet

ICT is generally accepted as being one of the drivers of productivity growth in modern economies. What emerges from the contributions in this publication is that ICT can have a very positive effect on productivity growth, and indeed was the catalyst for the surge in productivity growth in the US over the last decade. However, there is also evidence that Europe has not been as successful as the US in optimising its use of ICT, despite the fact that the quality of the technology available to both economies is identical (Mundschenk, Chapter 21).

What is clear from the contribution of Maddox and Boyle (Chapter 22) is that the introduction of ICT per se might not necessarily have a large impact on productivity. They investigated the levels of ICT investment undertaken, and the subsequent performance benefits in four different Irish organisations, two of which were manufacturing firms (a high tech multi-national and a traditional indigenous firm), one was a medium sized bank while the last was a municipal authority. The research finds that ICT investment affected the high-technology firm in a most significant and positive way. At the other end of the performance scale, the municipal authority failed to put structures in place that would allow for the optimal use of their ICT investment.

ICT can have a role to play in boosting productivity, but policies that aim to transpose such technologies into a static regulatory or management environment, are unlikely to succeed in increasing productivity. Any efforts to promote ICT by public policy must recognise the importance of a corresponding reorganisation of an industry or company to take advantage of this technology. Public sector organisations in particular will have to become more open to such reorganisation and re-training to reap the full benefits of ICT.

4 Developing Industry Networks

The underdevelopment of business networks in Ireland appears to be preventing a number of industries from reaping the full productivity benefit of new technologies. As reported in this volume, both the residential construction sector (Chapter 7) and the road freight sector (Chapter 8) have failed of to take full advantage of ICT. There are examples, however, of Irish companies in both industries that are adopting world class management techniques.

In residential construction, the use of ICT could greatly facilitate more efficient site management where a large number of sub-contractors are involved in the completion of a single project. In road haulage, a centralised booking system could reduce the very high degree of empty loads, by more efficiently matching demand with potential supply. However, these two industries are typified by a large number of small firms. Clearly, these firms acting in isolation may not be able to optimise their use of ICT in the absence of a more widespread adoption across their respective industries. What is missing is an institution which can pull enough major players in an industry together to bring about such networks. In many countries, there exist business development institutions to fulfil this role. As O'Donnell and Cahill argue in Chapter 9, in Ireland there are few and comparatively weak associations in civil society devoted to technical, scientific or business development, and as such potential productivity enhancements are not realised.

5 Lessons for Industrial Policy

Ireland's industrial policy has played a central role in Ireland's phenomenal economic growth during the 'Celtic Tiger' period. Organisations such as the IDA and Enterprise Ireland, a pro-business policy environment and policy consistency on the part of a number of successive governments played a key role in attracting Foreign Direct Investment (FDI) into Ireland during the late 1980s and 1990s. This volume contains a number of lessons to inform Ireland's future industrial policy which are discussed under four headings, namely the impact of productivity spillovers, the regional distribution of economic growth, the role of R&D and the role of micro-policies aimed at supporting Irish enterprises.

Productivity Spillovers

Policymakers have long assumed that inward investment can bestow large economic benefits, not only in terms of new investment but also an inflow of new foreign knowledge and technology. This has led to greater importance being given to the notion of industrial clusters. This view of agglomeration economies based on industrial clusters derives largely from the work of Michael Porter, which is reviewed in detail by Doyle and Fanning in Chapter 16. The chapter concludes, however, that there is little evidence that such clusters have had a significant effect on productivity growth in Ireland. The review of the international evidence by Görg in Chapter 14 also finds that the evidence is at best mixed. O'Leary argues in Chapter 15 that agglomeration effects may be due to much broader considerations than suggested by a focus on clusters.

The arrival of multinationals probably did have very important spillover effects however, but they probably were felt much more broadly than the narrow industrial sectors which were analysed in these studies. In particular, the economic upturn from the beginning of the 1990s onwards resulted in a sea change in the way economic development was viewed in Ireland. It heralded a period of much greater cultural openness, and a greater understanding of the potential and limitations of competing in the global market. Policymakers, wary of losing multinational companies that had the potential to relocate, became more sensitive to the needs of the enterprise sector. This had a beneficial knock-on effect on Irish firms, who also benefited from this more enabling policy climate. Further, a generation of Irish workers experienced world-class management techniques and acquired specific market knowledge when working for particular industries, which are in turn increasingly being applied across a swathe of economic sectors. Not all of these benefits would be captured in a study examining only very narrow industry or geographic spillovers.

Regional Distribution of Growth

The vast majority of companies that have been attracted into Ireland have been attracted into one of our major cities. Morgenroth (Chapter 3) notes that the regional disparities in productivity growth are due to the fact that the Greater Dublin and South Western regions have been more successful in attracting highly sophisticated and productive foreign owned manufacturing firms. O'Leary (Chapter 15) argues that to the extent that agglomeration economies have influenced the location of many industries, these have been centred on the availability of labour supply with third level qualifications and the quality of life available in these population centres. Industrial development agencies and government policy have continually

attempted to encourage more firms to set up outside of these regions, in an effort to promote more balanced regional growth. O'Leary recommends that in a country of Ireland's size, policy should focus on developing perhaps five or six highly urbanised centres in which the required concentration of factors such as skilled labour, educational institutions and infrastructural links could all be provided.

Kopp in Chapter 17 analyses the macroeconomic productivity effects of road investment in 13 western European countries and shows that the rate of return for many countries on past investment has been low. However, the quality of Irish infrastructure is thought to be inferior to these countries, so the rate of return for Ireland would be expected to be higher. That said, Ireland's dramatic economic takeoff at the start of the 1990s took place at a time when our infrastructure was deemed poor by international standards. Furthermore, the German economy has posted a below average performance over the last decade despite having an impressive existing transport network.

Building a Knowledge Economy

The concept of the 'knowledge economy' is based on the idea that science, research, technology and innovation play an important role in creating knowledge in modern economies. Kavanagh and Doyle in Chapter 18 review the compelling evidence in support of the view that increased human capital boosts growth, individual earnings, and firm level productivity. Turning to R&D, Czarnitzki and O'Byrnes (Chapter 19) conclude that R&D expenditure generates significant private and social returns. The social returns are substantially higher than the private returns due to the 'spillover' of research findings. They also find that countries which lag behind in R&D performance can benefit most from these spillovers, as long as they have sufficient absorptive capacity, though developing this capacity is in itself a significant undertaking. Dagg (Chapter 20) sets out the evolution of the R&D performance of Ireland.

Micro-Policies to Support Irish Firms

In Chapter 23 Kneller investigates whether the best firms become exporters or whether they somehow benefit as a result of being an exporter. While the chapter suggests that there is a learning effect once a firm starts exporting, the chapter notes that firm productivity would appear to be largely independent of the firm's export decision. In other words, the productivity growth in exporting firms generally occurs before rather than after the decision was made to export. While efforts to encourage exports are often useful in cases where firms do not recognise the benefits of exporting, where they cannot find customers, or where there are barriers to exporting, the research underpins a case for general support to firms, rather than targeted intervention.

Chapter 24 focuses on outward investment from Ireland, the pace and scale of which is likely to emerge as one of the most important features of Irish economic development over the next decade. The evidence shows that outward investment is associated with higher productivity, though the evidence is mixed regarding which firms/activities benefit most. In Chapter 25 Haller shows that at the root of productivity dynamics at the aggregate level are large differences in productivity between plants in even narrowly defined sectors. This chapter decomposes the changes in labour productivity in Irish manufacturing industries from 1995 to 2003. Finally, Watt and Scully in Chapter 13 discuss the regulatory burden in Ireland, and identify some potential areas for improving the Irish regulatory framework.

6. Building our Understanding of Productivity

“Real knowledge is to know the extent of one’s ignorance.”

Confucius, 551-479 BC

What is most striking about the volume is the extent of our lack of knowledge of productivity levels or growth in Ireland. While this volume contains many valid policy lessons in relation to productivity, many sectors are omitted, and many of the policy lessons are based on data from other countries.

It is very difficult to measure productivity properly. Traditionally economists have measured productivity by calculating the value added per worker. By this measure, the higher the value added in an industry, the higher is productivity. Economists like working in value added as these figures are easily collected by statistical agencies, and remove the requirement to measure the quality and quantity of outputs and inputs from an industry, data which is difficult to collect with any degree of accuracy.

For Ireland, this presents two challenges. First, the estimates of output and productivity for the exporting sector in Ireland can be affected by the treasury operations of some multinational firms. Second, this value added data is of limited value for measuring productivity for those goods and services which do not face international competition, but which are essential in a modern society. For example, the electricity generation and distribution sector in Ireland has a very high level of value added per worker, but suffers from a number of productivity shortcomings. The value-added in these sectors reflect domestic wage and profitability levels, and often have no correspondence to their productivity performance.

The greatest problems in understanding productivity are in the public sector. This is a serious constraint to understanding Ireland’s overall productivity, as the productivity of the public sector is as important to the economic performance of a country as the productivity of the private sector. Productivity in the public service is currently measured based on the formula *Outputs = Inputs*. In other words, if inputs into healthcare increase by 15 per cent, it is assumed that output in that industry also increases by 15 per cent. Clearly, this assumption takes no account of changes in actual efficiency within the public sector.

Efforts have been made internationally to overcome these problems. As reported by Boyle (Chapter 5) in the UK, the Office for National Statistics (ONS) is developing measures of productivity. The ONS published a major review of health service productivity, with three different estimates of NHS productivity. Also in the UK, changes in local government performance are assessed using a sample of 63 indicators including ‘Best Value’ performance indicators, indicators from the Social Services Performance Assessment Framework, and indicators from the Department for Education and Skills. In Australia, a set of performance indicators for schools is being developed, incorporating equity indicators that measure how special needs groups compare in terms of participation and retention rates, and effectiveness indicators that measure learning outcomes with regard to reading, writing and numeracy.

Work in Ireland to deepen our understanding of productivity has also commenced. Two chapters in this volume report efforts to overcome research shortfalls in major non-exporting sectors of the economy, specifically in residential construction (Aylward and O’Toole, Chapter 7) and road freight (Aylward and O’Toole, Chapter 8). While these two chapters represent the first attempt to provide estimates of productivity based on direct output measures, both were hampered by insufficient data, despite the fact that these industries are two of the largest employers in the country.

We currently have very little information about the productivity of the vast majority of the Irish labour force and this is a major challenge for statisticians. Further, the focus of research to date of the economics community is unbalanced. There is already a large amount of productivity work on the exporting sectors of the economy. However, far fewer resources are aimed at studying non-exporting sectors, sectors where productivity underperformance is not necessarily self-correcting through competition, and which may in fact be more amenable to corrective policy action by the government. These sectors have a large impact on business costs, and therefore contribute crucially to the competitiveness of the economy as a whole and are worthy of further research.