#### **CHAPTER 2**

# SERVICE SECTOR PRODUCTIVITY: THE TIGER'S NEXT CHALLENGE?

DIANA FARRELL, JAANA REMES AND CONOR KEHOE

#### **ABSTRACT**

By 2004, value added per person at work in manufacturing industries was twice that recorded in services sectors and the gap between the two widened considerably since 1995. The underperformance of the service sector is critical for the Irish economy since two out of three people in the workforce are now employed in services. This chapter dispels some myths surrounding service sector productivity, and based on McKinsey's research of domestic service sectors provides some key policy priorities relevant to Ireland if it is to improve its productivity performance in this area.

#### 2.1 Introduction

Ireland posted productivity growth of 63 per cent between 1995 and 2002, making it the best performer in Europe. But Ireland's productivity record is not as impressive as this headline figure suggests, and further progress may prove difficult. Indeed, Ireland's productivity progress is now slipping, according to the latest statistical evidence.

Research by the McKinsey Global Institute (MGI) has found that 70 per cent of this productivity growth has come from foreign-owned companies in just a handful of sectors—high-tech components, chemicals, electrical machinery, food and drink, and IT services. Although these companies have proved dynamic, importing best practice into Ireland's economy, they still contribute just under a quarter of Ireland's total GDP and employ only 15 per cent of the country's workforce. Productivity growth outside these sectors has been patchy and, in some cases, weak. Productivity improvement in agriculture has proved elusive; but even more pertinently for a modern economy, service-sector productivity has been weak.

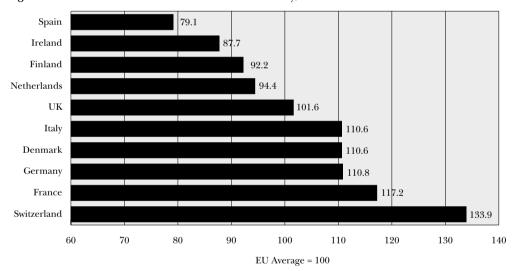


Figure 2.1: Index of Private Service Sector Productivity, 2003

Source: European Competitiveness Index, 2004.

MGI research shows that service sectors, excluding IT, contributed just 14 per cent to the productivity increase posted in Ireland between 1995 and 2002, but was responsible for the employment of 55 per cent of the workforce. In retailing, for example, Irish productivity is clearly below the average of the 15 Member States of the European Union prior to the latest round of enlargement in 2004.¹ Measuring the performance of this sector in terms of value added per employee, Irish retail stood at 88 per cent of the EU-15 average. In retail banking, our research found that productivity in Ireland stood at roughly half the level recorded in Belgium and Sweden—the two countries with the highest productivity in this sector. Service providers may argue that they cannot exploit economies of scale in Ireland's relatively small economy. But Finland, with a comparable GDP, exceeds the EU-15's overall average service productivity by 26 per cent while Ireland exceeds it by just seven per cent. In terms of productivity growth

in retail banking, Ireland posted a compound annual growth rate in productivity per employee in the period between 1995 and 2002 of three per cent. This compared with 9.9 per cent in Portugal, 5.6 per cent in Spain, 4.4 per cent in Germany, and 3.8 per cent in the Netherlands.

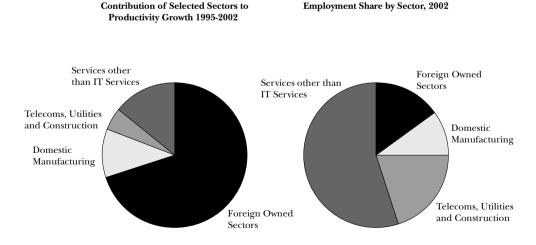
Ireland's productivity imperative has been accentuated by the fact that it has now become a relatively high-wage economy with a rising population. After years of net emigration, Ireland is now seeing the return of many of its citizens who had been living and working in the diaspora. In these circumstances, it is vital for Ireland to achieve broad gains in productivity.

Research by the MGI across a number of middle-income and developed economies has consistently shown a strong link between competitiveness, productivity, and economic growth, and has found surprisingly significant potential in creating this virtuous circle in domestic service industries (McKinsey Global Institute, 2005). It is clear that services are the best source of long-term employment and economic growth for developed economies. Domestic services have the potential to create more jobs in Ireland than service exports and raising the productivity of Ireland's domestic service sector is the key to the country's continuing economic renaissance.

### 2.2 Ireland's Productivity Record

Ireland's productivity growth was substantially above the European average during the 1980s, and the highest in Europe during the 1990s, using the Central Bank of Ireland's preferred measure, GNP per hour worked (Hurley, 2005). Using another measure—Gross Value Added (GVA) per person at work—Irish productivity rose by almost 36 per cent in real terms between 1995 and 2004, an increase of more than 3.5 per cent a year over a period of nine years (Tansey, 2005).

**Figure 2.2:** Sectoral Contribution to Productivity Growth and Employment Share by Sector.



Source: Groningen Growth and Development Centre; McKinsey Global Institute analysis.

Note: Foreign Owned Sectors includes high-tech components, chemicals, electrical machinery, food and drink and IT services.

However, it is clear that most of that productivity increase has come from manufacturing and, within manufacturing, has been dominated by foreign-owned companies in a limited number of sectors. By 2004, value added per person at work in industry was twice that in services and the gap between the two widened considerably between 1995 and 2004. Productivity growth in services was relatively subdued between 1995 and 2004. Real GVA per person edged ahead by just 9.1 per cent, a compound growth rate of less than one per cent a year. This poor productivity performance is particularly critical for the Irish economy because two out of three people in the workforce are employed in services and 80 per cent of new jobs generated by the Irish economy between 1995 and 2004 were in the services sector.

Evidence of a particularly large gap between the productivity performance of Irish industry versus services comes from a 2003 study by the European Commission, which compared hourly labour productivity growth in the business sector from 1996 to 2000 (Cassidy, 2004). The results showed that Ireland saw total business productivity rise by 8.4 per cent during this period, 7.3 per cent of which came from manufacturing and only 1.8 per cent from private services. In comparison, the United Kingdom saw a total increase of 2.6 per cent, with 1.9 per cent coming from private services and only 0.8 per cent from manufacturing. In the United States, the total business productivity increase was 3.1 per cent with 2.0 per cent coming from private services and 1.2 per cent from manufacturing.

In recent years, the pace of overall productivity growth has decelerated with GNP-based measures of output per worker showing growth of less than one per cent from 2000 to 2004. According to the Governor of Ireland's Central Bank, productivity growth in Ireland's manufacturing sector has slowed significantly in the past two years from more than 14 per cent in 2002 to around 3.5 per cent in 2004 (Hurley, 2005). In the first half of 2005, the Bank said that, on a year-on-year basis, productivity growth in manufacturing was negative.

The Bank noted that this weakening reflected the overall slowdown in economic growth during this period, but judged that it is unlikely that labour productivity growth can recover to the high rates Ireland experienced in the late 1990s (Cassidy, 2004). There is concern that the stellar overall productivity-growth performance of Ireland in recent years could have been largely a one-off due to the significant influx of Foreign Direct Investment (FDI). If the rate of FDI flows were to decline, it would be very difficult to see Ireland being able to replicate these gains in the future. In addition, Ireland, like other developed economies, is likely to see a gradual, continuing shift from manufacturing to services and this, without action to boost productivity in service sectors, will mean that overall productivity growth will fail to keep pace with the experience of recent years.

# 2.3 Domestic Services -The International Experience

The experience of other economies around the world offers a strong argument to Irish policy makers to turn their attention to the weak productivity of its ever-more important domestic services sector. MGI has undertaken extensive research in a number of middle-income and developed economies, which shows that domestic services account for more than 60 per cent of all jobs and virtually all net new job creation (Figure 2.3). Since 1997, employment has declined in the goods-producing sectors of most developed and many developing economies and it is increasingly clear that, given the increasing share of services in consumption and labour-saving

new technologies, manufacturing is unlikely to prove a sustainable source for employment growth in any economy in the future.

Low Income Countries Middle Income Countries **High Income Countries** 80 80 80 Services 70 70 70 60 60 60 Services <u>d</u> 50 50 50

Industry

Agriculture

№ 40

30

20

10

Industry

Agriculture

1970 1976 1982 1988 1994 2000

Figure 2.3: Service Sector as a Percentage of GDP, 1970-2001

№ 40

30

20

10

Source: World Bank; World Development Indicators.

......

1970 1976 1989 1988 1994 2000

Services

Industry

Agriculture

40

30

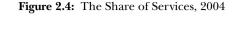
20

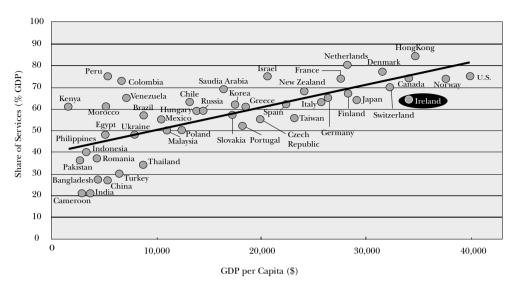
10

Domestic services suffer from an economic image problem. Too often, they are regarded as a poor relation to high-tech sectors, manufacturing exports, and high value-added services that can be exported internationally. But domestic services are much more than fast-food vending or shoe repair. In Ireland, and around the world, they also comprise very significant sectors that are crucial to economic development, including power supply, transport, retail, construction and telecommunications, as well as a range of high-skill, high-wage occupations, from accountants, to advertisers, to rock stars.

1970 1976 1982 1988 1994 2000

As economies grow richer, business-to-business services represent an increasing share of total economic activity. These activities include professional services such as law, accountancy and consulting; technical services such as IT and software support; wholesale trade services and employment services. The recent rapid growth in business services in developed economies is an outcome of specialisation. As companies focus increasingly on their core competencies, they buy more non-core services from third parties.





Source: World Development Indications, Global Insight.

The sheer size of domestic service sectors makes them powerful drivers of overall GDP growth, and their share of the economy rises as countries develop (Figure 2.4). Services account for roughly half of GDP in India and the Philippines, but 68 per cent in Japan and 75 per cent in the United States. The quality of those services affects growth rates in other sectors because every enterprise must use them. Efficient, good-value domestic services also help to attract FDI. India's offshoring sector, for example, did not take off until telecom reforms were adopted in the early 1990s.

As a result of more efficient use of labour, automation, and new IT, manufacturing employment is shrinking. Despite policy efforts to preserve them, roughly 22 million manufacturing jobs disappeared worldwide between 1995 and 2002. Even China, the so-called 'factory floor' of the world, has shed more than 15 million manufacturing jobs since 1995. So, as MGI research shows, services are now critical to sustain growth, to create jobs, and to boost productivity (Figure 2.5).

.....

Figure 2.5: Contribution of Services to Job Growth

Percent	Services		Manufacturing		Agriculture	
U.S.	122		-21		-1	
Japan*	52		-132		-21	
UK	129		-22		-7	
Taiwan	222		-61		-61	
Korea	108		-5		-3	
Portugal	55			41		4
Mexico	84			47	-31	
Brazil**	101			20	-20	
Turkey*		1,534	-116		-138	
Czech Republic* -	4		-75		-21	
Poland*	0		-61		-39	

Source: OECD.

**Notes:** \*Negative overall net job creation means that sector contributions sum up to -100 per cent. \*\*1997-2001.

Among middle and high-income economies today, services generate 62 per cent of all employment on average, and the higher a country's GDP per capita, the higher the share of service employment. Somewhat surprisingly, service industries actually create more high-skilled occupation than manufacturing. In the United States, more that 30 per cent of service jobs are in the highest-skill category of professional, technical, managerial, and administrative occupations. In contrast, only 12 per cent of all manufacturing jobs are in this category, and the same pattern holds in other developed nations (OECD, 2005). Services also provide many well-paid blue-collar jobs, such as electricians, plumbers and auto mechanics. In fact, the distribution of wages in the United States looks broadly similar in services and manufacturing (Figure 2.6).

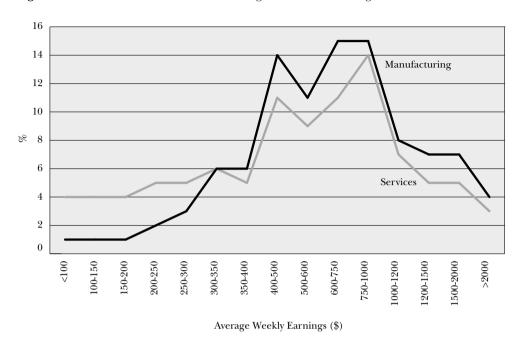


Figure 2.6: The Distribution of Manufacturing and Service Earnings

Source: US Census Bureau, Current Population Survey.

There are more low-wage jobs in services, but also many high-wage jobs. The variance within each sector is actually greater than the variance between them. Moreover the experience of some countries in Europe shows that trying to contain growth in low-skill jobs by imposing high minimum wages and other labour market restrictions results in higher overall unemployment, not more high-skill jobs.

The failure to promote productivity in services has been a significant factor holding back major economies. Take Japan. By the end of the last century Japan's world-class manufacturers of autos, steel, machine tools and consumer electronics were legendary for their performance. However, their manufacturing output made up only ten per cent of GDP, while productivity in the rest of the economy was very poor relative to US levels (Kondo et al., 2000).

Low productivity in local services goes a long way towards explaining why Japanese GDP growth tailed off in the 1990s, just as subsequent incremental reforms of service sectors helps to explain the recent improvement in Japan's economic performance. Japan's Cabinet Office calculates that deregulating telecoms, transport, energy, finance and retailing were responsible for 4.6 per cent of the country's GDP in 2002 (The Economist, 2005).

In Europe, service industries, from hairdressers to retailers to accountants, accounted for some 70 per cent of Europe's GDP and all of its net job creation over the past five years. But services continue to be crippled by a thicket of regulation. Germany, for instance, limits retailers' opening hours; Portuguese hotels must employ a set number of staff in each job category, depending on the hotel's size; and across the Continent, family-run corner shops with low productivity and relatively high prices are protected by tax and zoning laws.

MGI studied six major European countries and found that their low growth and high unemployment were not caused by a lack of technology (as many European policymakers believe) but rather from too little competition. Sweden is an interesting case (McKinsey Global Institute, 2006). At the beginning of the 1990s, Sweden went through its own share of turbulence, which threatened to eat away at its generous welfare state and vibrant economy. By 1998, Sweden's per capita income had fallen to 16th place among OECD countries, down from seventh in 1980. Productivity was flagging and unemployment rising. But, with a few changes, it managed a remarkable turnaround. Between 1998 and 2004, income growth has outstripped that of most comparable OECD countries. And over the past 12 years, productivity in Sweden's private corporate sector has risen by 3.3 per cent a year - 1.5 times higher than the OECD average.

The key to Sweden's revival was widespread deregulation and regulatory reform that increased competition and boosted productivity while maintaining generous social provisions. First, entry into the European Union in 1995 lowered trade barriers, boosted competition from abroad, and encouraged efficiency. Second, stricter antitrust and competition laws levelled industry playing fields; whole industries could no longer adopt common prices, for example. Third, Sweden started micro-level reform. In retail banking, new entrants were given banking licenses which intensified competition. Sweden's retail banks are now more productive than their peers in the United States, Britain, France, and Germany. In retail, Sweden improved zoning laws, giving new entrants access to land. As a result, productivity improved rapidly and food prices fell by more than 25 per cent compared with other European countries.

Sweden has more to do in order to ensure that its productivity improvement continues, particularly in an era in which so many service jobs are offshored. For instance, Sweden continues to be hobbled by high employment taxes that make services such as restaurants and retailing prohibitively expensive. For instance, Swedish pay rates go up by about 70 per cent for overtime on weekday evenings and 100 per cent on weekends, raising the cost of opening stores at these times and limiting employment. Britain's retail sector, without such regulations, employs almost twice as many workers per capita as Sweden's does. Sweden's construction sector, too, continues to suffer from over-regulation, which have curtailed its annual productivity increases to only 0.7 per cent since 1990.

# 2.4 Four Myths About Service Sector Productivity

Despite the increasing importance of domestic services to growth and job creation evident in middle-income and developed economies, there has been little focus on how to improve productivity in services sectors. A number of myths about service industries have been demotivational:

### Myth 1: Reforming Domestic Services will not Improve Productivity Significantly Because They Offer So Little Scope for Innovation;

Productivity improvements in service industries like electricity supply and telecommunications have been important drivers of overall productivity growth in developed economies. For example, in the United States, the late 1990s boom in productivity was due in large part to innovations in service industries such as retail, wholesale, and financial services—not just high-tech sectors. Indeed, MGI's studies of countries around the world show that gaps between productivity levels in their large, employment intensive local-service sectors, such as retail and construction, explain a substantial amount of the gaps between their respective GDP per head

figures. In Turkey, labour productivity in manufacturing averaged 64 per cent of the US level but only 33 per cent in services.

Retail sector reforms are particularly important in triggering productivity growth, partly because these sectors employ so many people, and partly because improvements here stimulate productivity advances among upstream suppliers. For example, the liberalised retail sector in the US has been one of the top three contributors to aggregate productivity increases since 1995. Research has shown that removing restrictions on outlet size, opening hours, or product selection from retailers in other OECD countries would allow their retailers likewise to streamline distribution systems and grow both sales volumes and employment. Their consumers, too, would benefit from lower prices and a broader array of services (Nicoletti and Scarpetta, 2003).

### Myth 2: Manufacturing Jobs are Higher Skilled and Better Paid than Services Work;

On the contrary, service industries create more high skilled occupations than manufacturing. In the United States, more than 30 per cent of service jobs are in the highest-skill category of occupations, which includes managers, researchers and engineers, in contrast to only 12 per cent of all manufacturing jobs. Further, as we have noted, the distribution of wages across the US service and manufacturing sectors is similar.

#### Myth 3: Manufacturing Jobs are More Stable than Jobs in Services;

This clearly cannot be true since manufacturing employment is shrinking worldwide. It is the case that job turnover in service industries tends to be higher than in manufacturing. However, service jobs provide a much more reliable source of overall employment than manufacturing. In any given year, on average roughly ten per cent of all jobs in an economy come to an end because workers quit or become redundant. More jobs end in services than manufacturing, particularly in service segments dominated by small-scale operations, with their relatively high failure rates.

Service industries as a whole, however, create more jobs than they lose, often through the activity of new entrants (Davis and Haltiwanger as cited in Ashenfelter and Card, 1991).<sup>2</sup> Creating a dynamic service sector, therefore, more reliably guarantees lifetime employment opportunities for everyone, if not the same job for life. For example, from 1977 to 1987, the US auto repair industry lost 49 per cent of its jobs, but at the same time took on new employees in jobs equivalent to 56 per cent of total employment in the industry. So although almost half of all auto repair jobs ended over the period, net employment in the sector grew by seven per cent (Foster, Haltiwanter and Kirzan, 1988). Data from middle-income economies, albeit limited, suggest that the prevailing dynamics of service job destruction and creation are similar (Davis and Haltiwanger, 1991).

#### Myth 4: Reforming Service Sectors will Lead to More Unemployment.

This fear centres on the retail sector, where big modern stores could drive out smaller, traditional ones. Policymakers rightly believe that more productive supermarket and discount formats will drive out traditional, less productive, small stores. But this is precisely how economies develop, resulting in a bigger national income for everyone to share and higher overall employment. This fear ignores the fact that larger stores offer lower prices and better service, which boosts demand and causes stores to hire more people. This is why the United States, with its highly productive retail sector, employs proportionally more people in this sector than countries where traditional stores prevail.

## 2.5 How To Develop A Dynamic Local Service Sector

Some key policy priorities emerged from MGI's research into the domestic services sectors of middle-income and developed economies and their key role in driving productivity improvement. Some - including the lack of level playing fields in terms of fiscal, financial, and development policies between services and manufacturing - are pertinent in many developing economies and do not particularly apply to Ireland. However, a number of policy areas are particularly relevant to Ireland if it is to improve service sector productivity:

#### 1. Remove Product Market Barriers Limiting Competition in Services;

MGI productivity studies have shown that the biggest barrier to increased competition is inappropriate product-market regulations governing service sectors, which hinder the diffusion of more productive processes. Product-market regulations govern company ownership, trade, FDI, land use, prices, and products. Misconceived regulations make competition less intense by limiting the entry of new players (particularly global ones), discouraging innovation among existing competitors, and restricting enterprise scale (Lewis, 2004).

The Annual Competitiveness Report, 2005, issued by the National Competitiveness Council, concluded that taxation and regulation remains one of Ireland's strengths, noting that Ireland's corporation tax rate and personal tax rates were low by international comparison and that labour market regulations do not hinder business relative to other countries. However, it noted that the "intensity of local competition and the efficiency of competition legislation is perceived as being low" (National Competitiveness Council, 2005).

A report on productivity by Forfás also called for market liberalisation to increase competition, make markets more responsive to change and increase the speed of diffusion of new productivity-enhancing innovation (Forfás, 2006). The report cited the OECD's survey of Ireland, which observed that there are many sectors in Ireland—including electricity, telecoms, law, pharmacies, and the pub trade—where producers are shielded from competition. It also noted a range of factors that inhibit service-sector innovation including market-related obstacles such as rigid industry-specific structures and a lack of competition or overcapacity in certain industry sectors.

#### 2. Reduce Public Sector Ownership;

Utilities, telecommunications, and banking remain in government hands in many emerging and even developed economies and lack of investment and low productivity in such businesses stunt not only their own, but also their customers' growth. Ireland's electricity sector, for instance, remains in state hands and a recent report by Deloitte concluded that labour costs in the Power Generation unit at ESB are 20 to 30 per cent higher than those of comparative electricity generators in Europe, and that Ireland ranks consistently in the top three most expensive countries for industrial consumers of electricity in Europe (Deloitte, 2005).

#### 3. Revise Unnecessary Barriers to Scale;

Scale can yield substantial productivity gains to enterprises. Yet many companies face limits to scale, like restrictions on store size and land use, which makes them less productive. Many governments also restrict store sizes, including the Irish government, which has recently made an exception to allow Swedish mass-retailer IKEA to open up a store in the country. This may protect small stores from large-scale retail outlets, but at the cost of higher retail productivity.

#### 4. Eliminate Red Tape;

Streamlining what businesses must do to comply will also encourage them to enter the formal sector. Lots of companies, for example, never register because the process is so long and complicated. In an unpublished working paper in 2003, the noted economist and author Hernando de Soto found that in Egypt it takes an average of 549 days to register a new bakery. Levying taxes on unregistered businesses is almost impossible, hence the importance of making registration simpler. Simplifying tax practices will compound the benefit. In Ireland, a 2003 survey, cited in a 2004 speech by Bertie Ahern the Irish Taoiseach, found that 72 per cent of companies found it difficult to keep track of regulations affecting their business, while 62 per cent said that they believed the regulatory burden was growing.<sup>3</sup> In January 2004, the Government launched a White Paper, Regulating Better, which included proposals for reviews of the regulatory regime for different economic sectors, more transparent and accessible legislation and reductions in red tape.

#### 5. Facilitate 'Creative Destruction' in Services.

Services are dynamic by nature. To maximise overall service employment, companies must be free to start up, grow and create more jobs or - if they can't compete - they shrink, lay off workers and close. To lubricate this process of creative destruction, governments need to make detailed policy changes to make it simpler to create and grow new firms, and close failing ones; and to enhance labour mobility. Forfás argues that, within services, there are many generic 'soft' skills that are transferable across sectors, including ICT literacy, communication, team-building, language, process, organisational and management skills. Wide availability of such skills - which Ireland needs to develop through the educational system, particularly at secondary and higher education levels - across the economy, it argues, will enhance labour market flexibility and enable increased mobility between services sectors according to market demands (Forfás, 2006).

#### 2.6 Conclusion

Policymakers in different economies around the world have not placed nearly as much emphasis on domestic services as on, for instance, import substitution, export manufacturing, and more recently, services for export. But dynamic, competitive local services can unlock a huge contribution to overall GDP growth and employment. In fact, achieving higher productivity in local services is the only way for middle income - and developed - economies to ensure lifetime employment for all.

Given recent evidence that Ireland's productivity boom has not only been very narrowly based in the foreign-owned segments of manufacturing but has now markedly decelerated economywide, it is time for Irish policymakers to examine how to create the competitive environment in domestic services that have the potential to become a powerful source of wealth creation and jobs.

#### Notes

- The pre-2004 expansion Member States were Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.
- Our turnover rates reported here reflect the share of jobs being destroyed and replaced by others or half of the excess reallocation rate used in the economic literature (sum of creation and destruction rates minus the absolute value of net employment change).
- 3 Speech by the Taoiseach, Mr Bertie Ahern, T.D., at the IBEC Conference on EU-US Perspectives on Regulation, Dublin, April 2004.

#### References

Cassidy, M. (2004), "Productivity in Ireland: Trends and Issues", Central Bank of Ireland, *Quarterly Bulletin*, Spring.

Davis, J.S. and Haltiwanger, J. (1991), "Gross Job Flows", in Ashenfelter and Card (1991), "Handbook of Labour Economics", Vol. 3, 2711-2805.

Deloitte (2005), Review of the Electricity Sector in Ireland, Final Report, Deloitte, Dublin.

Forfás (2006), The Changing Nature of Manufacturing and Services: Irish Trends and International Context, Forfás, Dublin.

Foster, L., Haltiwanger, J. and Krizan, C.J. (1988), "Aggregate Productivity Growth: Lessons from Microeconomic Evidence", *NBER Working Paper*, 6803.

Hurley, J. (2005), "Innovation and Productivity in Ireland", speech by John Hurley, Governor, to *Leinster Society of Chartered Accountants*, 13th October, 2005.

Kondo, J., Lewis, W., Palmade, V. and Yokoyama, Y., (2000), "Reviving Japan's Economy", *The McKinsey Quarterly 2000 Special Edition*, Asia Revalued.

Lewis, B. (2004), The Power of Productivity: Wealth, Poverty, and the Threat to Global Stability, University of Chicago Press.

McKinsey Global Institute (2006), "Sweden's Growth Paradox", The McKinsey Quarterly, June.

McKinsey Global Institute (2005), "Domestic Services: The Hidden Key to Growth".

National Competitiveness Council (2005), Annual Competitiveness Report 2005, Forfás, Dublin.

Nicoletti, G. and Scarpetta, S. (2003), "Regulation, Productivity and Growth", OECD Economics Department, Working Paper No 347.

OECD (2006), "Economic Survey of Ireland".

OECD (2005), "Enhancing the Performance of Service Sectors".

Tansey, P. (2005), "Productivity: Ireland's Economic Imperative, A Study of Ireland's Productivity Performance and the Implications for Ireland's Future Economic Success", Available online: www.microsoft.com/ireland.

The Economist (2005), "Capitalism with Japanese Characteristics", 6th October.