Chapter 2

THE SERVICE ECONOMY IN OECD COUNTRIES

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Abstract. Improving the performance of the services sector is important to enhance aggregate economic growth. This is primarily due to the service sector having quantitatively become the most important sector in all OECD economies. The growing role of services is not only the result of a resource reallocation towards services, as the sector with low productivity growth. It is also related to demand-side factors, such as a high income elasticity of demand for some services, demographic developments, particularly population ageing, the provision of certain services as public goods, and the growing role of services as providers of intermediate inputs. The empirical evidence points to several areas where employment and productivity growth in services is being held back. For example, the labour-intensive character of production in many services may reduce the potential for productivity growth. Innovation in services may also be held back by obstacles that are particularly relevant to services industries. Moreover, the regulatory environment for services, in both product and labour markets, may affect the scope for employment and productivity growth. However, policy should not necessarily look at services separately from manufacturing industries. In contrast, several services industries show characteristics and problems similar to those of manufacturing industries and the blurring of the two sectors is becoming more and more prevalent. Moreover, addressing some of the problems faced by services may also improve the performance of other industries, as services provide key intermediate inputs to such sectors.

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Introduction

The service sector accounts for about 70% of aggregate production and employment in OECD economies and continues to grow. Countries differ, however, in the role and performance of the service sector. This chapter examines the performance of the services sector across OECD countries.[1] It first addresses the importance of the service sector in OECD economies. It goes on to explore the role of services and how the increasing shift towards services may be explained in the next section. It also analyses the performance of individual services industries in terms of productivity and employment growth.

The second issue that is addressed in this chapter relates to the factors that drive this performance. The poor productivity performance of the services sector has typically been attributed to certain structural characteristics that may impede productivity or employment growth, such as a low capital- and R&D-intensity, a small firm size or a focus on domestic or regional markets. The penultimate section examines the ways in which services differ from manufacturing industries and explores why some countries perform better than others in service industries. The analysis of these factors will lead to some conclusions as regards structural problems that could be addressed by policy makers.

The role of services and their performance are analysed using various sets of cross-country comparable data. These include the OECD Structural Analysis (STAN) Database which provides a broad range of variables, such as value added, employment and gross fixed capital formation, for long time periods and for almost all OECD countries. The OECD Input-Output Tables are used to analyse the demand structure of services industries. Data on trade and foreign affiliates allow an analysis of the degree to which services are open for international markets. Data from the OECD Analytical Business Enterprise Research and Development (ANBERD) Database are used to analyse formal research and development (R&D) patterns in services industries. The distribution of educational and occupation skills are analysed using data from the European Labour Force Survey. Finally, entry and exit of services firms is analysed on the basis of empirical studies using Eurostat data on firm demographics.

The role and performance of services in the total economy

The role of services in the economy

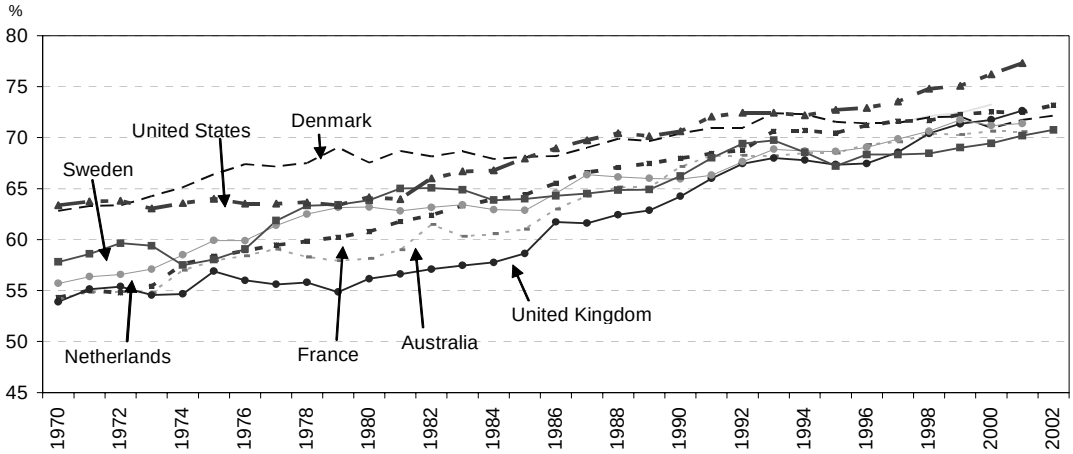
The service sector has become the quantitatively most important sector in all OECD member country economies (see Figure 2.1). By 2002, the share of the service sector amounted to about 70% of total value added in most OECD economies, and this has increased considerably since the 1970s.[2] Some cross-country differences can be distinguished. A first group of countries already had a relatively high share of service sector value added in the 1970s, *e.g.* Denmark and the United States, or experienced strong increases in their value added share from initially low levels, *e.g.* France, Netherlands and the United Kingdom. In a second group of countries, including Austria, Germany, Italy and Spain, shares were between 65% and 70% of total value added in 2000, but these have continuously increased since the 1970s. In a third group of countries, value-added shares of the service sector remain at a relatively low level of between 55% and 60%, *e.g.* Ireland, or have shown only slight increases over the period, *e.g.* Canada and Norway.

1. This paper primarily presents empirical evidence for the services sector as a whole. See Wölfl (2005) for more detail on industries within the services sector.

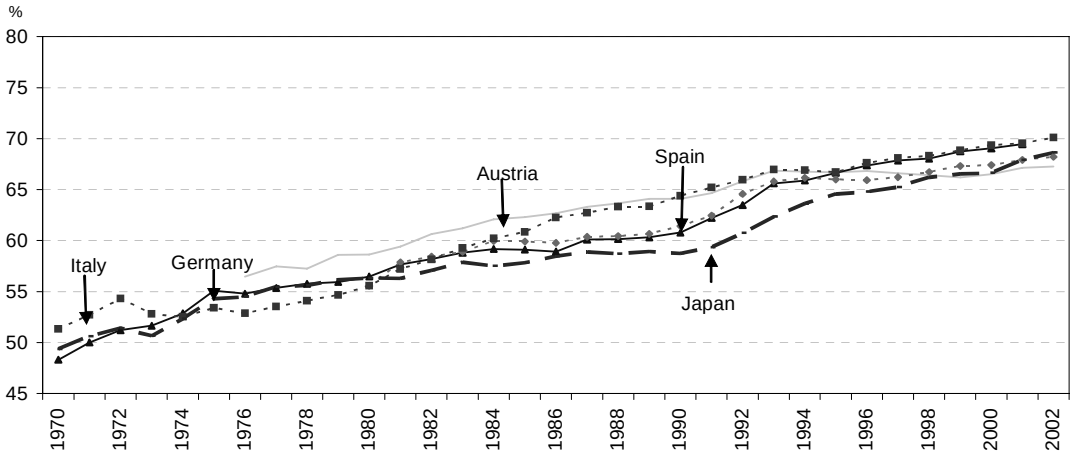
2. A similar picture prevails for the increase in the share of services in total employment (Wölfl, 2005).

Figure 2.1. **Value-added shares of the service sector over time (%)**

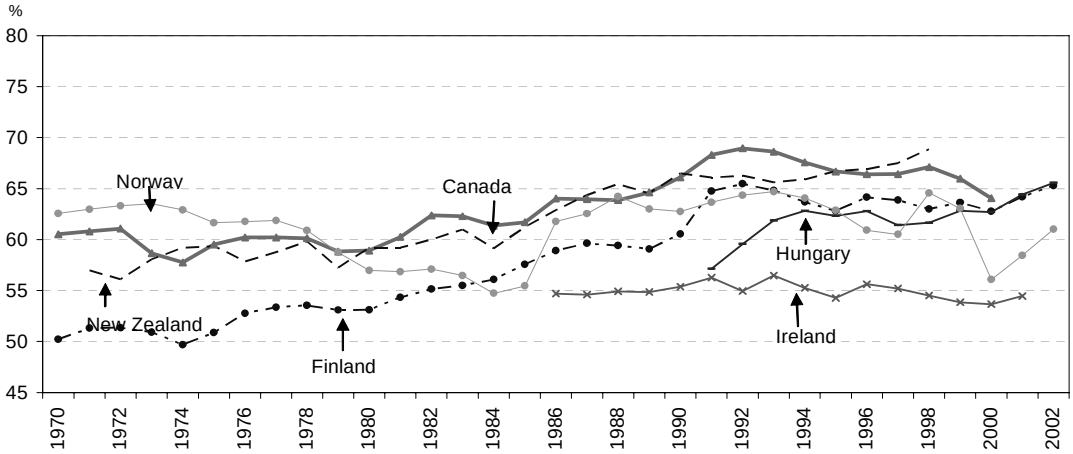
Countries with value added shares above 70% in 2001



Countries with value added shares between 65% and 70% in 2001



Countries with value added shares below 65% in 2001



Notes: Shares in value added at current prices. The services sector refers to ISIC rev.3 class 50-99.
Source: OECD STAN Database, 2004.

The services sector is, however, composed of a wide variety of different activities ranging from fast food to brain surgery, and this is reflected in differences in value-added shares across industries. The increase in the share of the service sector in total value added can mainly be attributed to the growth of business related services, in particular, finance, insurance and business services (Wölfl, 2005). These industries now account for about 20-30% of value added in the total economy, while their respective shares were between 10% and 20% in 1980. These service industries are primarily driven by market forces, which typically imply greater pressures to improve productivity.

There has been very little change in the value-added shares of trade, restaurants and hotels as well as transport and communications services over the past decade. In the case of communications services, trends in prices and quantities have moved in opposite directions. The demand for these services increased in the 1990s. If prices had been constant and the increase in production in these services had been higher than in other industries, this would have resulted in an upward shift in the value-added shares of these services. However, more efficient production, linked to rapid technological progress and growing competitive pressure, has contributed to a decline in relative prices and consequently to lower current price shares of value added for these industries.

While a broad pattern of the shares of different services in the economy can be observed, considerable cross-country differences appear to persist in the composition of services, even at similar levels of income. These cross-country differences in the shares in total value added or the composition of services reflect a variety of factors, such as differences in female participation, the size of the welfare state, regulatory policy and trade specialisation patterns, but also cross-country differences in the incidence of part-time and temporary work, as well as in job tenure (OECD, 2000; OECD, 2001a).

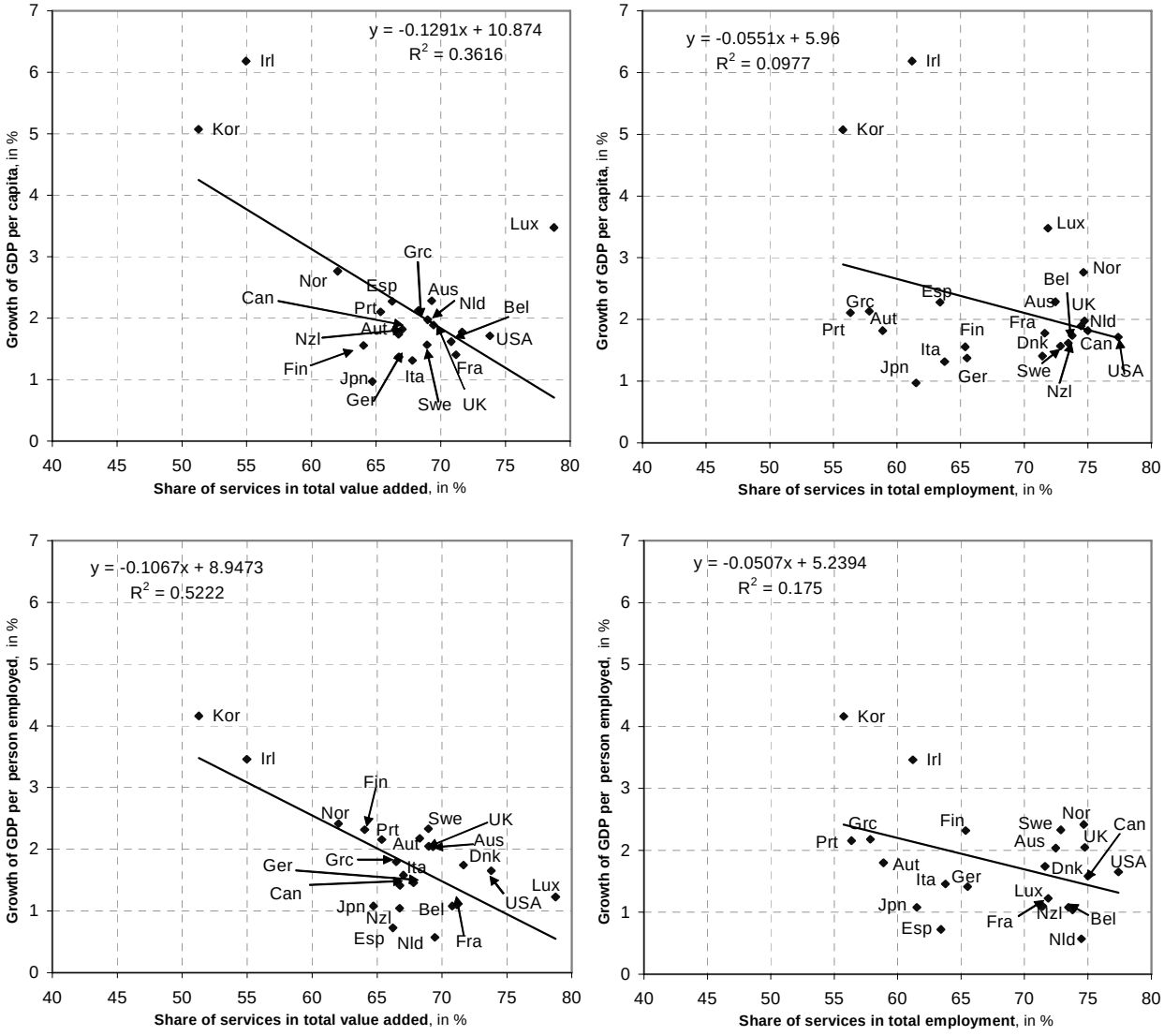
From a policy point of view, an important question is whether structural change and having a large service sector affect economic growth. Figure 2.2 suggests a negative, albeit not statistically significant, correlation between the share of services in total value added or employment and the growth of gross domestic product (GDP) *per capita* and aggregate productivity growth. Countries with a high share of services in total value added or employment, such as France and the United States, also show relatively low growth in GDP *per capita* or per person employed. In contrast, countries with a very low share of services in total value added and employment, such as Ireland and Korea, show relatively strong growth in GDP *per capita* or GDP per person employed.[3]

In general, the results in Figure 2.2 may be related to both, supply- and demand-side factors.[4] For example, the correlation may be linked to supply-side factors that hamper productivity growth in services industries, such as a low knowledge or skills intensity of services or weak exposure to competitive markets. Understanding these factors is important as some are influenced by public policy, *e.g.* a regulatory environment that may limit competition. These factors will be discussed in more detail below. Problems in measuring productivity growth of services industries, notably in computing constant price value added may also play a role (Wölfl, 2003).

3. To some degree the negative correlation is related to the performance of Ireland and Korea. If these countries were excluded, the sign of the relationship would change in the top diagrams, and would become less statistically significant. The sign of the relationship in the bottom diagrams would stay negative, but would become less statistically significant.

4. High shares of services in total nominal value added may also reflect high relative prices of the services sector as compared to the manufacturing sector, in particular for social and personal services (Wölfl, 2005).

Figure 2.2. **Share of services in total value added and employment, and the growth in GDP *per capita* and GDP per person employed, 1990-2001**[1]
Annual average share and growth rates (%)



Notes: 1. Or most recent year available. Germany: 1992-2001, West Germany: 1980-1990.

The services sector covers ISIC classes 50-99.

See also Footnote 3.

Source: OECD STAN Database, OECD Productivity Database, 2004.

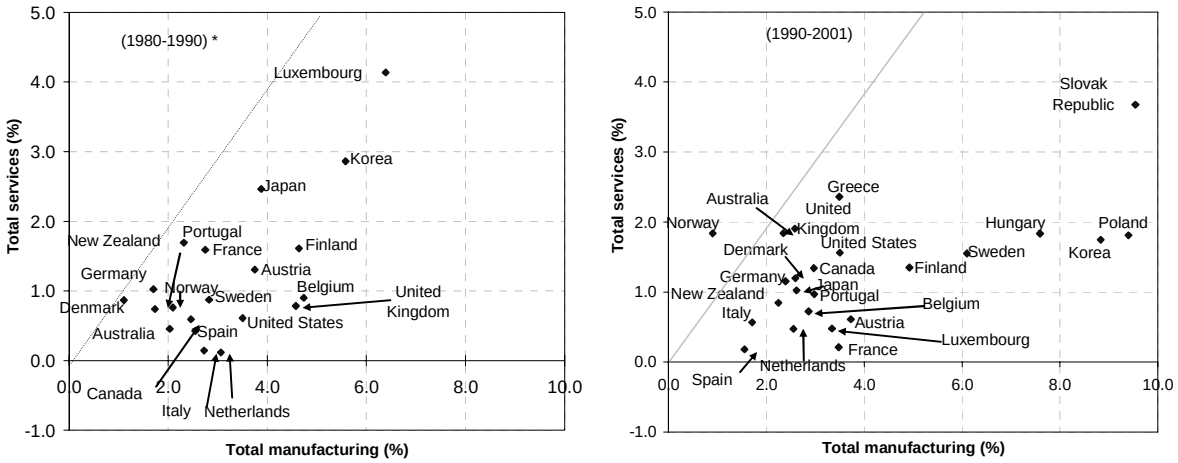
A negative, albeit weak, relation between a high share of services industries and low growth in aggregate productivity growth may also be related to strong demand for certain services, notably social and personal services, health and education. Strong demand for these services may have induced a resource allocation towards these services and an increase in their value added. As these services are, however, characterised by a weak potential for productivity growth, the growing importance of these sectors in value added will have a negative effect on productivity growth.

Potential explanations for the growth of the services sector

Imbalances in productivity growth between services and manufacturing

A number of factors affect the size of the service sector in the economy.[5] The first possible explanation is a low potential for productivity growth in some services industries. Unbalanced growth between the manufacturing and the service sector may induce a resource reallocation towards the "stagnant" service sector, eventually slowing down aggregate growth (Baumol, 1967 and Wölfl, 2003). Figures 2.3a and 2.3b provide an aggregate perspective on unbalanced productivity growth between the manufacturing and the services sector in OECD member country economies. Equal productivity growth in manufacturing and service sector would imply that all country points are on or close to the 45° line in the graph. Most countries are located to the right of the line, however. Productivity growth is thus higher in manufacturing than in services in (almost) all OECD countries. Moreover, in most countries, service productivity growth is only about half of manufacturing productivity growth. In Finland, Sweden and the United States, the ratio is less than one-third.[6]

Figure 2.3a. **Growth in value added per person employed in manufacturing and services**
Annual average percentage growth rates, 1980-1990 and 1990-2001[1]



Notes: 1. Or most recent year available. Germany: 1992-2001, West Germany: 1980-1990.

The services sector covers ISIC classes 50-99.

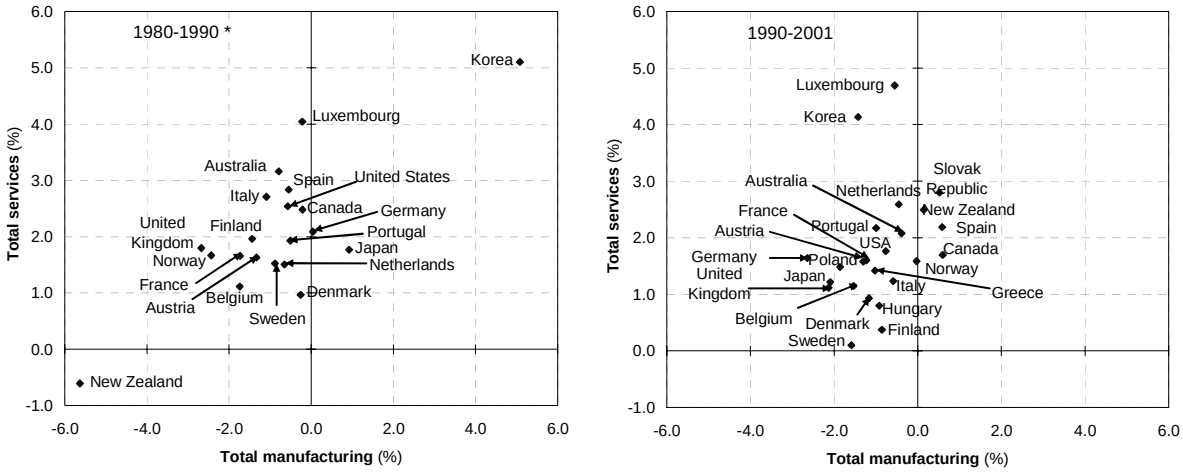
Source: OECD STAN Database, 2004.

5. See Aiginger (2001) for different theories that may explain structural change towards the services sector. In principle, however, all possible explanations can be summarised in the three explanations given below.

6. Lower productivity growth is to some degree due to problems in measuring productivity growth in services industries (Wölfl, 2003 and Wölfl, 2005).

Figure 2.3b illustrates that, at the aggregate level, the differential in productivity growth between the manufacturing and the service sector coincides with a reallocation of labour resources towards the service sector. In most countries, employment growth is positive in services, but negative in manufacturing. In the 1990s, this picture changed slightly from that observed in the 1980s. In this period, employment growth in services declined slightly, and a few country points (*e.g.* Canada and Spain) now show positive employment growth in both the services and the manufacturing sector.

Figure 2.3b. **Employment growth in manufacturing and services**
Annual average percentage growth rates, 1980-1990 and 1990-2001[1]



Notes: 1. Or most recent year available, Germany: 1992-2001, West Germany: 1980-1990.
The services sector covers ISIC classes 50-99.

Source: OECD STAN Database, 2004.

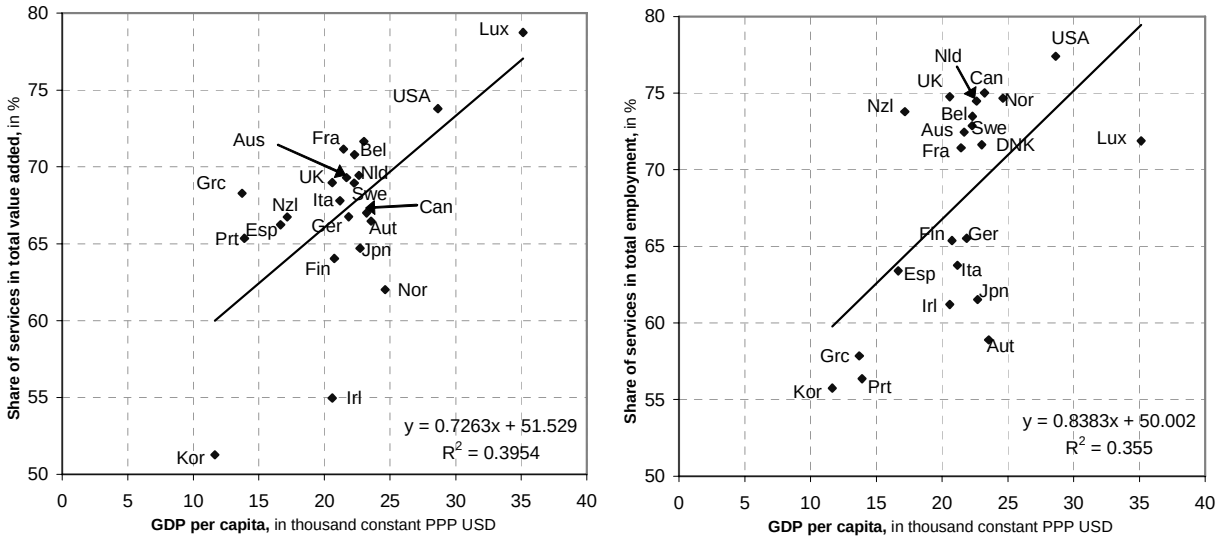
Factors related to final demand

A second potential explanation for the growing role of services in some countries may be factors that are related to final demand, such as a high income elasticity of demand for some services, demographic developments in society, notably population ageing, or the growing provision of certain services as public goods in many OECD countries. If final demand is an important determinant of the growing role of the services sector in the economy, cross-country differences would likely be associated with differences in GDP *per capita*, since higher incomes would lead to greater demand for services.

Figure 2.4 shows a strong positive relationship between GDP *per capita* and the share of the services sector in total value added or employment. Certain countries, notably Luxembourg, Norway and the United States, have relatively high GDP *per capita* and a relatively high share of services in total employment. In contrast, in countries such as Greece, Korea and Portugal, both *per capita* GDP and the share of services in total employment are relatively low. The picture is similar for the relationship between GDP *per capita* and the share of services in total value added, with regard to both its size and significance.[7]

7. See also OECD (2000) and Messina (2004).

Figure 2.4. **GDP *per capita* and the share of services in total value added or employment, 2001, 2002[1]**



Notes: 1. Or most recent year available.

The services sector covers ISIC classes 50-99.

Source: OECD STAN Database and the OECD Productivity Database, 2004.

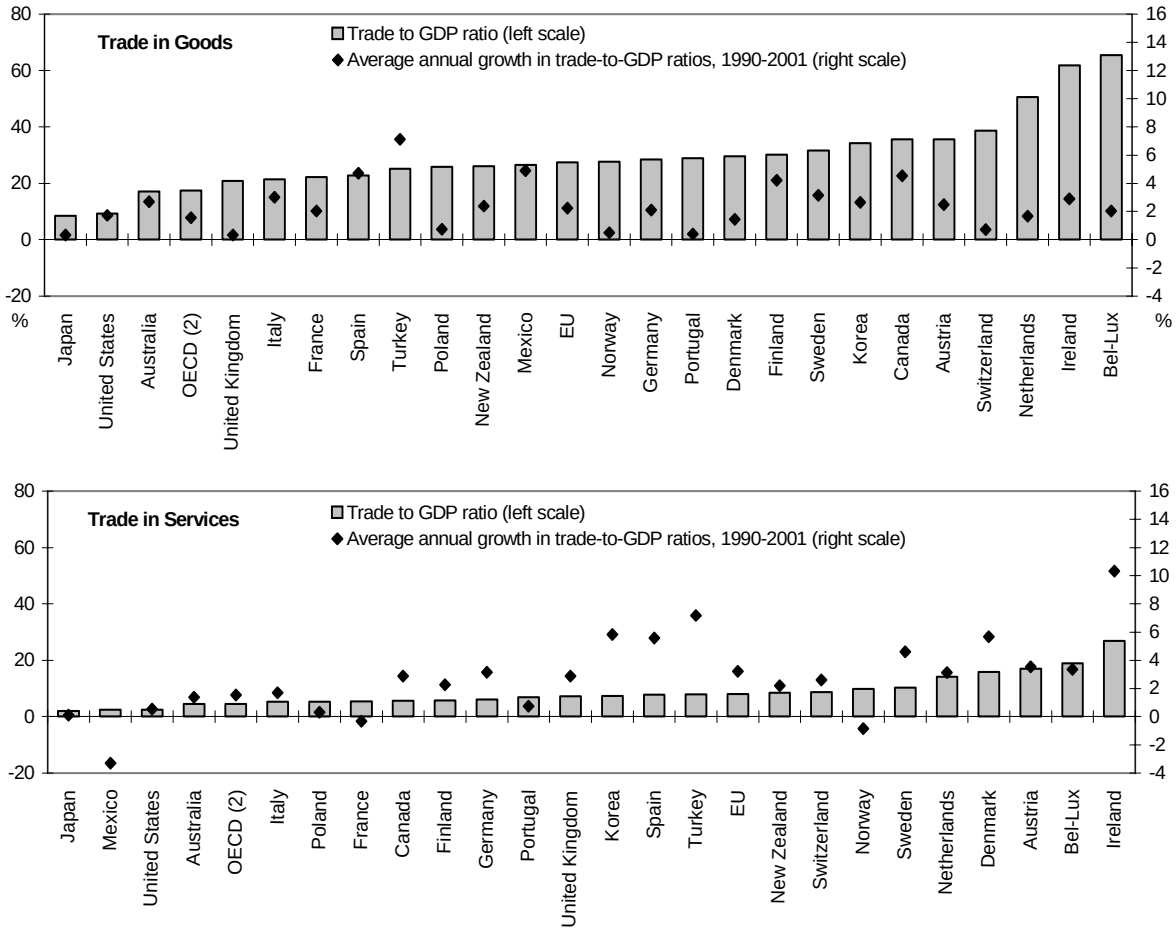
The role of final demand for structural shift towards services relates to several factors. First, demand for these services is typically perceived to be income elastic,[8] implying that an increase in incomes would lead to more than proportionate increases in the demand. This is typically considered to be the case for services such as leisure activities, high quality health and care services, higher education or other services, such as travel, that may contribute to an improved quality of life. Second, demographic changes are likely to affect demand patterns; declining birth rates and longer life expectancy in industrialised countries are resulting in a rapidly ageing population, so that demand for certain goods and services (*e.g.* primary schooling) is declining and demand for others (*e.g.* health and personal services) is rising. Third, demand for some services, notably education and health services, are closely linked to the size of welfare states in OECD countries, as has been shown in previous empirical work (OECD, 2000).

Fourth, demand for services is not restricted to domestic final demand; services are also increasingly engaged in international trade. The services sector exports about 6% of its total gross output (see Figure 2.6 below). Business-related services, notably transport, storage, post and telecommunication services, produce between 10% and 20% of their gross output for international demand (Wölfl, 2003). The increase in trade in services is linked to the increasing importance of new modes through which services can be traded, *i.e.* cross-border supply of services; consumption from abroad, notably in tourist services; commercial presence, *e.g.* via affiliates; or presence of natural persons (OECD, 2001b; OECD, 2004a; and the section on labour-market characteristics of the services sector, below).

8. Although the empirical evidence for income elastic demand is weak (see Gundlach, 1994; Gundlach, 1996; and Wölfl, 2005).

Moreover, services trade is growing (see Figure 2.5). In 2001, the share of trade in goods in total GDP amounted to about 15% across OECD countries, while trade in services accounts for about 4% of GDP on average across OECD countries. However, services trade picked up in the 1990s in certain countries. This is particularly the case in Ireland, Korea, Spain and Turkey, where the annual average growth rate of the trade to GDP ratio in services in the 1990s was between 6% and 10%.

Figure 2.5. **Level and change of the trade to GDP ratio of trade in goods and services**
Level of 2001 (%) and annual average percentage growth 1990-2002[1]



Notes: 1. Or most recent year available.

In current prices.

Source: OECD (2003), Science*, Technology and Industry Scoreboard*, OECD, Paris.

Transport and travel services as well as some business services are the services with the highest share in total services trade. In 2002, these services accounted each for between 21% and 27% of total imports or exports of services (Wölfl, 2005). Strong growth in trade in services between 1997 and 2002 can be observed for trade in insurance as well as for computer and information services, to a lesser degree for trade in financial services and other business services. The high growth rate of trade in computer and information services that can be observed between 1997 and 2002 may partly reflect the new economy bubble; between 2001 and 2002, this growth rate fell down to about 7% for exports and about 2% for imports (Wölfl, 2005).

One of the main channels through which services are traded is commercial presence via affiliates. Despite some limitations,[9] the available data confirm an increasing importance of foreign affiliates in the services sector in the late 1990s (OECD, 2003a). In 2001, the share of turnover under foreign control in the services sector was relatively high: it amounted to more than 20% for Belgium, Czech Republic, Hungary, Ireland, Italy and Poland. In terms of employment, the share of foreign affiliates ranged from 19% in Belgium and around 15% in the Czech Republic, Hungary, Ireland and Poland, to less than 1% in Japan.

In all countries except Finland, the share of turnover of foreign affiliates was greater for manufacturing than for services in 2001. In terms of employment, however, the penetration of foreign affiliates seems evenly distributed between services and manufacturing in Belgium, Czech Republic, Finland and Portugal, with the largest differences to be found in Hungary, Ireland and Luxembourg. In Japan, the penetration of foreign affiliates was similar in services and manufacturing with respect to employment and turnover, but the shares were quite low compared with those of other OECD member countries (OECD, 2003a).

The role of intermediate demand

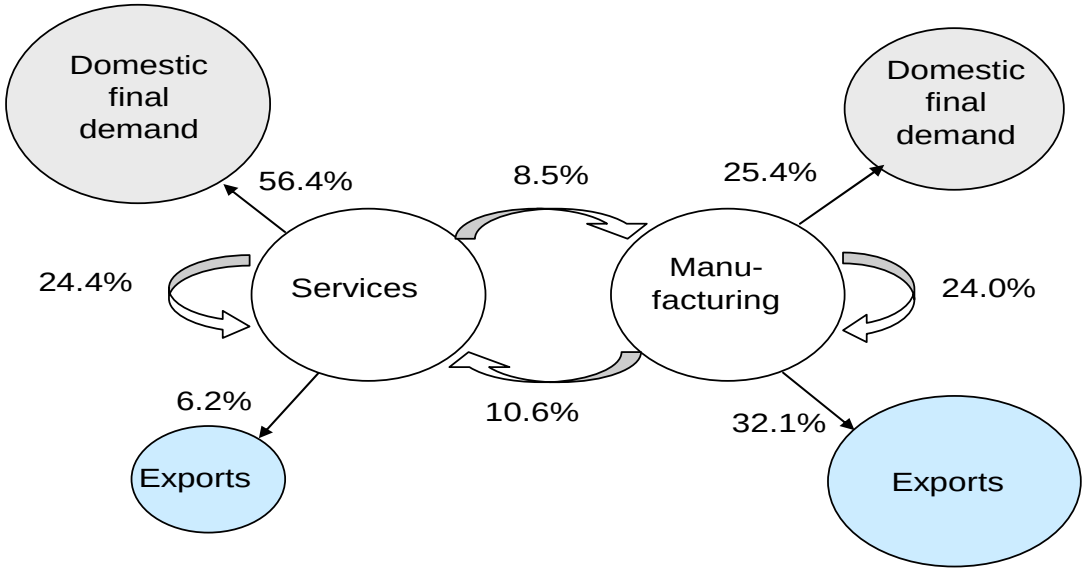
A third explanation for the structural shift towards services may be the increasing role of service firms as providers of intermediate inputs. Intermediate input production by services may substantially change the conclusions with regards to the production and employment structure in an economy (Oulton, 1999; Fixler and Siegel, 1999). The role of services as intermediate input providers also highlights the interaction between manufacturing and services (Pilat and Wölfl, 2005).

Services and manufacturing sectors do not differ in the share in total gross output that is produced for intermediate use (see Figure 2.6). Both sectors produce about 24% of total output for intermediate demand within their own sector, and about 34% for intermediate consumption of services and manufacturing together. For instance, more than half of transport and communications services are used as intermediate inputs and only about 20% for final demand. Financial and business services produce to between 40% and 60% of their output for intermediate demand (Wölfl, 2003).

Two trends may help explain the increasing interaction between services and manufacturing. First, the share of services activities that is necessary for, or complementary to, manufacturing goods production has increased. The production of a car, for instance, would not be able without services activities such as market research, technical research and development, human resource management, or business consulting. Moreover, a car is often sold in a package that includes financing, which may be provided directly by the car producer or indirectly via subcontracting. Second, the past two decades have seen an increasing trend towards the outsourcing of business-related services, such as R&D, financing or logistics. Services have been contracted to existing specialised service providers, or are provided by a newly created firm or spin-off from a manufacturing firm that can provide the services at lower cost or higher quality.

9. OECD's collection of data on the activity of foreign affiliates in services started in the second half of the 1990s; data are not yet available for all OECD countries.

Figure 2.6. **Shares of demand components in total output of services and manufacturing, 1997**[1]
Average shares across countries (%of total output per sector)



Note: 1. Italy: 1992; Australia, France, Germany, United Kingdom: 1995; Canada, Japan, United States: 1997.

Source: OECD Input-Output Tables.

Most recently the policy debate about the interaction between the services and the manufacturing sector has centred on outsourcing and off-shoring of services functions. Several OECD member countries are concerned that outsourcing of services functions by domestic manufacturing firms to other countries would be at the cost of domestic employment and may thus not only in the short term lead to increased unemployment. Whether this is the case can not be said *a priori*, though, and would have to be based on a detailed analysis of the various direct and indirect effects of outsourcing for OECD countries. Due to the complexity of the interaction between services and manufacturing and its importance for economic policy, these issues are analysed in more detail in Pilat and Wölfl, 2005.

Productivity growth in services

While the section above pointed to unbalanced growth between manufacturing and services at the aggregate level, the empirical evidence for unbalanced growth is less compelling when examining the service sector in detail. Several services industries indeed have weak or even negative productivity growth (see Figures 2.7a and 2.7b). This is, for example, the case for social and personal services, as well as for hotels and restaurants. These industries are typically relatively labour-intensive and primarily provide services to final consumers in domestic markets – both factors that will typically limit the potential for productivity growth. However, several other industries within the service sector are characterised by strong productivity growth. These are notably business-related services, such as financial intermediation, transport and storage, as well as post and telecommunication services. Over the past decade, annual average productivity growth amounted to about 4.5% in financial intermediation and about 10% in post and telecommunications. These growth rates are comparable to some high-growth industries within manufacturing, such as machinery and equipment, where productivity growth has been around 5% on average since the 1980s. Moreover, these business-related

services have consistently shown strong positive growth rates over the past 20 years. Relatively strong productivity growth can also be found in wholesale and retail trade and in transport and storage services. Productivity growth rates in these services are on average about 2.5%, which is equivalent to productivity growth in the economy as a whole. Positive growth rates in these services are sometimes attributed to increasing returns to scale in some services, to the strong uptake of productivity-enhancing information and communication technology (ICT) equipment during the 1980s and 1990s or to competitive pressures (Triplett and Bosworth, 2003; Baily, 2003).

Measurement may also play a role. For example, certain services, *e.g.* business-related services or social and community services, are characterised by a high degree of temporary and part-time work as well as a relatively high share of self-employed persons (the section on the labour market characteristics of the services sector, below; INSEE, 2004; OECD, 2000; OECD 2001a). Accurately measuring labour input in this industry is therefore quite complicated (OECD, 2004b). Moreover, it is difficult to measure output in many services sectors.[10]

While some services industries have experienced high productivity growth, this does not imply that these high-growth industries have also contributed in a significant way to aggregate productivity growth. Figure 2.8 illustrates that in many OECD countries, manufacturing – and not the services sector – accounted for the bulk of aggregate productivity growth in the 1990-2002 period. This is in particular the case for Finland, Hungary, Korea, Poland and the Slovak Republic.

A relatively small contribution of services to overall productivity growth in some countries may result from low or negative productivity growth in social or personal services industries – often linked to poor measurement – that may outweigh high productivity growth in business sector services. Figure 2.8 shows, for instance, negative contributions of social and personal services for Austria, Germany, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal and the United States. In Belgium and Canada, and to some degree also the Netherlands, the contribution of high-growth service industries, such as finance and business services and transport, storage and communications was almost fully balanced by negative contributions of social and personal services, and of trade, hotels and restaurants (Wölfl, 2003).

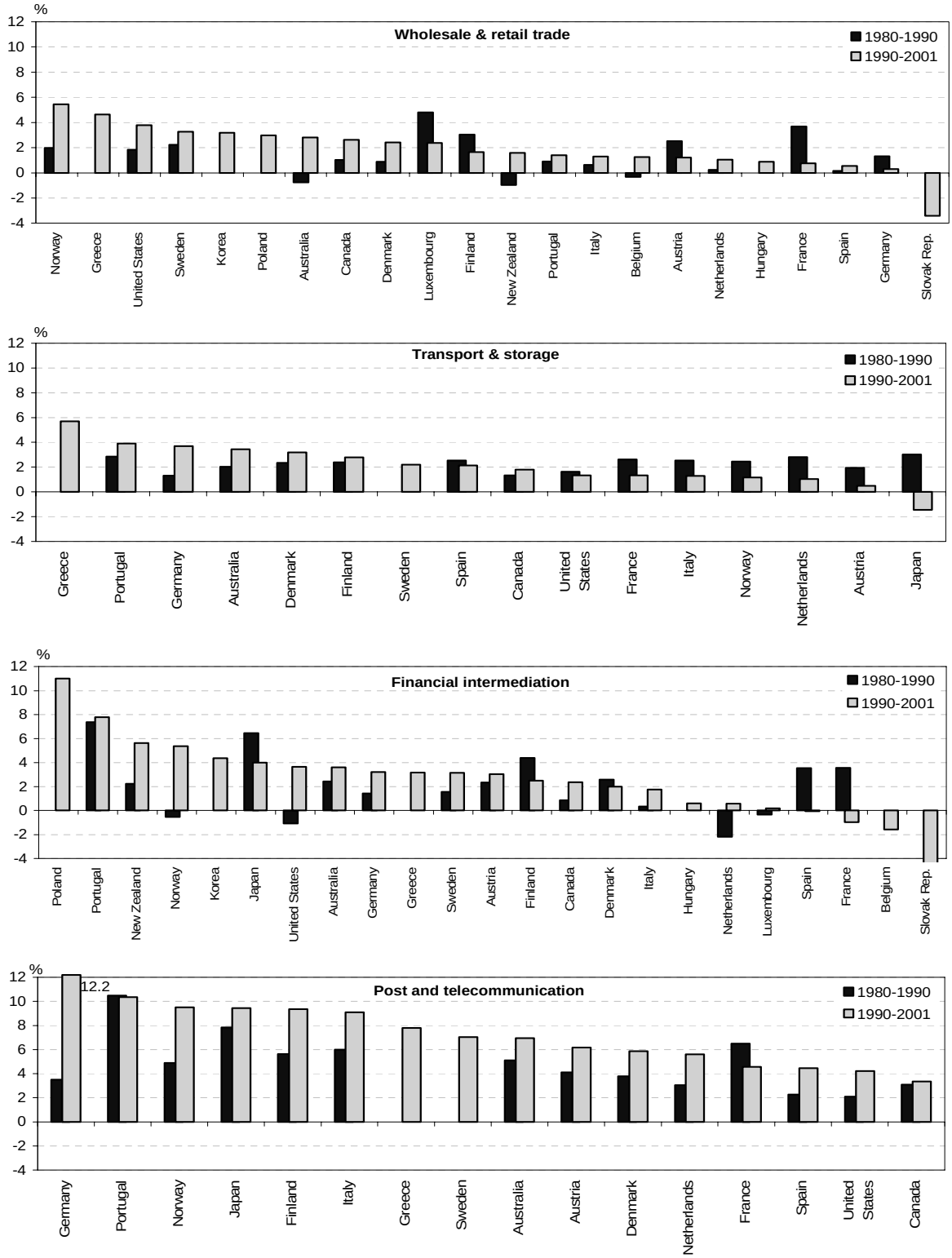
The contribution of the service sector to overall productivity growth has increased over the past ten years in some OECD member countries, notably Australia, United Kingdom and the United States. This can in particular be attributed to high-growth service industries, such as finance, insurance and business services, as well as transport and communications. These high-growth services contributed about 1 to 2 percentage points, *i.e.* about one-third, to aggregate productivity growth between 1990 and 2000 in several countries, and their relative contribution increased in the late 1990s (Wölfl, 2003).

Moreover, as discussed above, the share of services in total value added has increased continuously since the 1970s in almost all OECD countries and amounted to between 60% to 80% in 2000. The large share of services implies that by aggregation, an increase in productivity growth in services by about 1.1 percentage points is sufficient to achieve a 1 percentage point increase in aggregate productivity growth. For an equivalent increase in aggregate productivity growth, productivity growth in manufacturing would have to increase by about 4.7 percentage points.[11]

10. See Wölfl (2003) for a discussion of measurement problems in services.

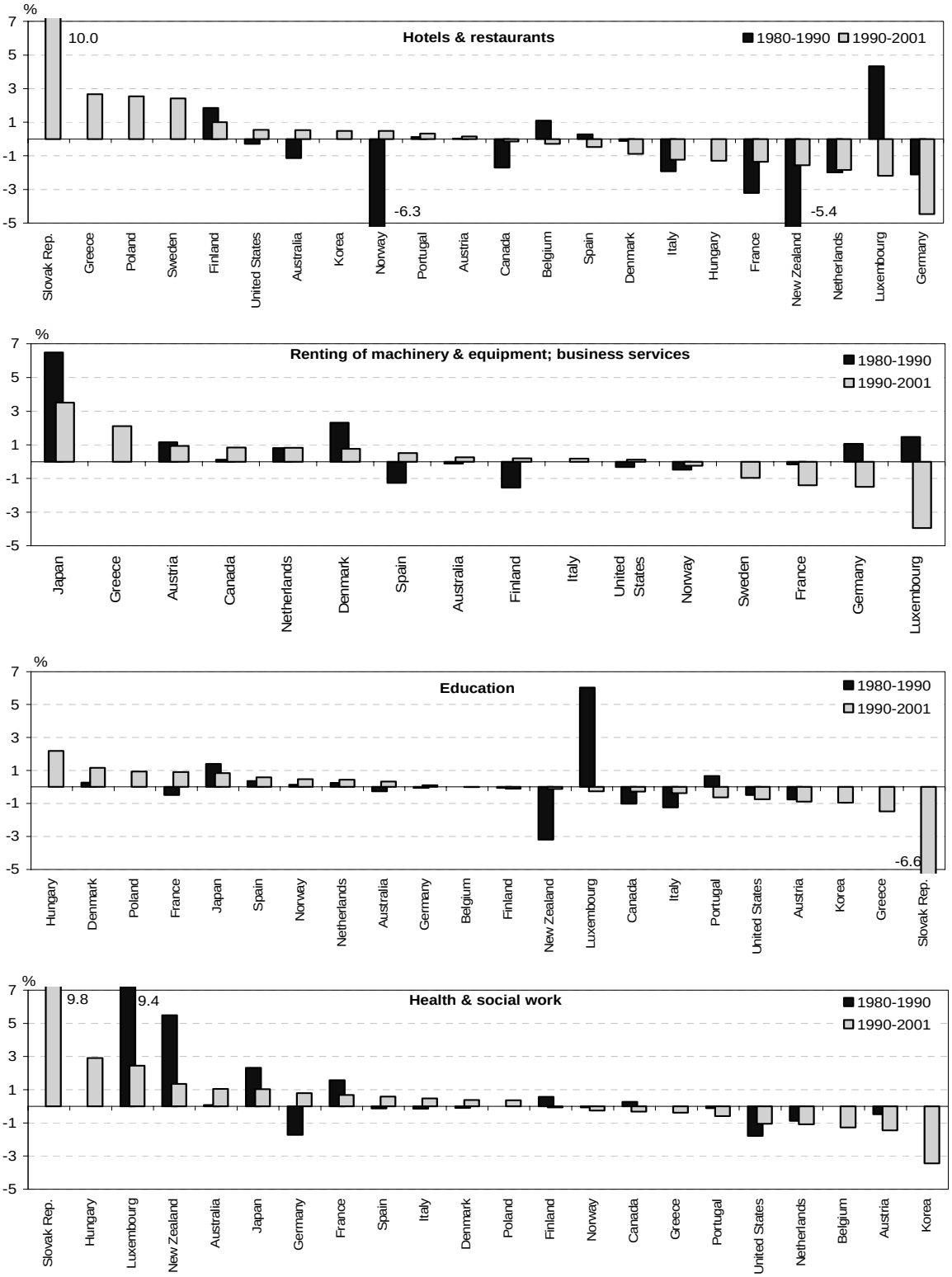
11. Assuming average productivity growth rates of 2% on aggregate, 3% in manufacturing and 1% in services, and a services share of 70% in total value added.

Figure 2.7a. **Labour productivity growth in services – industries with relatively strong growth**
Annual average growth of value added per person employed (%), 1980-1990; 1990-2001



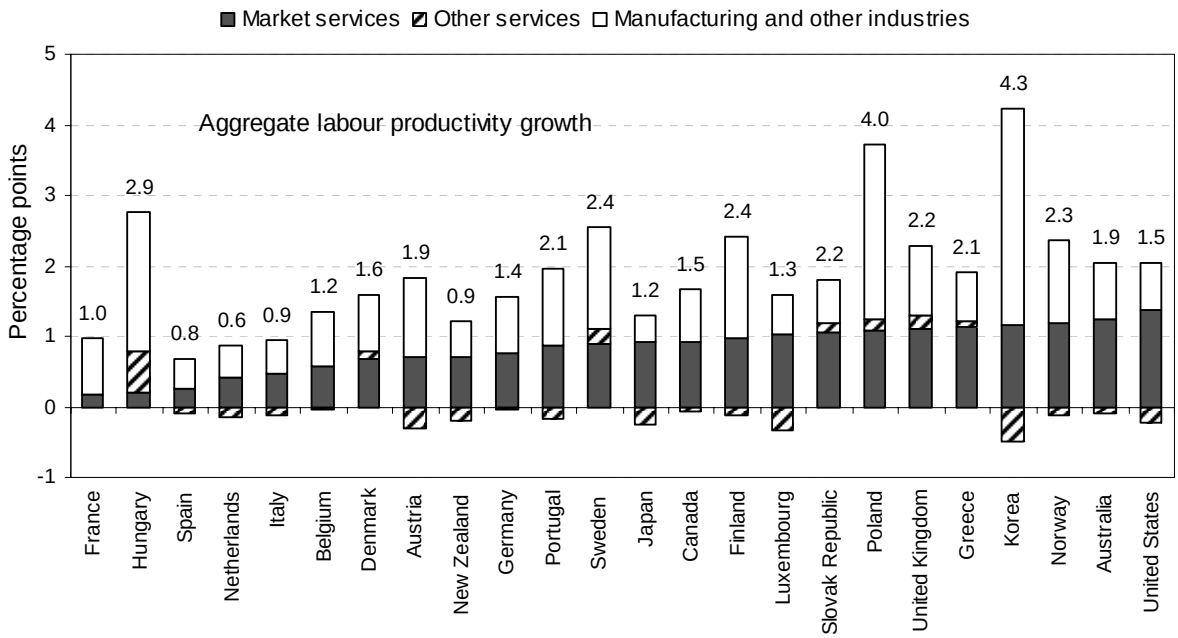
Notes: Or most recent year available. Germany: 1992-2001, West Germany: 1980-1990.
Source: OECD STAN Database, 2004.

Figure 2.7b. **Labour productivity growth in services – industries with relatively weak growth**
Annual average growth of value added per person employed (%), 1980-1990; 1990-2001



Notes: Or most recent year available. Germany: 1992-2001, West Germany: 1980-1990.
Source: OECD STAN Database, 2004.

Figure 2.8. **Contribution to aggregate labour productivity growth, 1990-2002**[1]
Annual average contribution to GDP per person employed (percentage points)



Notes: 1. Or most recent year available. Germany: 1992-2001, West Germany: 1980-1990.

The sum of the contributions per industry may be slightly different from the aggregate values.

Source: OECD STAN Database, 2004.

Employment growth in services

The evidence from productivity estimates therefore points to a large variety in services sector performance. The empirical evidence for unbalanced growth and a resource allocation towards low growth services industries is also not very compelling if one examines employment growth within the services sector (Figures 2.9a and 2.9b). At first sight, the group including services industries with relatively high productivity growth rates, such as telecommunication, financial intermediation and transport and storage, is also the group of services with relatively weak employment growth. *Vice versa*, the group of services industries with relatively weak or negative productivity growth, including education, health and social work, is the group that shows relatively strong employment growth.

The empirical picture is not clear cut, though. For instance, financial intermediation and wholesale and retail trade demonstrate strong differences in employment growth across OECD countries. Relatively strong employment growth in these industries over the 1990-2001 period can be observed for Ireland, Luxembourg, Slovak Republic, and to some degree Germany and Poland. In contrast, Denmark, Finland, Japan, New Zealand and Norway show negative employment growth in these industries, notably in financial intermediation. Moreover, employment growth has been lower in the 1990s as compared to the 1980s for almost all countries and almost all services industries. Exceptions are transport and storage services and, for some countries, hotels and restaurants as well as renting of machinery and business services.

In European countries, services industries also show a much stronger rate of job creation and job destruction than manufacturing industries (Gomez-Salvador, Messina and Vallanti, 2004). This is notably the case for business services as well as for community, social and personal services. Job

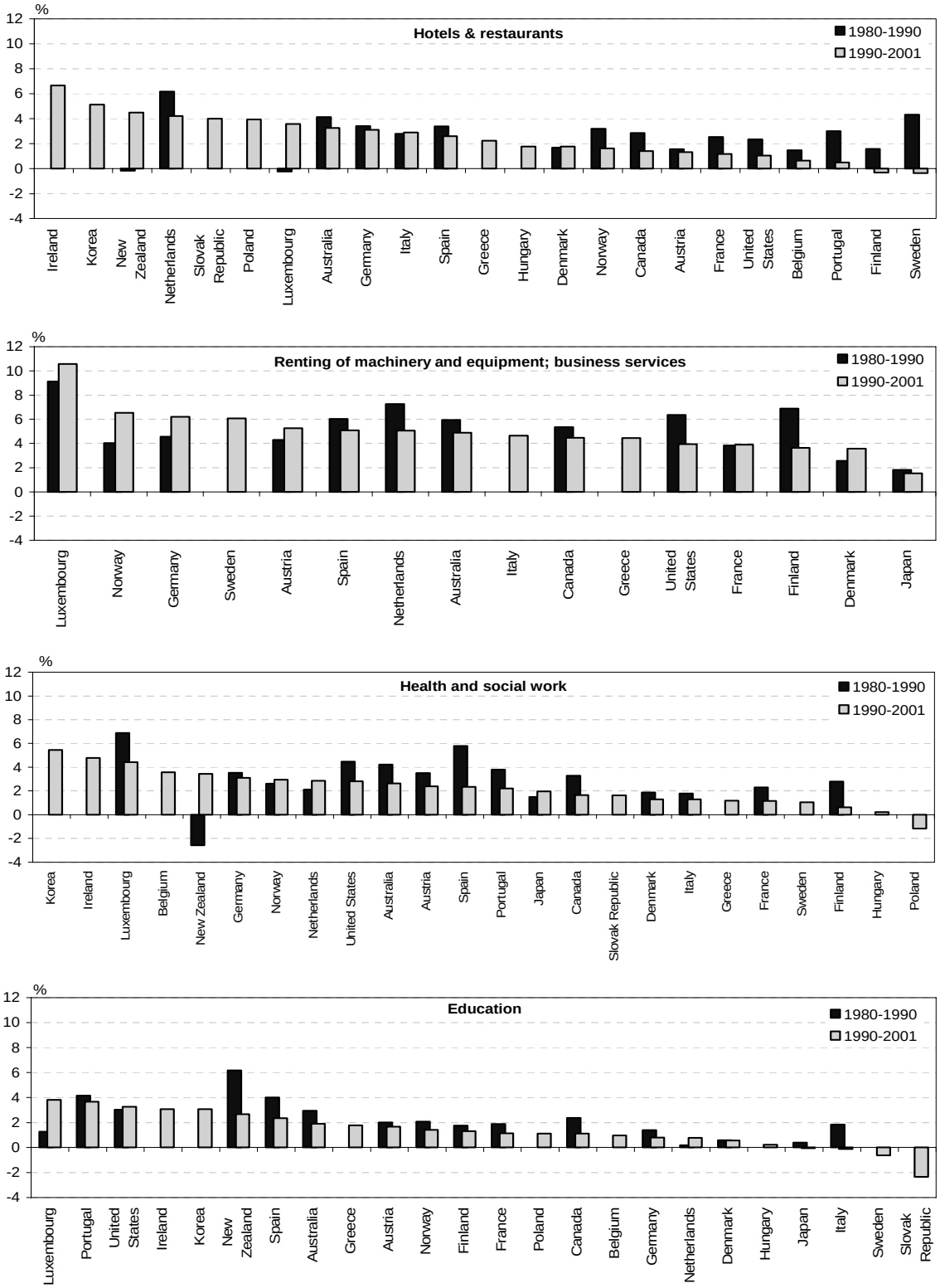
reallocation was highest in business services and social services. Moreover, job creation was significantly higher in services industries than in manufacturing industries. This was also the case for total job flows. Job destruction was, however, significantly lower in trade, transport and other services, including social services.

Figure 2.10 illustrates the contribution of employment growth in business sector services, social services, manufacturing industries and other industries to aggregate employment growth. As with productivity growth, business sector services, comprising trade and restaurants, transport and communication, financial intermediation, and business services, contributed to between 0.5 and 2 percentage points, *i.e.* between one-third and one half, to aggregate employment growth. Other services industries, notably social and personal services, such as education and health and social work, contributed to around 0.5 percentage points on average to employment growth across OECD member countries. In several OECD countries, strong growth in employment in services was almost totally balanced by negative employment growth in manufacturing and other industries. This is notably the case in Finland, Hungary, Japan, Sweden and the United Kingdom.

The strong contribution of business sector services to employment growth is linked to a very high share of wholesale and retail trade, and to a lesser degree, of renting of machinery and equipment and business services, in total employment. In the case of social and personal services, the relatively strong contribution to overall employment growth is due to strong growth, but also to relatively high shares of these services industries in total employment (Wölfl, 2005).

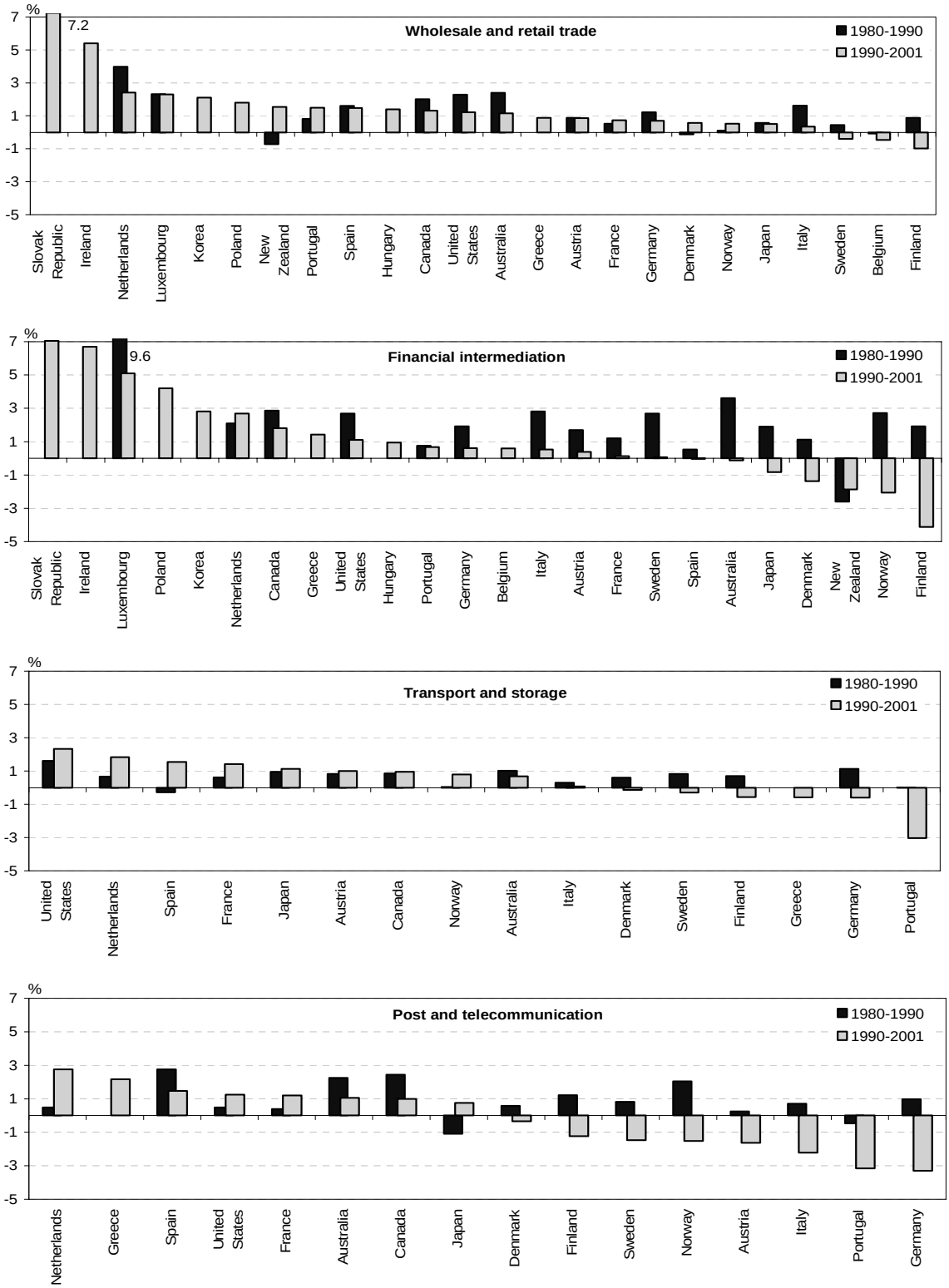
Further empirical evidence suggests that there is no general trade-off between growth in productivity and employment. While productivity growth is associated with downsizing in some parts of the services sector, other parts are characterised by employment and productivity growth, possibly reflecting increasing demand for such services. Post and telecommunication services, education, and to some degree financial intermediation, show a negative relationship between productivity growth and employment growth. There seems to be no correlation between employment and productivity growth in wholesale and retail trade and renting of machinery and business services, however. In the case of health and social work, two country groups can be distinguished: a first group, including Germany, Korea, Netherlands and the United States, show stronger employment than productivity growth. However, in a second group of countries, including Australia, Japan, Luxembourg, New Zealand and Spain, both employment growth and productivity growth were relatively strong.

Figure 2.9a. **Employment growth in services - industries with relatively strong growth**
Average annual growth rates (%), 1980-1990; 1990-2001



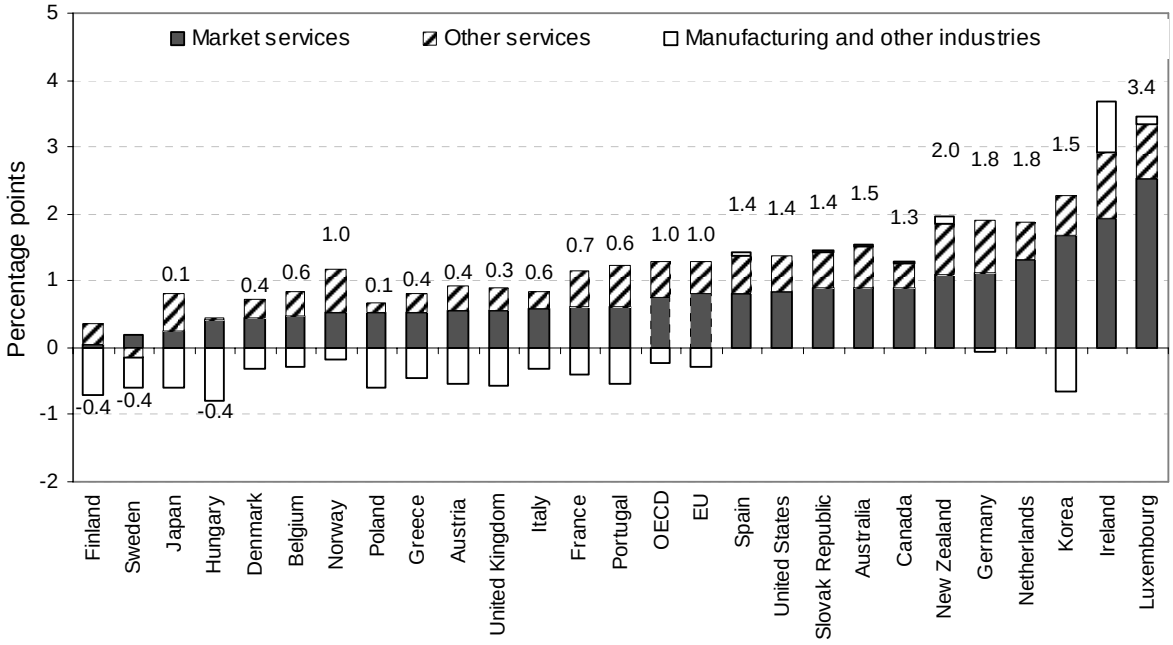
Note: Or most recent year available. Germany: 1992-2001, West Germany: 1980-1990.
Source: OECD STAN Database, 2004.

Figure 2.9b. **Employment growth in services – industries with relatively weak growth**
Average annual growth rates (%), 1980-1990; 1990-2001



Note: Or most recent year available, Germany: 1992-2001, West Germany: 1980-1990.
Source: OECD STAN Database, 2004.

Figure 2.10. **Contribution to aggregate employment growth, 1990-2002**[1]
Average annual contribution (percentage points)



Notes: 1. Or most recent year available. Germany: 1992-2001, West Germany: 1980-1990.

The sum of the contributions per industry may be slightly different from the aggregate values.

Source: OECD STAN Database, 2004.

Factors driving the performance of services industries

The evidence above points to cross-country and cross-industry differences in the performance of services industries in terms of productivity and employment growth. From a policy point of view, the question is how such differences arise and how they can be addressed in order to achieve higher economic growth. Supply-side factors may be among the explanations. For instance, the services sector may be characterised by certain factors that may not be conducive to productivity growth or that may hamper employment growth. Services are, for instance, often perceived to be less intensive in their use of physical capital; they typically have a lower degree of innovation and knowledge accumulation, as well as a smaller firm size. They are also perceived to be primarily focused on regional markets and less confronted with international competition than most manufacturing industries. Moreover, services industries have typically been more heavily regulated than manufacturing industries, which is likely to have reduced the degree of competition in service markets. The section below discusses some evidence on these factors.

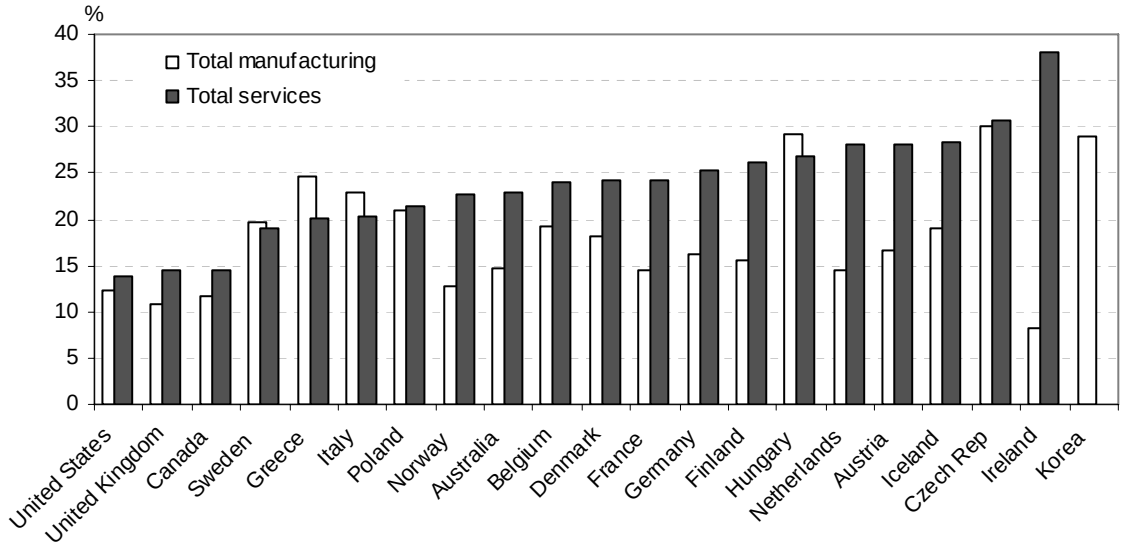
The role of physical capital

Investment in physical capital spurs economic growth. This is directly the case through the positive effect of capital deepening on productivity growth, albeit this effect may be transitory due to the decreasing marginal returns to investment in physical capital. Investment is also an important way through which new technology becomes embodied in the capital stock that is available for workers.

Investment in physical capital may also indirectly induce innovation, which may have a long-term positive effect on economic growth (de Serres, 2003; OECD, 2003b).

Services have a relatively high and slightly increasing intensity of investment as measured as the percentage share of total gross fixed capital formation (GFCF) in total value added per sector or industry (see Figure 2.11). In 2001, total GFCF accounted, on average, for about 25% of value added in the services sector and for about 20% in the manufacturing sector. Very high investment intensities in services of about 30% or more could be observed in Korea, Finland and Germany, while the United States, United Kingdom and Canada showed relatively low intensities of about 12%. Within the services sector, wholesale and retail trade, transport and communication services and, for some countries, financial intermediation showed high investment intensities; in 2001, GFCF accounted for up to 30% of total value added in these industries. In contrast, education and health and social work showed relatively low investment intensities for most OECD countries; in 2001, total gross fixed capital formation accounted for about 5% to 10% of value added in these services industries.

Figure 2.11. **Investment intensity for manufacturing and services, 2001**
Total GFCF as a percentage of value added per sector



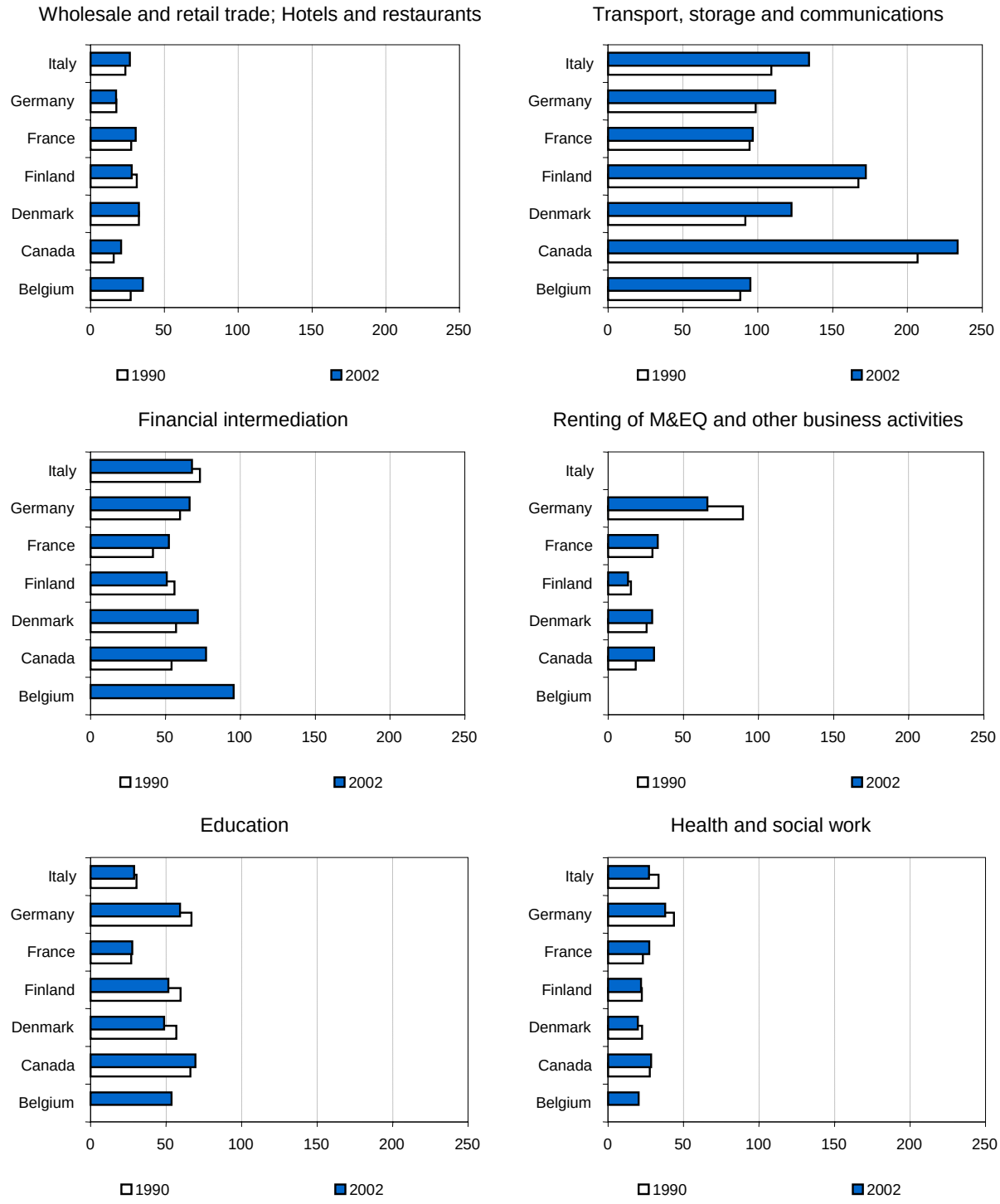
Note: Or most recent year available.

Source: OECD STAN Database and STAN Indicators, 2004.

However, capital intensity as measured by the capital-labour ratio, *i.e.* physical capital stock per employed person, is much lower in most services industries as compared to the total economy (see Figure 2.12).

Figure 2.12 suggests a positive relationship between capital-intensive production and labour productivity growth. Transport and communications services have a very high capital-to-labour ratio relative to the overall economy for most OECD countries for which data are available, and notably in Canada and Finland; these industries also show strong productivity growth rates. At the same time, Figure 2.12 points to relatively labour-intensive production in services with lower productivity growth, notably social and personal services, or trade, hotels and restaurants. These services industries show capital-to-labour ratios that are about half the respective ratios for the total economy.

Figure 2.12. **Ratio of physical capital to total employment of broad service industries**[1]



Notes: 1. Capital stock in constant prices per total employment, relative to the total economy.
M&EQ = machinery and equipment

Source: OECD STAN Database, 2004.

A different picture prevails, however, if one differentiates among assets or types of physical capital. For instance, some services industries use ICT to a higher degree than many manufacturing industries (Inklaar, O'Mahony and Timmer, 2003; see also Triplett and Bosworth, 2003). From 1990 to 2001, the share of ICT capital in value added per industry was higher in several market services, notably communications services, financial intermediation, business services and wholesale and retail trade, than in many manufacturing industries. In the four European countries for which a detailed growth-accounting exercise was undertaken, the information technology intensity was highest in these services industries, and ranged between 3% and 13%. The ICT-intensity was higher in almost all industries in the United States as compared to the EU4, notably in these business-related services (Inklaar, O'Mahony and Timmer, 2003).

Innovation in services industries

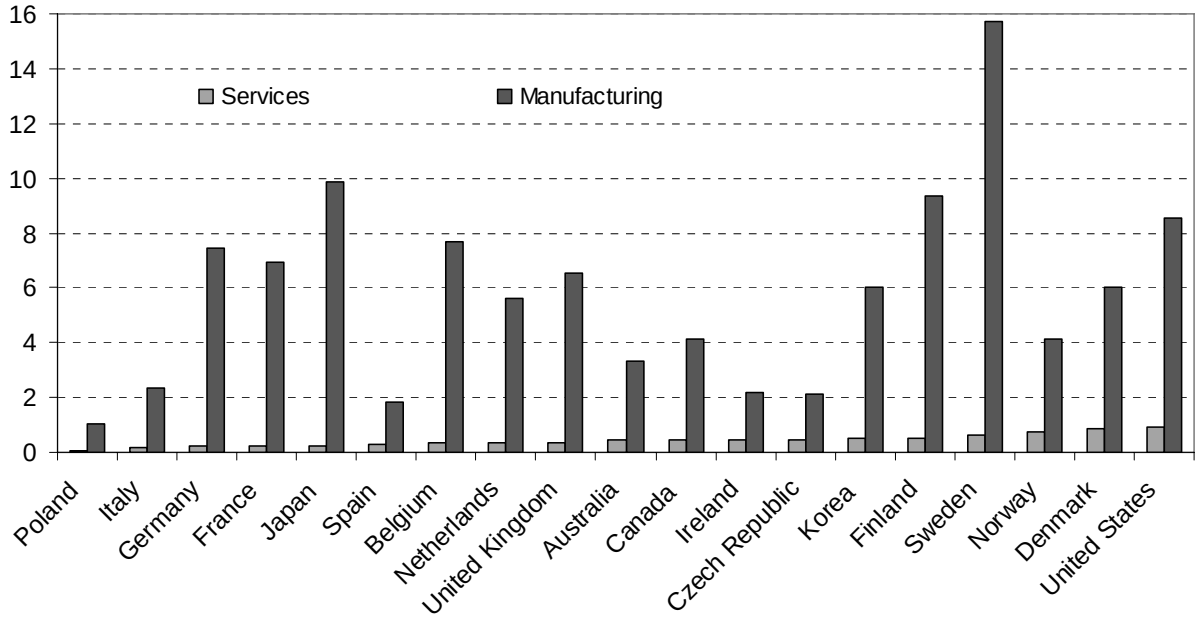
Services are often perceived to be characterised by low R&D or knowledge intensity. This may be a drawback in achieving stronger performance in the service sector since knowledge intensity is a key determinant of long-term productivity and economic growth. For example, using knowledge to innovate is an important driver of firm performance; process innovations may help reduce production costs, and product innovation may allow the entry into new markets and help firms gain market share. Moreover, knowledge capital is – in contrast to physical capital – characterised by non-decreasing returns, and may thus spur long-term growth.

The R&D intensity of services production, as measured by the share of business R&D expenditure (BERD) in value added of the services sector is very low as compared to the intensity in the manufacturing sector (see Figure 2.13). In 2001, the share of BERD in total value added of the services sector amounted to about 0.4% on average across OECD countries, while its share amounted to about 7% on average across OECD countries in the case of the manufacturing sector.

Within the services sector, certain industries, such as wholesale and retail trade, transport and storage as well as financial intermediation have a very low R&D intensity (Wölfl, 2005). The share of business R&D expenditures in total value added of these industries in 2001 was about 0.1% on average across OECD countries. In contrast, post and telecommunication and business services, notably R&D and computer related services, are high-tech, knowledge intensive industries. The R&D intensities in these industries amount to more than 6% and are sometimes higher than R&D intensities in the manufacturing sector.

Relatively low R&D intensity in services as compared to manufacturing may be related to the innovation process in services itself. Results from the European Community Innovation Survey (CIS3), for instance, have shown that the innovation process and performance in services differs in several respects from processes and performance in manufacturing firms (Tamura, *et al.*, 2005 — Chapter 6). Firms in both manufacturing and services industries are engaged in product innovation. However, in many countries, innovative service firms are more likely to introduce new products on the market than manufacturing firms, and this may be related to their stronger (reported) focus on innovation marketing. Manufacturing firms, in contrast, are typically found to focus on production, delivery or design improvements. In general, manufacturing firms are also more often found to develop or introduce process innovations than services firms, although the distinction between product and process innovations may not be applicable to services innovation. Finally, while manufacturing firms rely more frequently on internal R&D, services firms rely more often on R&D acquired from external sources or from other knowledge sources, such as training or patents, software and licenses (Tamura, *et al*., 2005 — Chapter 6).

Figure 2.13. **R&D intensity of the services and the manufacturing sector, 2001**[1]
Total BERD as a percentage of value added per sector



Note: 1. The services sector covers ISIC classes 50-99.

Source: OECD ANBERD Database, 2003.

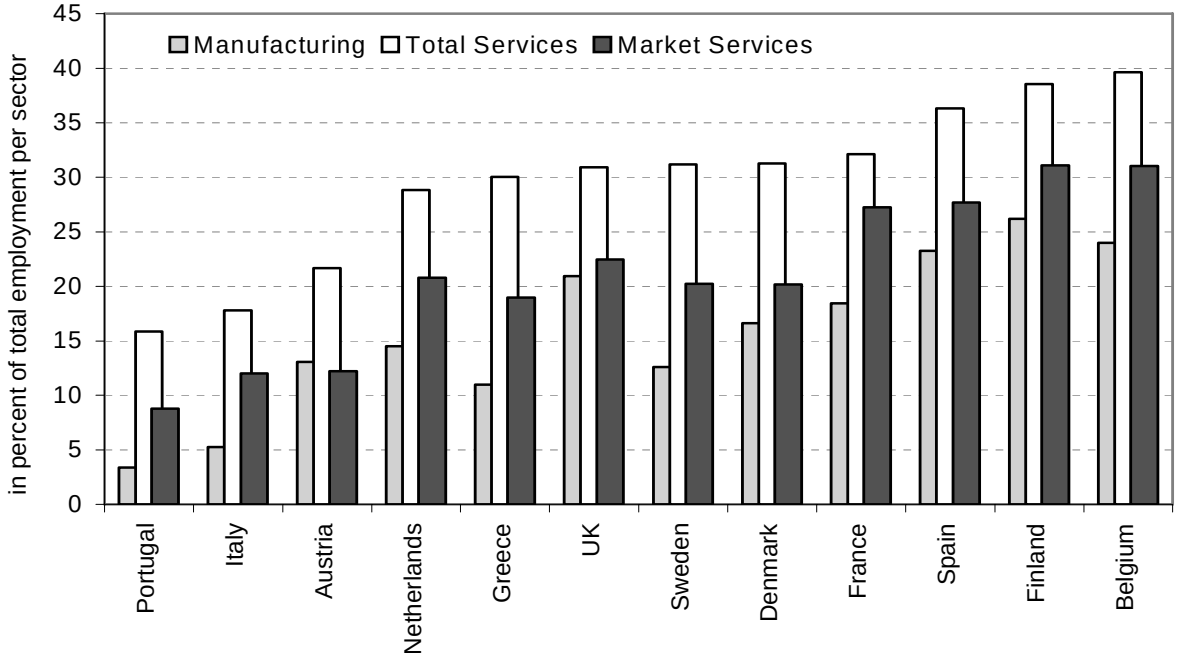
Low investment in R&D and innovation activities may arise from several industry-specific obstacles for innovation (Wölfl, 2005; Klodt, 1995; Müller, 2002). Of particular importance for service firms may be external effects from R&D, as knowledge that is created in the innovation process of services firms is not protected by patent law or it diffuses slowly since the intellectual property right (IPR) regimes used by services are not based on registration of information pertaining to the innovation (OECD, 2001b). The empirical evidence suggests also that innovation in services does not necessarily result from internal R&D, but from the use of knowledge and technologies that has been created in other firms or industries. Problems of firms to access and use knowledge that is produced by a different firm may arise from low investment into necessary training or organisational changes, or weak incentives to invest in R&D that would enable firms to read and to implement knowledge produced elsewhere. Finally, specific problems of innovation may result from the small firm size structure by which services are characterised. Innovations and the investment in new technologies are typically high-risk and high-cost activities, for which small firms often lack the necessary financial means or the access to external financial sources such as venture capital markets.

Moreover, services, notably business- or science-related services, also contribute indirectly to the innovation and knowledge activity of an economy. However, these indirect innovation activities are not well reflected in available measures of innovation. Czarnitzki and Spielkamp (2000) point to the role of services as providers of support for the innovation of their customers. Services purchase knowledge or investment goods from the manufacturing industry or from other services (demand pull). Services provide knowledge for companies in the manufacturing or other services industries, which may become part of the purchasers' production or innovation (knowledge push). Services deliver services or knowledge that is complementary to the goods or services provided by firms of other industries.

The skills distribution in services industries

The share of R&D performed in service industries is only one indicator of innovativeness and knowledge intensity. The performance of firms and their ability to innovate also depend on the skills that are available, both as measured by educational attainment and occupational skills. Moreover, a high quality of skills has a direct positive effect on productivity growth.[12] Figure 2.14 shows, from an aggregate perspective, that services are characterised by highly skilled employment, as measured by the level of educational attainment. The share of highly skilled persons in total employment is higher in the service sector than in the manufacturing sector for all European countries for which data are available. The share of high-skilled employment in total employment of services amounts to between 15% and 40%. To a large degree, this may be explained by a relatively high share of skilled employment in non-market services, such as education, health and social services.

Figure 2.14. **Share of high-skilled employment in total employment per sector, 2002[1]**



Notes: 1. The services sector covers NACE classes 50-99. Market services cover NACE classes 50-74.

High skilled employment is defined according to the ISCED classification and reflects employment with tertiary education.

Source: OECD (2003), *Labour Force Survey*, OECD, Paris.

Within the services sector, the empirical evidence suggests a mixed picture. In financial intermediation, education, and, to a lesser degree, business services and health and social work, the skills distribution is skewed towards very high or medium-high educational skills. A different picture prevails for wholesale and retail trade services, where the skills distribution as measured by education attainment, is very different across European countries. Portugal and Spain, for instance, show a high share of low-skilled employment, with about 60% of total employment. The opposite is true for

12. This chapter focuses on skills as measured by educational attainment. See Wölfl (2005) for more detailed industry evidence on both, educational attainment and occupation skills, as well as for an analysis regarding to which degree both skills indicator overlap.

Austria and Sweden, where the share of low-skilled employment in these industries amounts to only about 20%.

As with education skills, the distribution of occupation skills varies across services industries and countries (Wölfl, 2005). In wholesale and retail trade services as well as in transport and communication services, persons are mainly employed as clerks or services workers, such as sales workers or machine operators and locomotive or motor vehicle drivers. These occupations are typically perceived to be medium-low skill intensive. Financial intermediation services, renting of machinery and equipment and business services, as well as health and social services show a relatively high share of professionals and technicians and associate professionals, such as health and life science professionals and associate professionals, as well as business and legal professionals, administrative and associate professionals. These occupations are typically perceived as high or medium-high skill intensive. Finally, persons that are employed in education services are about 60% professionals, such as science and health or teaching professionals, and are, thus, characterised by a high level of occupation skills.

Entry and exit of services firms

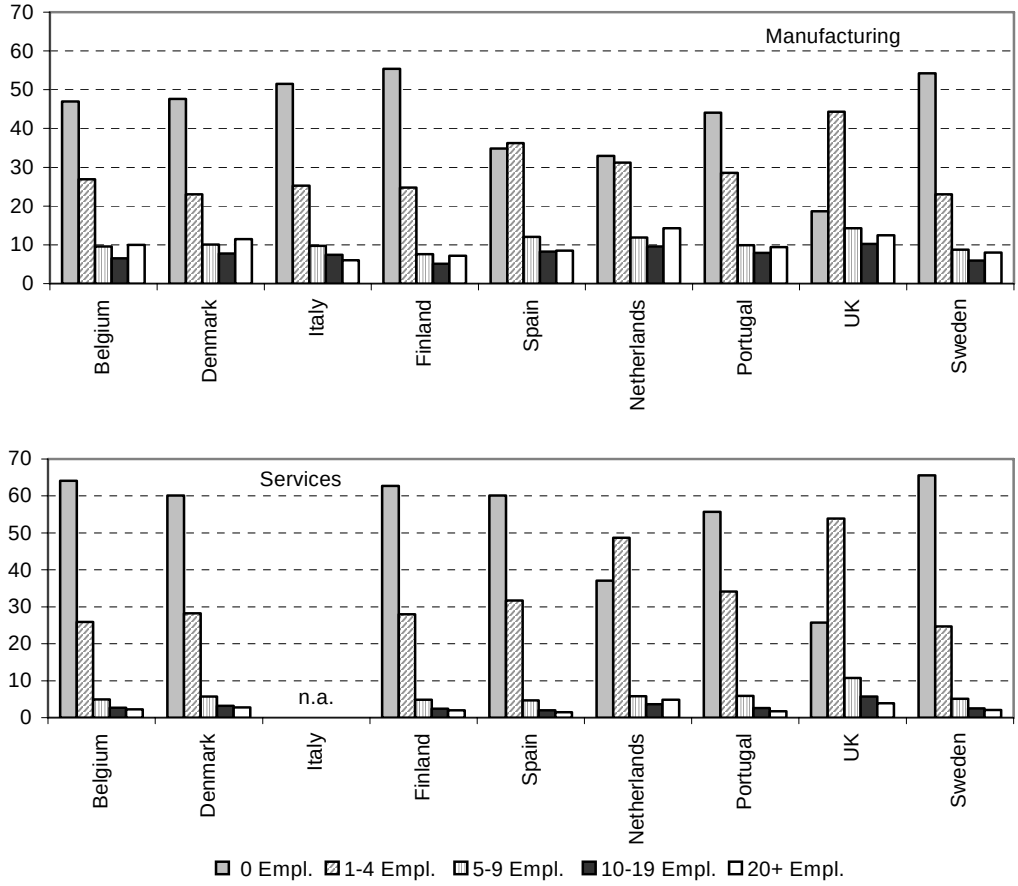
Whether the size of service firms can explain low productivity growth in the service sector cannot be said unequivocally. Figure 2.15 shows that the firm size distribution in the service sector is more skewed towards small firms as compared with the manufacturing sector; this is the case for all countries for which data are available. In general, only a very small percentage of service firms as compared with manufacturing firms have more than five employees. Differences between manufacturing and services are particularly large in the group of single-person firms.

There are two possible opposite effects of this small firm size structure on productivity and employment growth. On the one hand, the small size of service firms may reflect markets that are open to entry and exit. The available statistics show that the rate of firm entry is significantly higher in service industries as compared with manufacturing industries (Brandt, 2004). This is in particular the case for ICT-related services as well as business-related services. A similar picture prevails for exit of firms. Exit rates are relatively low and not significant for most manufacturing industries, but significant and relatively large for services industries, notably market services, such as retail, renting of machinery and equipment, ICT-related services and other business services. Previous OECD studies have shown that entry and exit of firms have an important direct impact on productivity growth, notably if new – more productive – entrants, replace declining firms in mature markets. Ease of entry may also impose a (potential) threat to existing firms and may thus indirectly induce productivity growth in incumbent firms.

On the other hand, productivity and employment growth may not emerge in the long term if small firm size as well as high exit rates imply a weak potential for firm growth. For instance, firm-level evidence shows that several service firms stay small over a long time period while manufacturing firms grow (OECD, 2001b). Furthermore, the risk of failure of small young firms in retail trade, telecommunications and some business services such as market research seems to be higher as compared to other industries (Brandt, 2004). One reason for the low potential for firm growth may be a lack of possibilities to exploit economies of scale, for instance if the market for the service is not big enough to expand. This may be more probable in services industries than in manufacturing industries, notably in services that are focused on domestic or regional, rather than international, markets.

Both firm entry as well as firm growth may be impeded by the behaviour of large incumbent firms. Empirical evidence has shown that some services industries are characterised by strong concentration rates. In France for instance, the ten largest enterprises in business services achieved more than one-fifth of total industry turnover in 2001; enterprises with 100 employees and more achieved about one half of total turnover and enterprises with less than ten employees, which accounted for about 90% of the total number of enterprises, achieved one-fourth of the total industry turnover (INSEE, 2004).

Figure 2.15. **Firm size structure of the services and the manufacturing sector[1]**
Share of firms per size group as a percentage of all firms per country, average 1997-2000



Note: 1. The services sector covers ISIC classes 50-99.

Source: OECD (2001b), *Innovation and Productivity in Services*, OECD, Paris;; Brandt, N. (2004), "Business Dynamics in Europe", *STI Working Paper* 2004/1, OECD, Paris.

The labour market characteristics of the services sector[13]

Differences across industries and countries in employment share and growth may also be related to specific characteristics of services as compared to manufacturing labour markets. Substantial cross-industry differences can be observed for part-time and temporary work arrangements, average job tenure and female work participation (OECD, 2000; OECD 2001a). First, the incidence of part-time

13. Also see Chapter 3 on this issue.

work is substantially higher in the service sector than in the manufacturing sector. This is notably the case for personal and social services where the incidence of part-time work is 1.5 times that of the average incidence across countries. Temporary work arrangements are also more often found in services industries, notably in personal and social services, than in manufacturing industries.[14] The differences across sectors in the incidence of temporary work arrangements are lower than the differences in part-time work arrangements, however. Average job tenure in the services sector in general and for most services industries is almost as high as in the manufacturing industries, but lower for certain services industries, in particular social services.

Differences in part-time work, temporary work and job tenure are influenced by institutional settings and workforce characteristics, such as the female participation rate or the education level of employees. Workforce characteristics differ between the services and the manufacturing sector, but also within the services sector; for instance, women occupy a large and disproportionate share of employment in social and personal services.[15] Cultural or institutional differences across countries that affect female labour participation may represent, thus, one explanation for the observable cross-country differences in the employment share of services (Messina, 2004). Differences across countries can also be found in the growth of jobs per wage class. In most countries, job growth over the 1990s took place in high-paying services jobs rather than low-paying jobs, and was relatively strong in some countries. However, Europe as a whole experienced slower employment growth in all wage groups than the United States (OECD, 2000).

The labour market for services is also influenced by differences in the international mobility of service workers. Greater mobility of labour offers potentially significant economic benefits for the source and the host country. The mobility of service workers has recently been at the heart of the policy discussion in several OECD member countries as foreign services workers may help to close labour shortages in some services-related high-skilled occupations or may help in facing challenges linked to an ageing society (Coppel, Dumont and Visco, 2001; OECD, 2004a). Immigrants are also found to be prepared and eager to set up their own enterprise and this may enhance competition in the host countries (OECD, 2004a). Indeed, from 1995 to 1998, immigrants in services employment accounted on average for between 33% (Japan) and 73% (Netherlands) of total immigrant employment. The share of foreign manufacturing employment in total foreign employment amounted to between 20% (Canada) and 62% (Japan) (Coppel, Dumont and Visco, 2001).

The level, mix and changes in immigration vary strongly across OECD member countries, though. In 1998, for instance, skills-induced immigration accounted for 1% of total immigration in Sweden while it accounted for 49% of total immigration in New Zealand (Coppel, Dumont and Visco, 2001). These differences can be explained by a broad range of factors, such as differences in the motivations behind immigration, the skills level of immigrants, or the history and immigration policies of different countries.[16] To what extent such concerns influence migration of services workers and, as a consequence, services employment in individual countries cannot be said *a priori*. The empirical evidence for or against these concerns is rather weak, and most of these concerns are related to long-term or permanent immigration. Migration of services workers is not necessarily of a long-term nature, though. Indeed, temporary mobility of workers to supply services as covered under Mode 4 of the

14. However, temporary employment covers a broad range of different types of work arrangements, which render cross-country comparisons and their interpretation difficult.

15. See also Dathe and Schmid (2000) for evidence for German regions.

16. See Coppel, Dumont and Visco (2001); OECD (2004a) or Wölfl (2005) for more detail.

General Agreement on Trade in Services (GATS) may benefit both source and host countries (OECD, 2004a).

Temporary mobility of service workers can, for instance, help overcome labour shortages from strong and fast increases in demand for highly skilled labour or for labour with specific skills. For instance, structural change towards the knowledge-intensive industries has raised the demand for labour that is highly skilled in modern technologies, such as ICT, or in R&D in general (Coppel, Dumont and Visco, 2001); and the increasing trend across OECD countries towards an ageing population continues to create demand for health-related skills, notably in nursery occupations. Certain OECD countries, such as Germany, Ireland, Korea, the United Kingdom and the United States, managed to raise temporary immigration in specific fields, notably ICT and health services, through the introduction of specific immigration programmes (OECD, 2004a).[17]

Despite strong increases in recent years, temporary mobility of services workers under Mode 4 of GATS is still limited due to various factors, though. For instance, migration policy has typically been dealt with at the national level and bilateral, regional or international agreements are slow to emerge. Bilateral or multilateral agreements on basic issues, such as labour rights and social security issues, as well as the recognition of qualifications as one of the main prerequisites to make temporary mobility work, have yet to be developed or improved. The scope of Mode 4 remains uncertain, and its applicability is influenced by problems measuring the temporary mobility of workers (OECD, 2004a). Finally, as migration policy is typically relatively slow to adjust, it may not be the appropriate means to act against relatively rapid changes in labour markets or skills demands. It is also primarily a short-term instrument and must not be seen as substitute for reforms in national labour markets to enable smooth adjustment in the longer term.

The role of regulation

The services sector has traditionally been a highly regulated sector. Prominent examples of regulated services are transportation and communication services, but also trade and business services. Some of these regulations may be or may have formerly been justified by the existence of market failures and by the wish to satisfy non-economic objectives where competition was not perceived to be possible or appropriate. However, many restrictions have no longer any economic justification other than the protection of incumbent firms, or are the result of the domestic influence of special interest groups (Nicoletti and Pilat, 2004).

In general, regulations affect labour and product markets in different ways, including entry, pricing and service provision. The effects of both labour and product market regulations also not only affect the respective market under consideration, but work through in other markets and the total economy. Until recently, empirical, notably econometric, evidence of the impacts of regulations in services industries on structural and macroeconomic outcomes was limited. This may to some degree be related to the difficulty in finding appropriate data and indicators for both industry-specific regulations as well as for the performance of services industries, in particular for cross-country comparisons. Recent OECD work has developed a large dataset on regulations affecting the services sector (Nicoletti, Scarpetta and Boylaud, 1999; Conway, Janod and Nicoletti, 2005).

17. Due to the way temporary mobility of services workers is defined under Mode 4, there is also limited worry about social security claims, crowding out of national workers and brain drain (Wölfl, 2005).

The existing empirical studies, *i.e.* both simulation studies and cross-country comparisons of effects of regulation in specific services industries, point to sizable effects of regulation on services sector performance (Nicoletti and Scarpetta, 2003). Simulated efficiency gains from a set of plausible medium-term programmes of regulatory reform amounted to up to 6% of GDP, depending on the initial state of regulation in different countries (Blondal and Pilat, 1997). Studies using the OECD summary indicators of regulation found, for instance, that policies lifting border restrictions and promoting domestic competition can affect quality-enhancing capital formation by making the economy more attractive to foreign direct investment and by stimulating investment in crucial sectors. Multifactor productivity may also be positively affected by pro-competitive regulatory environments, by enabling a faster catch-up to best practice in countries that are far from the technological frontier (Nicoletti and Scarpetta, 2003).

More specifically, there is evidence that restrictive regulations may disproportionately damage entrepreneurial initiative, and this may limit service sector growth in particular (Brandt, 2004). Limits on the creation of new firms tend to have negative impacts on employment growth and on innovation in emerging industries, also within the services industries (Messina, 2004). Moreover, regulation in ICT-related services, such as wholesale and retail trade, finance, insurance and business services, may impair the ability of the economy to trigger "new economy" externalities, with negative consequences on productivity growth (Nicoletti and Scarpetta, 2003; OECD, 2003c). Regulation may also impede innovation. Regulation of venture capital markets, for instance, restrict the access to external finance of innovative firms, which reduces investment in innovation projects (de Serres, 2003).

The share and growth of employment in the services sector are also influenced by labour market regulation and taxes on labour income (OECD, 2000). Panel regressions for the period 1986-1998 have shown significant effects of average tax wedges and employment protection regulation, but the sign, the magnitude and the significance level of the effects are different across services industries. In general, stricter employment protection legislation is associated with lower employment shares of services, notably of producer services. A higher tax wedge on labour income reduces to some degree the share of distributive and personal services (OECD, 2000). Finally, Messina (2004) finds a strong negative and statistically significant effect of the strength of union bargaining power, measured by union density or by the degree of wage-setting co-ordination, on service employment share.

Over the past two decades, many service markets have been extensively liberalised and countries have seen extensive reform of service sector regulation. However, cross-country differences in initial conditions, in the pace and the extent of regulatory reform suggest that friendliness to market mechanisms of regulatory environments remains uneven across countries in many service industries (Kongsrud and Wanner, 2005 – Chapter 3). Nicoletti and Scarpetta (2003) summarised the main effects of regulatory reform for two services industries, retail trade and network industries which include rail transportation and communication services:

- The main types of regulations in retail trade are legal or administrative entry barriers, such as restrictions on large outlets, requirements for setting up businesses, limitations on product ranges, or provisions that constrain business operation, such as opening hours or pricing restrictions. Existing empirical evidence point unequivocally to large welfare gains from the liberalisation of entry and prices in retail trade (Nicoletti and Scarpetta, 2003). Distribution systems can become more efficient, and this is notably the case when restrictions on large outlets are removed; the range of services provided to consumers increases, particularly in countries where opening hours are liberalised; employment and the volume of sales increase, and margins decline putting downward pressure on consumer prices.

- Assessing the impact of regulation in network industries is complicated. In general, network industries are characterised by non-competitive segments that need to be regulated. Moreover, their price structure is often distorted, either as result of past regulatory arrangements, but also influenced by the specific way in which network industries have been deregulated in several OECD countries. As in the case of retail trade, empirical studies point to substantial welfare gains from regulatory reforms (Nicoletti and Scarpetta, 2003). In general, liberalisation in network industries has led to lower prices, greater competition and increased productivity; competitive pressures following liberalisation can further increase productivity and lower prices; privatisation reduces inefficiency but does not enhance welfare unless it is matched by effective market liberalisation. Finally, the mere perspective of liberalisation may set adjustments in motion that reduce inefficiencies and curb prices as incumbents prepare to meet future competition.

Some conclusions

In general, it is no longer appropriate to distinguish between a manufacturing sector that is characterised by technological progress, capital accumulation, and economies of scale, and the service sector, as a rather stagnant sector in which the potential for technological progress or other productivity increasing activities is only temporary. Several service industries are characterised by factors that drive productivity growth. This is notably the case for transport, storage and communications services and financial intermediation. These services are characterised by a relatively high capital-to-labour ratio, are important contributors to overall business research and development (R&D) or use new, productivity-enhancing technologies such as ICT. To some degree the small firm size structure of services firms may reflect easy entry and exit of firms, and this may induce productivity increasing activities by all market participants. Several services, notably financial intermediation and communication services, are also actively involved in international competition and are thus pressured to increase productivity and expand their activities.

Nevertheless, the empirical evidence points to several areas where structural characteristics of services markets may hamper productivity or employment growth. First, the services sector is still characterised by labour-intensive production. Since capital intensity is typically a main determinant of productivity growth, the potential for future productivity growth may be low in those industries that are characterised by low capital intensity, or respectively, very labour-intensive production. Moreover, some of the most labour-intensive services are services such as education, health and social work that have a very high share in the total economy. Low capital intensities in these services may indirectly limit the potential for aggregate growth.

Second, differences in innovativeness across industries and countries may be related to obstacles for innovation that are particularly relevant for services industries. External effects may be of particular relevance for services firms as knowledge that is created in the innovation process of services firms is typically not protected by patent law (OECD, 2001b). The typical small firm size of services firms may prevent of exploitation of economies of scale from innovation projects and this may create a barrier to innovation. A lack of financing as obstacle for innovation is shown to be particularly relevant for services firms (Tamura, *et al*., 2005 – Chapter 6). Also lack of technological and market information were more frequently regarded as obstacles for innovation by services as compared to manufacturing firms (Tamura, *et al.,* 2005 – Chapter 6).

Third, several services industries are still characterised by a low intensity of competition, both in domestic and international markets. Regulatory reforms in selected services industries have substantially increased competition and indirectly enhanced services provision and reduced service prices. There is, however, still room for improvement. Cross-country differences in initial conditions and the way in which specific services markets have been privatised or de-regulated suggest an uneven level of pro-competitiveness of the regulatory environment in services markets across OECD member countries. In addition, while the observable small firm size structure suggest that services markets are open to entry, some empirical evidence points to possibly negative effects from small firm sizes for services markets. This may act as an obstacle for future productivity and employment growth if there is no potential for small firms to grow. Existing regulations may also limit firm entry and growth, or weak competition in services markets may lead to entry-deterring behaviour of incumbent firms. Finally, several services, notably social services as well as hotels and restaurants, are focused on domestic markets with a high share of final demand, implying that they do not face intensive international competition.

Differences in the employment share and growth performance of services across countries seem to be related to differences in characteristics and regulation of services labour markets across countries. In particular, services jobs are more often characterised by part-time and temporary work arrangements, and show a stronger participation of female workers – factors that are also influenced by national labour market regulations. The labour market for services is also influenced by differences in the international mobility of services workers. Notably, the temporary mobility of services worker may help to close labour shortages in some services-related high-skilled occupations or may help in facing challenges linked to an ageing society. However, despite strong increases in recent years, temporary mobility of services workers is still limited due to various factors, such as limited number of bilateral, regional or international agreements, notably on basic mobility issues, an insufficient recognition of qualifications, and, in general, long time lags and a slow adjustment of migration policy to rapid changes in labour needs.

However, despite room for improvement in many services, some service industries do not show characteristics that are favourable for high productivity growth, and this may not change in the medium term. First, it is in the very nature of some services, such as social, health and public services, education, or retail trade, to provide a "service" to the final user. In some of these industries, it is not a primary objective to increase efficiency, *e.g.* by limiting shop opening hours or by moving from person-based to automatic service provision. It is sometimes more important for these service firms to increase the value of the service provided, even if this implied higher staff or operating costs. As long as this additional value of the service provided is not adequately captured in measured value added, this may lead to lower measured productivity growth of these service industries.

Second, some service industries are still mainly producing for regional or domestic markets and are only to a small degree involved in international markets which could spur productivity increasing activities. Although the empirical evidence has shown that there are new channels to open up service markets, an outward orientation of service industries may not be feasible for all services. This may be due to the specific nature of the service, which is notably true for some personal services. Some services may also be designed for a specific market whose characteristics are only present in a specific region and may thus not be directly transferable to markets outside this specific region.

Conclusions

It is important to look at services if the aim of economic policy is to increase economic growth. First, the service sector has quantitatively become the most important sector in all OECD economies. By 2002, the share of the service sector amounted to about 70% of total value added in most OECD economies, and this has increased considerably since the 1970s. Services contribute also to between 0.5 and 2 percentage points to employment growth and the contribution of the service sector to overall productivity growth has increased over the past ten years in some OECD countries.

The strong and increasing role of services can be explained by different factors. First, unbalanced growth between the manufacturing and the service sector induces a resource reallocation towards the "stagnant" service sector, eventually slowing down aggregate growth. The size of the services sector may also be explained by demand-side factors, such as a high income elasticity of demand for some services, demographic developments in society, notably population ageing, or the growing provision of certain services as public goods in many OECD countries. A third explanation for the structural shift towards services may be the increasing role of service firms as providers of intermediate inputs. Services and manufacturing sectors do not differ in the share in total gross output that is produced for intermediate use.

Second, it is important to look at services, since the empirical evidence points to several areas through which the employment and productivity growth performance of services could be improved. The services sector is still characterised by labour-intensive production as compared with other industries, and this may reduce the potential for future productivity growth. Differences in innovativeness across industries and countries may be related to obstacles for innovation that are particularly relevant for services industries. Several services industries are still characterised by a low intensity of competition, both in domestic and international markets suggesting room for improvement of the regulatory environment of services. Finally, differences in the employment performance of services across countries seem to be related to differences in characteristics and regulation of services labour markets across countries, and these factors are influenced by labour market regulations.

However, these characteristics of service performance and factors influencing the performance do not imply that policy should look at services separately from manufacturing industries. First, several services industries show characteristics that are similar to several manufacturing industries, concerning both their performance as well as the problems they are facing. Second, services and manufacturing interact and this interaction can be beneficial for all industries. Addressing some of the problems that services are facing may therefore not only improve the performance of services industries, but indirectly the performance of other industries via the provision and use of intermediate inputs and labour resources as well.

Finally, the importance of services, their performance and the factors that are driving the performance are confronted with measurement problems. An important problem is the measurement of labour input such that, for instance, cross-industry differences in working time arrangements are taken into account. Problems also arise in the measurement of services output, notably the quality of the service provided. As long as these issues are not adequately addressed, this may lead to biased measures of productivity growth in services industries.

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