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The Service Sector in the ROK:
A Comparison of Trends and Labor Productivity with Selected OECD Countries

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1.Introduction

For the last few decades, the share of the service sector in value added and employment has continuously increased, while that of the industry sector has decreased. As we can easily confirm from major economic databases such as WDI (World Development Indicator) and the OECD database, more than two-thirds of value added and employment in the OECD countries was in the service sector as of 2007. This phenomenon, referred to as “deindustrialization,” is often compared with industrialization (a labor- and output-shift from the agricultural sector to the industry sector) which most countries that have achieved a high per-capita income have experienced at some stage in their development.

In contrast to industrialization, in the process of which economies have shown relatively high economic growth rates, the shift from industry to services has been often regarded as a cause of sluggish economic growth in advanced countries (Baumol (1967) and Crafts (1996)). However, recent work of Triplett and Bosworth (2004) shows deindustrialization does not necessarily lead to a decline in productivity. It ascribes the successful performance of the US economy over the last decade to the development of its service industries. According to Triplett and Bosworth (2004), their research results “demonstrate the dominant role played by the services-producing industries in recent US productivity performance.”

In fact, research investigating the trends and causes of deindustrialization (Chenery and Taylor (1968), Kongsamut, Rebelo and Xie (2001), Rowthorn and Ramaswamy

(1998), and Foellmi and Zweimuller (2001), among others) presents various patterns and causes of deindustrialization. In some advanced economies, deindustrialization is understood not as a choice but as an inevitable phenomenon, as the manufacturing production base moves from developed countries to less developed countries offering well qualified personnel but demanding much lower wages. Yet regardless of the causes of deindustrialization, enhancing the productivity of the service sector is an important task in any country going through deindustrialization.

The ROK is one of the Asian countries which have surprised the world with their miraculous economic growth via industrialization, and it is now experiencing a rapid process of deindustrialization. In 1980, 47 percent of ROK GDP was produced by service industries, but that share increased to 57 percent as of 2003.[1] The shift in labor was more drastic. 39 percent of workers were employed in the service sector in 1980, but the share increased to 64 percent in 2003. By comparing this to Japan's experience, where the employment share of the service sector increased from 53 percent to 66 percent over the same time interval, we can understand how rapidly the ROK has been deindustrializing.

Against this background, in an attempt to understand the current situation of the ROK service sector, this present research computes the labor productivity of the ROK service sector and compares it with that of the ROK industry sector and those of other advanced countries' service sectors (the US, the UK, Germany and Japan). In addition, the ROK service sector is split into four sub-sectors and the productivities thereof are also compared. The four sub-sectors are (1) wholesale and retail trade, restaurants, and hotels, (2) transportation, storage, and communication, (3) finance, insurance, real estate and business services, and (4) community, social and personal services.

By measuring the labor productivity of the ROK service sector and comparing it with the productivity of the industry sector, we can see whether the service sector in the ROK slows down the ROK's overall productivity growth or if it plays a positive role, as Triplett and Bosworth (2004) found in the US economy. In addition, international and

[1] The numbers in this paragraph were obtained from the OECD STAN indicators database (2005).

inter-sectoral comparisons will contribute to the further understanding of the sector and related issues.

The following section (Section 2) briefly describes how the share of the service sector (the shares of the whole service sector and the four sub-sectors) in value added and in employment has increased in the ROK since 1980. Section 3 measures labor productivity. Lastly Section 4 discusses the implications from our findings and the tasks the ROK service sector should undertake to further develop the ROK economy.

2. The Shares of the Service Sector

The shares of the service sector were obtained from the OECD STAN indicators database (2005). The OECD splits the service sector into four sub-sectors and reports the shares in value added and employment for its member countries. In this paper, the data of four member countries (Germany, Japan, the UK, and the US) are also presented for international comparison. In addition the G7 averages are also shown where the data are available.

The UK and the US were selected because their service industries are the most developed, while Germany and Japan were selected because their manufacturing sectors are relatively strong. According to the IFS (International Financial Statistics) of the IMF, for the last decade the UK and the US have had trade deficits in industry but trade surpluses in services. In contrast, Germany and Japan have had exactly the opposite pattern. By comparing the ROK with these two sets of countries, which have exhibited different development patterns, we may be better able to capture the characteristics of the ROK service sector.

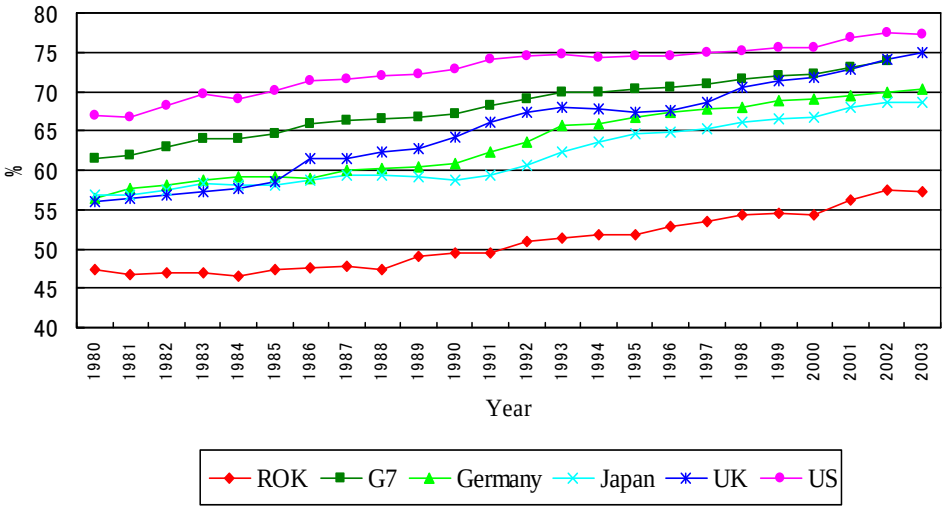
The OECD database currently (as of March 2008) reports the shares of the service sector up to 2003 for the countries selected. The G7-average data are available up to 2000.

(1) Shares in value added

As Figure 1-1 shows, the share of the service sector in the ROK's value added was

more or less stagnant until 1988, but has continued to increase since 1988, when the ROK hosted the 1988 Olympic Games. In the 2000s it increased more rapidly. Table 1, which shows data for every five years from 1980 to 2000 and for 2003, corroborates this. The share of the service sector in the ROK was 47.3 percent in 1980 and 47.4 percent in 1985, not showing any substantial change. For the same period, other countries show more than a 2-percentage-point increase, with the exception of Japan. Japan shows steady but relatively slow growth in the share of the service sector in the 1980s and shows quite a change in the 1990s. In the 1990s all the countries illustrate very similar growth patterns in their shares.

[Figure 1-1] Value Added Share of Services

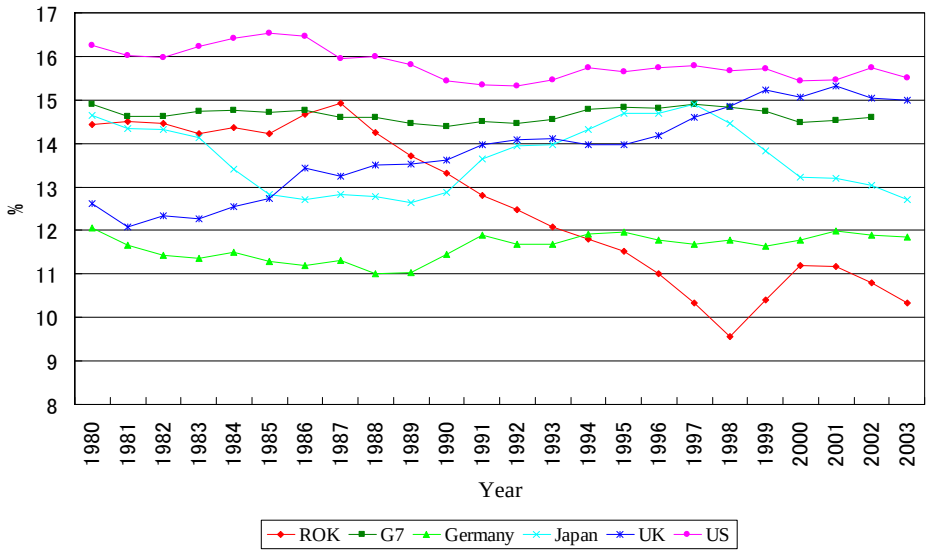


[Table 1] Value Added Share of Services

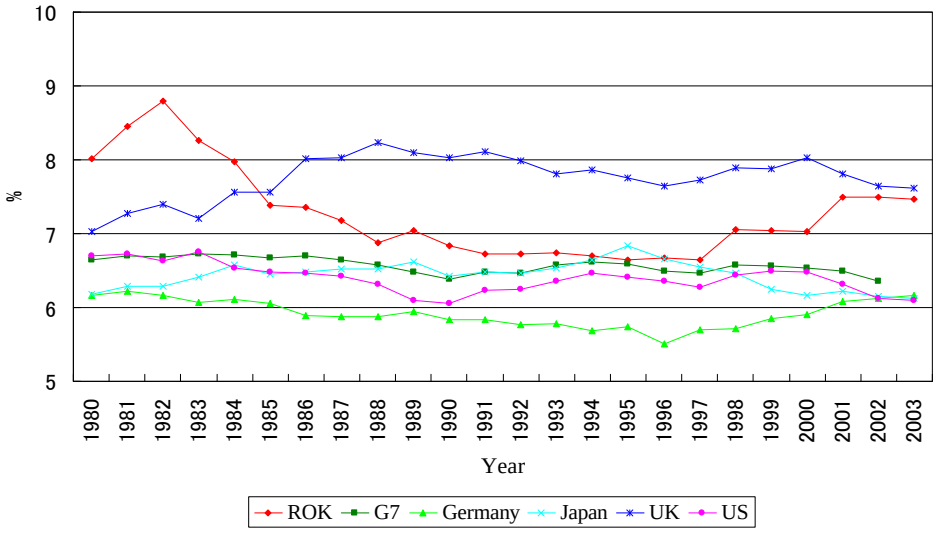
	1980	1985	1990	1995	2000	2003
ROK	47.3	47.4	49.5	51.8	54.4	57.2
G7	61.6	64.6	67.2	70.3	72.1	
Germany	56.5	59.1	60.8	66.6	69.1	70.3
Japan	56.9	58.2	58.8	64.6	66.7	68.6
UK	56.0	58.5	64.2	67.3	71.8	75.0
US	67.0	70.1	72.9	74.6	75.7	77.4

If we examine the sub-sectors from Figures 1-2 through 1-5 and Tables A-1 through A-4 in the appendix, however, very diverse patterns can be easily discerned between sectors and countries.

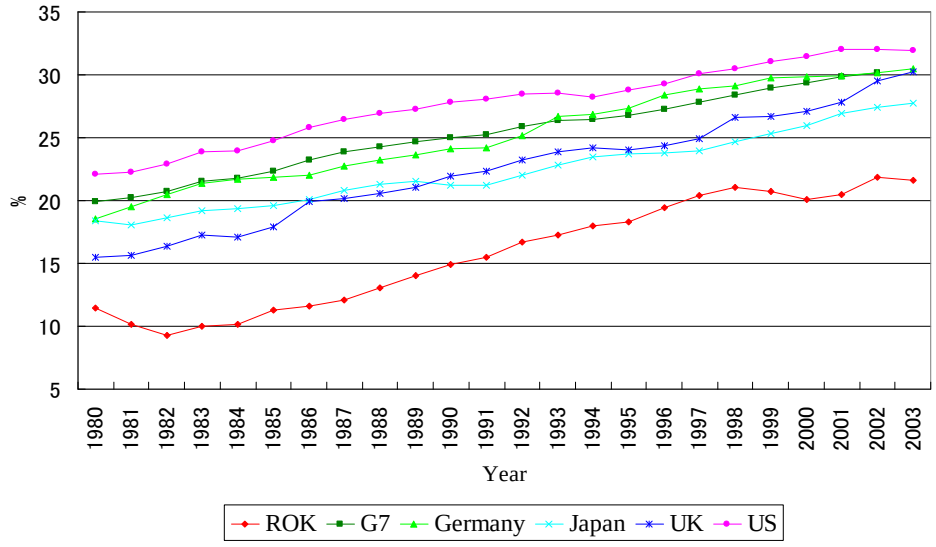
[Figure 1-2] Value Added Share of Wholesale and Retail Trade, Restaurants, and Hotels



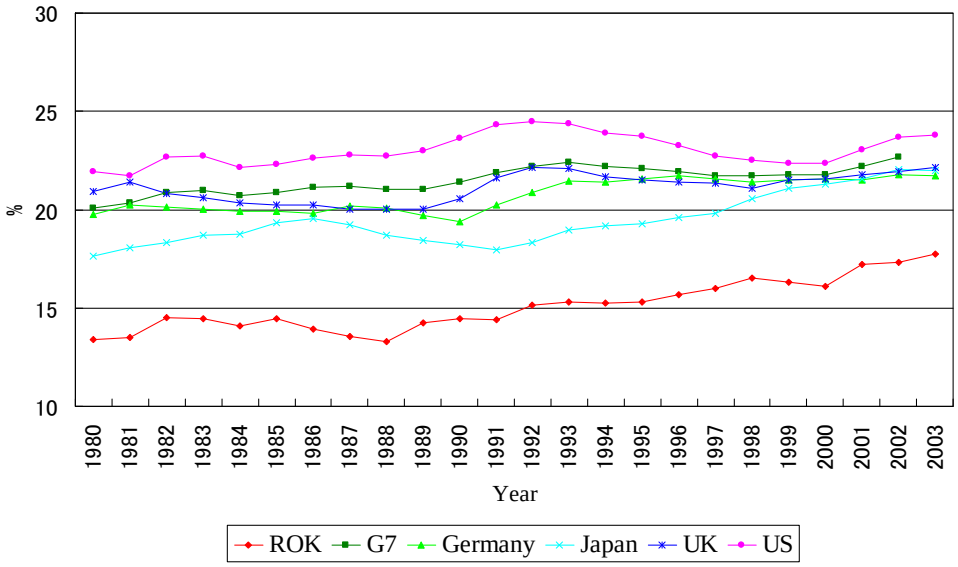
[Figure 1-3] Value Added Share of Transportation, Storage, and Communication



[Figure 1-4] Value Added Share of Finance, Insurance, Real Estate and Business Services



[Figure 1-5] Value Added Share of Community, Social and Personal Services



First, in the ROK the value added share of two sub-sectors (wholesale and retail trade, restaurants, and hotels; and transportation, storage, and communication) did not increase, but decreased. The slightly decreasing or stagnant trend of the sector of transportation, storage, and communication is also observed for four other countries. The decrease, however, in the share of the sector of wholesale and retail trade, restaurants, and hotels in the ROK, from 13.3 percent in 1990 to 10.3 percent in 2003 (see Table A-1), is a peculiar phenomenon not observed in the experiences of other countries in the same period. Later in this paper the problem of this sector in the ROK will be further examined.

Second, the sector of finance, insurance, real estate and business services has clearly grown quite rapidly in all the countries. The share of this sector in the ROK is relatively low compared with other countries, but shows a similar increasing trend.

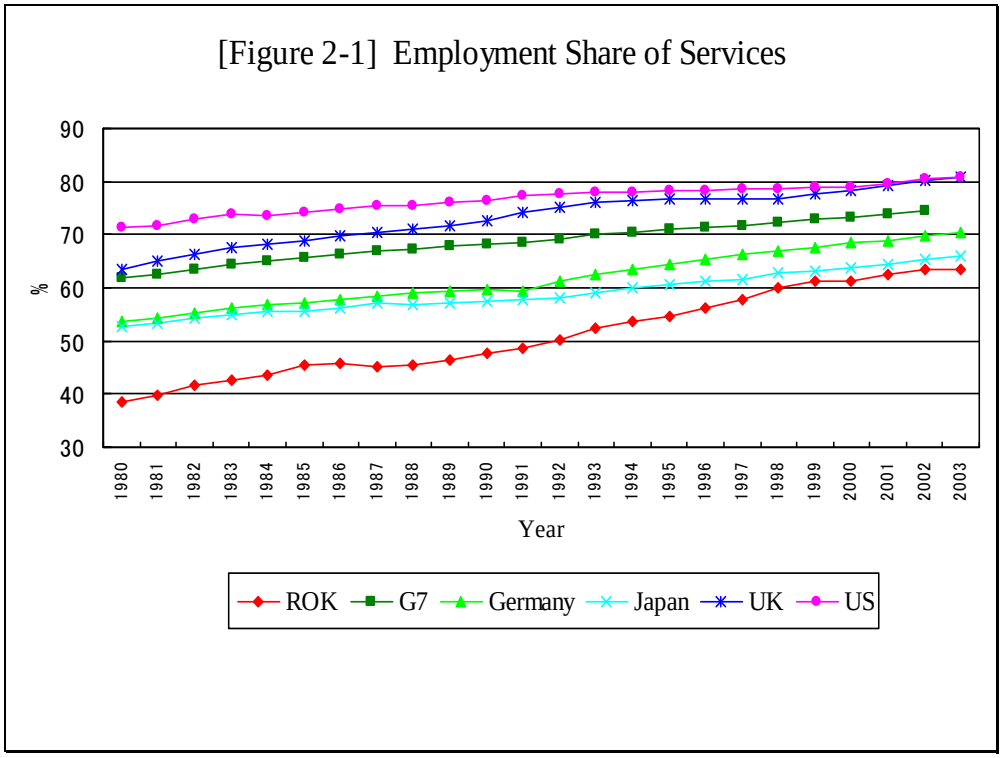
Third, as a result of the different growth experiences of the four sub-sectors in the ROK, the second smallest sub-sector (finance, insurance, real estate and business services) in 1980 was the biggest in 2003, and the biggest sub-sector (wholesale and

retail trade, restaurants, and hotels) in 1980 was the second smallest in 2003. In the case of the G7 countries, as Tables A-1 through A-4 in the appendix show, the sub-sector of finance, insurance, real estate and business services became the biggest sub-sector as early as 1985.

(2) Shares in employment

The employment shares of the service sector also increased in all the five countries for the period examined, as Figure 2-1 illustrates. Differing from other countries—where the changes in employment share are little different from the changes in value added share—the changes in employment share in the ROK are much more dramatic than the changes in value added share. As Table 2 shows, in the ROK the employment share of the service sector increased by 25 percentage-points between 1980 and 2003 (from 39 percent to 64 percent), while its share of value added increased by only 10 percentage-points in the same time period (from 47 percent to 57 percent). In contrast, in Germany both employment share and value added share have increased approximately 15 percentage-points for the same period. This imbalance between value-added share growth and employment share growth in the ROK economy implies labor productivity in the service sector must have grown more slowly than that of the overall economy.

[Figure 2-1] Employment Share of Services



[Table 2] Employment Share of Services

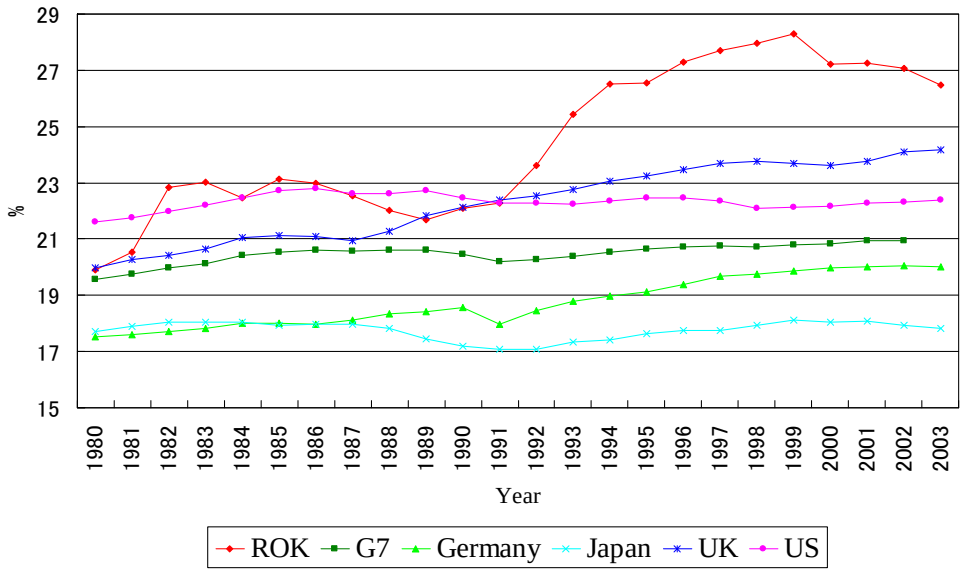
	1980	1985	1990	1995	2000	2003
ROK	39	46	48	55	61	64
G7	62	66	68	71	73	
Germany	54	57	60	64	68	70
Japan	53	56	57	61	64	66
UK	64	69	73	77	78	81
US	71	74	77	78	79	81

Figures 2-2 through 2-5 illustrate the employment shares of the four sub-sectors. Like the shares in value added, two sub-sectors (finance, insurance, real estate and business services; and community, social and personal services) show a quite homogeneous pattern across the countries. In all the countries the employment shares of these two

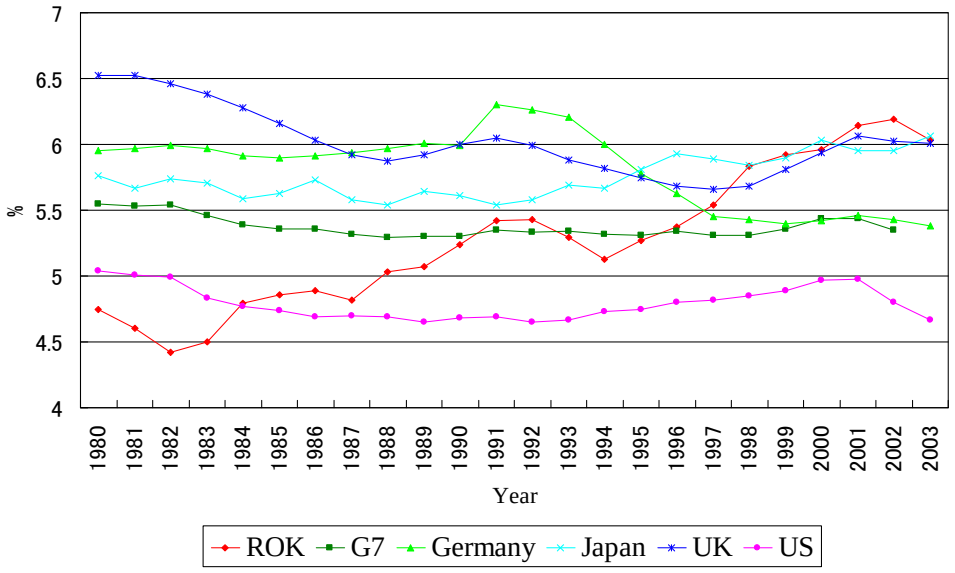
sub-sectors have increased in line with their respective value added shares. The employment shares of the sub-sector of transportation, storage, and communication are relatively small and quite stagnant. This also does not differ from the dynamics of the value added shares of the same sub-sector.

Of interest is the sub-sector of wholesale and retail trade, restaurants, and hotels. Differing from the share in value added of this sub-sector in the ROK which has continuously decreased, the employment share has increased. This sub-sector's employment share is higher than the value added share of all the countries, implying this sub-sector's labor productivity is lower than for other sub-sectors. In the ROK, this sub-sector's share in value added decreased from 14 percent in 1980 to 10 percent in 2003, yet the employment share increased from 20 percent in 1980 to 26 percent in 2003 (see Table A5). In other countries, the employment share far exceeded the value added share of the sub-sector of community, social and personal services (see Table A8).

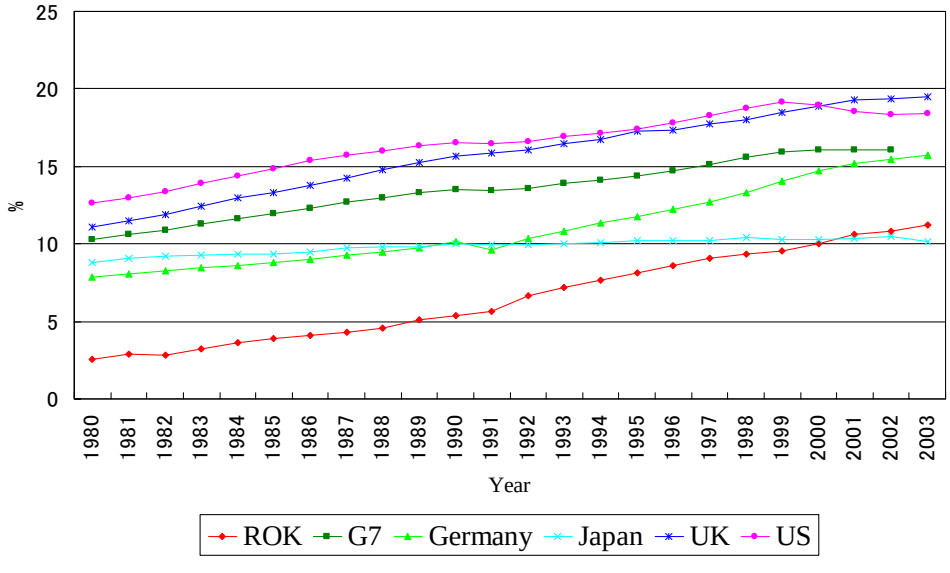
[Figure 2-2] Employment Share of Wholesale and Retail Trade, Restaurants, and Hotels



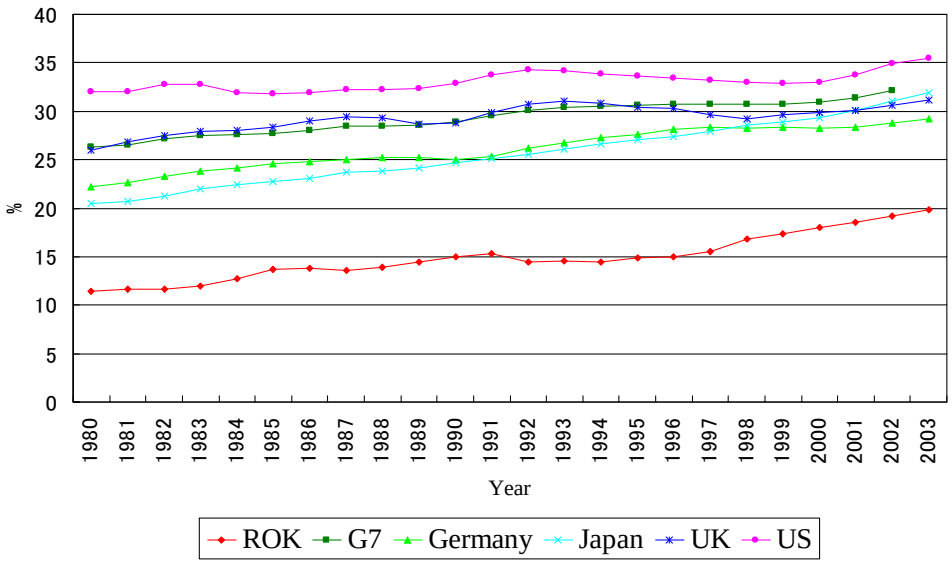
[Figure 2-3] Employment Share of Transportation, Storage, and Communication



[Figure 2-4] Employment Share of Finance, Insurance, Real Estate and Business Services



[Figure 2-5] Employment Share of Community, Social and Personal Services



3. Labor Productivity in the Service Sector

(1) Measurement of labor productivity

In this paper labor productivity in a sector *i* is measured by the value added produced by a worker in the sector.

$$\text{labor productivity in sector } i = \frac{\text{value added produced in sector } i}{\text{number of employees in sector } i}$$

The OECD database reports neither the value added produced in the service sector nor the number of workers employed in the service sector. The shares in value added and employment across sectors are, however, reported in the database. Therefore, the value added produced in a sector *i* is computed by multiplying the value added share of that sector by the GDP of that country.[2] Similarly, the number of workers in sector *i* is computed by multiplying the employment share of that sector by the total number of

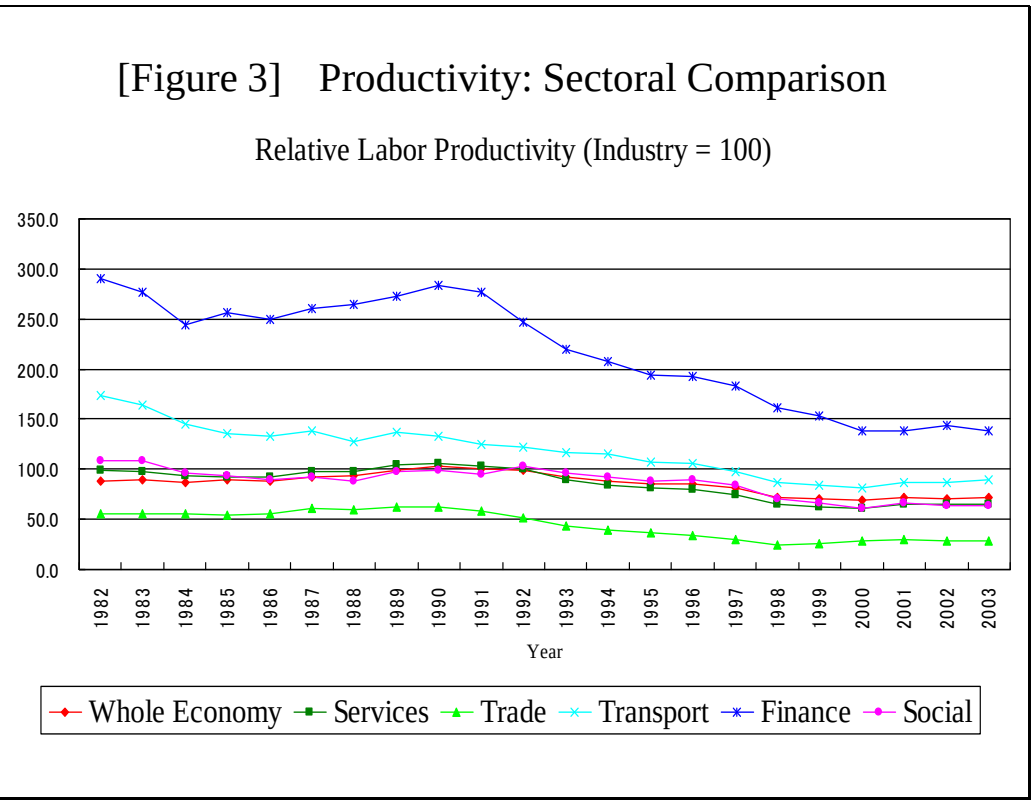
[2] GDP measured by constant international prices was used.

persons in employment for that country. For each country, labor productivity values for the whole economy, the service sector as a whole, and the four sub-sectors were computed and compared.

(2) Sectoral comparison of labor productivity in the ROK

For the sectoral comparison of labor productivity in the ROK, the values of labor productivity relative to those of the industry sector were computed, and they are illustrated in Figure 3. The labor productivity for each sector for each year was computed as explained above, divided by the labor productivity of the industry sector in that year, and was finally multiplied by 100.

[Figure 3] Productivity: Sectoral Comparison



[Table 3] Annual Average Labor-Productivity Growth Rates in the ROK

Years	1981–1985	1986–1990	1991–1995	1996–2000	2001–2003
Whole economy	5.9	5.6	5.2	3.7	3.1
Industry	6.9	2.7	9.1	8.2	1.7
Services	2.5	5.6	3.3	2.4	3.5
Trade	2.7	5.3	-1.4	3.1	1.3
Transportation	4.0	2.4	4.6	2.3	4.8
Finance	-2.7	4.7	1.2	1.3	1.9
Social	3.8	3.8	6.7	0.7	3.2

As shown in Figure 3, the labor productivity of the whole ROK economy is moving quite closely in tandem with that of the ROK service sector. By the early 1990s, the relative labor productivity values of the whole economy and of the services sector were around 100, implying there was not a big labor-productivity gap between the industry sector and the services sector. Since the early 1990s, however, the relative labor productivity of the services sector has decreased and has been lower than 100. This phenomenon can be explained by the fact that more and more labor-intensive businesses in the ROK began to move their manufacturing production bases to less developed countries such as China. As Table 3 shows, labor productivity of the industry sector grew much faster than that of the whole ROK economy in the 1990s.

In the 2000s, the labor productivity of the services sector has grown faster than that of the industry sector. This result may call to mind the experience of the US in which the services-producing industries have led productivity growth since the mid-1990s. The numbers for the 2000s in Table 3, however, were computed for only three years, from 2000 to 2003, and therefore should not be interpreted as a sign of a fundamental change in the ROK economy. In addition, even in the US, the current turmoil in the financial

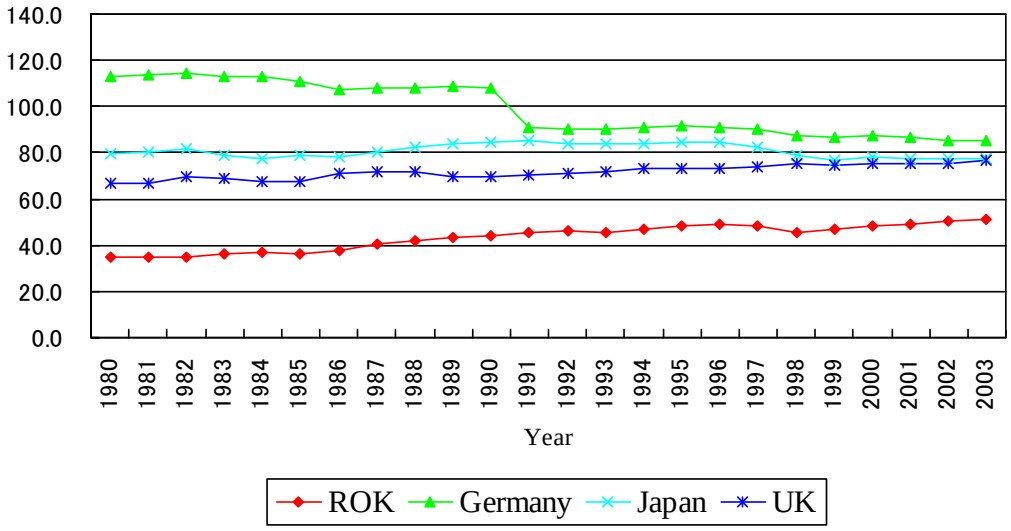
sector teaches us that we should not hastily conclude that the US economy has entered—and other developed economies will soon enter—a new development stage, in which the service industries including the financial sector lead productivity growth. Even so, the numbers in Table 3 challenge our preconception that the industry sector is the most productive in the ROK.

As could be predicted from the previous section which presented the data on the sectoral shares of value added and employment, the productivity of the sub-sector of wholesale and retail trade, restaurants, and hotels has been the lowest since 1980 and has grown the most sluggishly in the 2000s. This sub-sector is known to have absorbed the workers fired from the industry sector as that sector went through reforms (Kim et al. (2006, Ch. 9)).

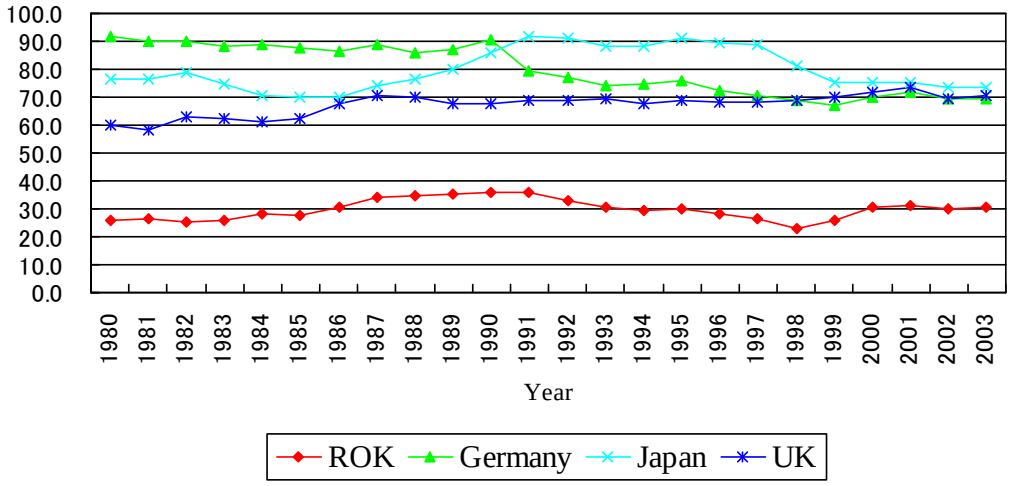
(3) International comparison of labor productivity

Figures 4-1 through 4-5 illustrate relative labor productivity in each sector, with the US labor productivity in each sector taken as 100. Labor productivity of the ROK services sector relative to that of the US has continuously increased, ending up at over 50 in 2003 (Figure 4-1). Three sub-sectors (Figures 4-3 through 4-5) also show increasing trends and relative productivity values higher than 50 in 2003. The one exception is the sub-sector of wholesale and retail trade, restaurants, and hotels. This sub-sector's relative productivity has fluctuated between 20 and 40, far below other sub-sectors. Both sectoral comparisons in the previous sub-section (2) and international comparisons in this sub-section (3) indicate that the sub-sector of wholesale and retail trade, restaurants, and hotels performs very poorly regarding labor productivity.

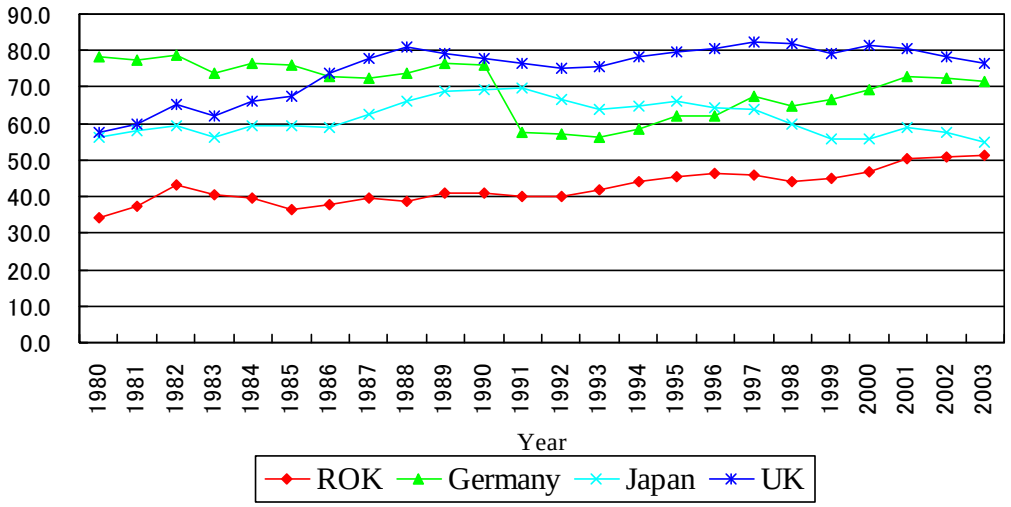
[Figure 4-1] Relative Labor Productivity in Services
(US = 100)



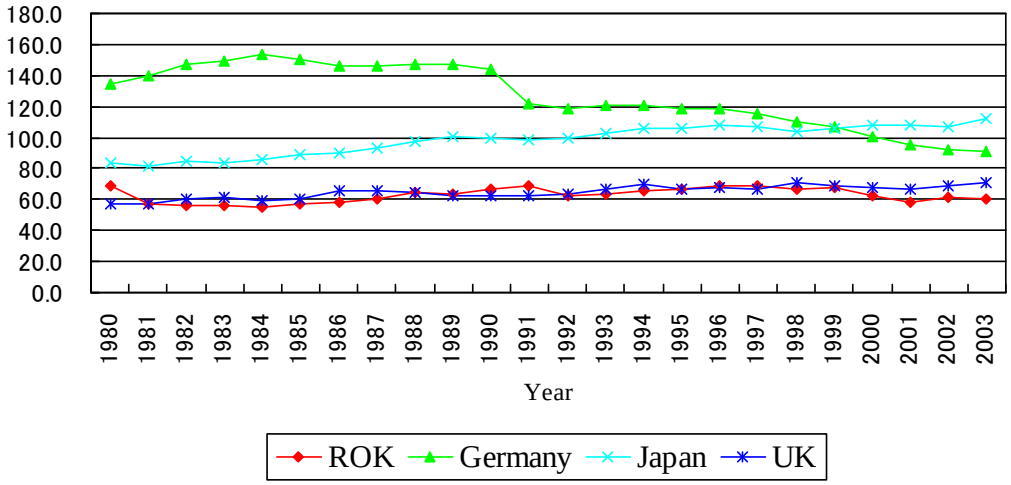
[Figure 4-2] Relative Labor Productivity:
Wholesale and Retail Trade, Restaurants, and Hotels
(US = 100)



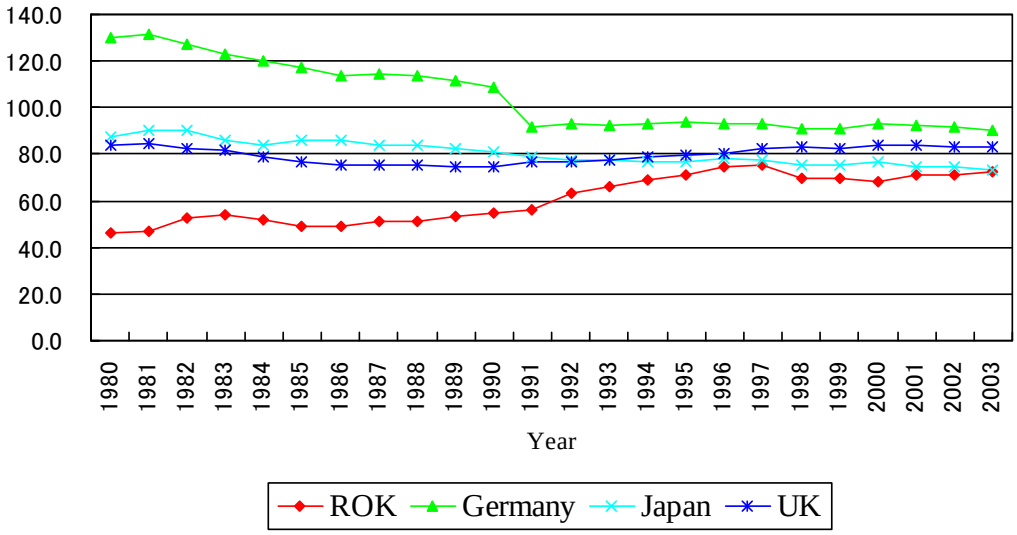
[Figure 4-3] Relative Labor Productivity:
Transportation, Storage, and Communication (US = 100)



[Figure 4-4] Relative Labor Productivity:
Finance, Insurance, Real Estate and Business Services
(US = 100)



[Figure 4-5] Relative Labor Productivity:
Community, Social and Personal Services (US = 100)



When the labor productivity of the ROK services sector was compared with that of the ROK industry sector in the previous sub-section (2), the relative productivity of the sub-sector of finance, insurance, real estate and business services was the highest. The labor productivity of this sub-sector was around 1.5 times that of the industry sector. When labor productivity is compared internationally, however, the sub-sector of community, social and personal services is the highest (70 percent of US productivity) among the four sub-sectors. Even though the sub-sector of finance, insurance, real estate and business services is the most productive in the ROK, its productivity is still lower than that of advanced countries.

The relative productivity of the sub-sector of community, social and personal services is higher (70 percent of the US figure) than that of the sub-sector of finance, insurance, real estate and business services in the ROK when productivity is compared internationally: this is not because the labor productivity of the sub-sector of community, social and personal services is higher than that of the sub-sector of finance, insurance,

real estate and business services in the ROK, but rather because in advanced countries the labor productivity of the former is lower than that of the latter.

4. Conclusion

The labor productivity of the ROK services sector has been lower than that of the ROK industry sector since the early 1990s. Productivity growth rates were lower in the services sector than in the industry sector in the 1990s. In the 2000s, however, the productivity of the services sector has been growing faster than that of the industry sector, leading the labor productivity of the services sector to slightly increase relative to that of the industry sector. The better performance of the services sector in the 2000s, however, is based on the sluggish growth of the industry sector. Therefore, by examining data only up to 2003, it is not certain that the services sector will lead productivity growth in the ROK as it did in the US for the last decade.

In the meantime, the labor productivity of the ROK services sector was around 50 percent of that of the US in 2003. The labor productivity of the sub-sector of finance, insurance, real estate and business services, which is the highest domestically, is around 60 percent of the US figure, while the labor productivity of the sub-sector of wholesale and retail trade, restaurants, and hotels, which is the lowest domestically, is around 30 percent of the US figure.

The measurements of labor productivity show that the labor productivity of the sub-sector of wholesale and retail trade, restaurants, and hotels is the lowest in the ROK, below 40 percent of the labor productivity of the industry sector, and it is quite low compared with the labor productivity values of advanced countries. This sub-sector's value added share (10 percent in 2003) shows a decreasing trend, but its employment share (26 percent in 2003), which is more than double the value added share, is not decreasing. Since this sub-sector absorbs workers dismissed from other sectors which undergo a process of restructuring, it is difficult to expect to substantially enhance the labor productivity of this sub-sector in the near future. The trends in the sectoral shares in the ROK economy and the various measurements of labor productivity in this paper,

however, indicate that it is necessary to separate this sub-sector from the other sub-sectors when we examine the ROK services sector, and that the problems of this sub-sector seriously challenge an ROK economy which is undergoing deindustrialization. Considering the rapidity of the deindustrialization process in the current ROK economy and the quite low labor productivity of this sub-sector, which occupies 26 percent of total employment, one of the most important tasks for the ROK economy is to develop service-producing industries which will be able to absorb the workers from this poorly-producing sub-sector.

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Appendix

[Table A1] Value Added Share of Wholesale and Retail Trade, Restaurants, and Hotels

	1980	1985	1990	1995	2000	2003
ROK	14.4	14.2	13.3	11.5	11.2	10.3
G7	14.9	14.7	14.4	14.8	14.5	
Germany	12.1	11.3	11.4	12.0	11.8	11.8
Japan	14.7	12.8	12.9	14.7	13.2	12.7
UK	12.6	12.7	13.6	14.0	15.1	15.0
US	16.3	16.5	15.4	15.7	15.4	15.5

[Table A2] Value Added Share of Transportation, Storage, and Communication

	1980	1985	1990	1995	2000	2003
ROK	8.0	7.4	6.8	6.6	7.0	7.5
G7	6.7	6.7	6.4	6.6	6.5	
Germany	6.2	6.1	5.8	5.7	5.9	6.2
Japan	6.2	6.5	6.4	6.8	6.2	6.1
UK	7.0	7.6	8.0	7.8	8.0	7.6
US	6.7	6.5	6.1	6.4	6.5	6.1

[Table A3] Value Added Share of Finance, Insurance, Real Estate and Business Services

	1980	1985	1990	1995	2000	2003
ROK	11.5	11.3	14.9	18.3	20.1	21.7
G7	19.9	22.3	25.0	26.8	29.3	
Germany	18.5	21.9	24.1	27.4	29.8	30.5
Japan	18.4	19.6	21.2	23.7	26.0	27.7
UK	15.5	17.9	22.0	24.0	27.1	30.3
US	22.1	24.8	27.8	28.8	31.4	32.0

[Table A4] Value Added Share of Community, Social and Personal Services

	1980	1985	1990	1995	2000	2003
ROK	13.4	14.5	14.4	15.3	16.1	17.8
G7	20.1	20.9	21.4	22.1	21.8	
Germany	19.8	19.9	19.4	21.6	21.6	21.7
Japan	17.6	19.3	18.2	19.3	21.3	22.0
UK	20.9	20.2	20.6	21.5	21.6	22.2
US	21.9	22.3	23.6	23.7	22.3	23.8

[Table A5] Employment Share of Wholesale and Retail Trade, Restaurants, and Hotels

	1980	1985	1990	1995	2000	2003
ROK	20	23	22	27	27	26
G7	20	21	20	21	21	
Germany	18	18	19	19	20	20
Japan	18	18	17	18	18	18
UK	20	21	22	23	24	24
US	22	23	22	22	22	22

[Table A6] Employment Share of Transportation, Storage, and Communication

	1980	1985	1990	1995	2000	2003
ROK	4.8	4.9	5.2	5.3	6.0	6.0
G7	5.6	5.4	5.3	5.3	5.4	
Germany	6.0	5.9	6.0	5.8	5.4	5.4
Japan	5.8	5.6	5.6	5.8	6.0	6.1
UK	6.5	6.2	6.0	5.8	5.9	6.0
US	5.0	4.7	4.7	4.8	5.0	4.7

[Table A7] Employment Share of Finance, Insurance, Real Estate and Business Services

	1980	1985	1990	1995	2000	2003
ROK	2.6	3.9	5.4	8.1	10.0	11.2
G7	10.3	12.0	13.5	14.4	16.1	
Germany	7.9	8.8	10.1	11.8	14.7	15.7
Japan	8.8	9.4	10.0	10.2	10.3	10.1
UK	11.1	13.3	15.7	17.3	18.9	19.5
US	12.6	14.9	16.5	17.4	18.9	18.4

[Table A8] Employment Share of Community, Social and Personal Services

	1980	1985	1990	1995	2000	2003
ROK	11.4	13.7	15.0	14.8	18.1	19.9
G7	26.3	27.8	28.9	30.6	30.9	
Germany	22.2	24.6	25.0	27.6	28.2	29.3
Japan	20.5	22.7	24.7	27.1	29.4	32.0
UK	25.9	28.4	28.8	30.4	29.8	31.2
US	32.0	31.8	32.8	33.6	33.0	35.4