

# **Service sector employment in Germany and the UK: Comparing Labour Market Dynamics and Service Sector Employment in Germany and the UK Using Household Panel Data**

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## **Abstract**

The project described in this paper set out to examine the development of service sector employment in Germany and the UK. Given the poor jobs record in Germany in recent years, much political interest has been shown in the potential for job creation in the service sector. However, service sector employment raises a number of controversial issues associated with the encouragement of low-skill, low-wage jobs in a country traditionally classified as having a high-skill, high-wage equilibrium.

The project was designed to compare the characteristics of service employment, using data from the British Household Panel Survey and the German Socio-Economic Panel. The analysis covered the different patterns of growth in service occupations and industries in the two countries. We were especially interested in tracking transition patterns between occupations and employment and non-employment to see how precarious service employment is in each of the countries, and for whom. In conclusion, the empirical analysis was set within national debates in economics, concerning the role of macro-economic policy impacts on the domestic demand for services. The findings were also located in relation to the sociological literature on self-serving households and the impact of strong male breadwinner households, which dampen demand for service jobs. This work is in progress and subsequent analysis will be completed before September 2004.

## **1. Introduction**

The service sector has been the main source of job growth in recent decades (Anxo and Storrie 2001). Who has benefited from this growth? In the research presented here we are interested in examining what kinds of people have been able to take up these new job opportunities. We are particularly interested in where they came from, what type of jobs they end up with, and how long they stay in this form of employment. The research presented here is set in the context of declining employment in the manufacturing sector, the growth of service sector employment, and the problem of integrating the unemployed into the labour market.

In Germany there exists a controversial debate over the development, or underdevelopment, of the service sector. Initially these debates have been concerned with

discussing whether or not Germany really has a service sector gap (*Dienstleistungslücke*) compared to the US or UK, or whether this is purely a statistical artefact (Haisken-DeNew et al. 1996, Wagner 1998, Streeck and Heinze 1999, Bosch 2000, Freeman and Schettkat 2000). Persistently high levels of unemployment in Germany have increasingly focused attention around the job creation potential of the service sector. For those who accept that more could be done to encourage service sector employment there have been a wide range of different policy recommendations. One explanation for this gap is attributed to high wages and non-labour costs in Germany which makes the creation of low productivity jobs prohibitively expensive. One of the most controversial set of policy remedies focuses on wage costs. Klös (1997) has suggested reducing unemployment and welfare benefits so as to push wage reductions into the labour market. Alternative proposals advocate the introduction of tax credits and wage subsidies to compensate those taking up lower paid jobs, or to reduce the social contributions these workers make (Fels et al. 1999). Freeman and Schettkat (2000), on the other hand, dismiss this argument that wage costs are the key factor in explaining the service gap in Germany; the problem lies in more than just wage costs.

More sociological approaches to explaining these cross-national differences can be drawn from the work of Gershuny and Miles (1983) who argues that as societies become more prosperous and working time is reduced, families spend more time and money on self-servicing activities rather than buying in services from the market. Research on conservative welfare states and strong male breadwinner households suggests a dampening in demand for bought in services as these are provided unpaid by the mother. At the heart of this debate in Germany lies a 'political' choice of continuing to support the traditional characteristic of the German model with high-quality diversified production (Streeck 1992) associated with a high-wage, high-skill equilibrium (Soskice and Finegold 1988), alongside the development of low-wage and marginal employment more often associated with higher levels of female employment (Fels et al. 1999, O'Reilly and Bothfeld 2003).

Employment in the UK is more heavily concentrated in the service sector compared to Germany, which still has a larger manufacturing base than most other EU member states. The deregulated UK economy stands in contrast to the more regulated or corporatist German model. Structural adjustment has been managed differently associated with different institutional systems (e.g. labour market regulations, education and training, social protection regimes), policy debates and government agendas (Hall and Soskice 2001). In part policy debates in these countries have been more concerned with the polarisation effects of differentiated forms of employment generated by the growth of service work. On one hand, the service sector economy is seen as generating 'Mc Jobs' associated with low wages and poor employment conditions. While on the other hand, service employment in higher status occupations has also been evident in both of these 'liberal' economies (Freeman and Schettkat 2000, Anxo and Storrie 2001). Given the critical levels of unemployment in Germany what lessons are there to learn from the job 'boom' in the UK service economy? The research questions addressed fall into two parts: *What type of service sector employment is growing in Germany and the UK? And, what impact is it having on labour market transitions in terms of integrating, excluding or enabling upward mobility?*

### **Defining services**

There have been a number of different attempts to define service sector employment, which is not quite as straight forward as one might initially assume. The simplest approach is to take sectoral definitions as given in established data sets. There are, however, two problems with this approach. First, many of the discussions over whether Germany has a service sector gap or not, has pointed out that many manufacturing firms in Germany provide services in-house, compared to the use of subcontracting in Anglo-Saxon economies (Haisken-DeNew et

al. 1996). Erlinghagen and Knuth (2003:11) argue that this sectoral base underestimates the extent of tertiarisation in Germany, and therefore researchers have tended to move towards an activity based, i.e. occupational definition, rather than an industry-based approach. In our research we have sought to categorise service sector employment both in terms of occupations as well as in terms of industry location so as to avoid this under representation. Nevertheless, as the tables below indicate, we still find that there are relatively fewer service sector jobs in Germany than in the UK.

Table 1. Trends in service by occupation and industry, BHPS and GSOEP, weighted

Figure 1 comparisons of sectoral and occupational definitions of service employment

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### **Industry and occupation**

We can define the service ‘sector’ on the basis of occupation (ISCO-88) or industry (NACE or SIC).<sup>1</sup> The former may be preferred if we think growth in service activities is taking place in non-service industries, and to distinguish between growth in such activities and corporate restructuring such as outsourcing of service functions. However, it is more usual to use industry, and we do this throughout. In both countries the growth rate of services defined by industry is higher than that defined by occupation, with convergence occurring by 2001. Comparing trends over time (see Fig1. & Table 1) we find that all series show strong growth and agree in 2001 with figures of 74% for the UK and 67% for Germany whether measured by occupation or by industry definitions. This is consistent with an interpretation that suggests re-structuring activities are responsible for part but not all of the service activity growth.

### **Employment change in sub-service sector**

Given the heterogeneous nature of service sector employment it is common practice to differentiate between different sub-sectors. Here we distinguish between : Distribution, Consumer services (Retail/hotels/catering etc), Transport, Business services, Public administration, and Health/Education and Social services (voluntary organisations). Table 2 provides a summary of the main employment changes by sub-sector which are presented graphically in Figure 2.

Table 2. Evolution of sub-sectors, Germany, weighted  
Fig 2a Overall employment change in Britain and Germany

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<sup>1</sup> Industry is classified differently in the two datasets. The GSOEP uses NACE throughout, while the BHPS uses the UK Standard Industrial Classification (1980) (SIC80) (see methodological appendix). However, in waves 4, 7 and 11, the BHPS also uses the 1992 SIC, which is compatible with NACE. We have used this to cross reference the sector breakdown based on SIC80, and have made it as compatible as possible with NACE. We get about 95% agreement in the three years where SIC80 and SIC92 are both available, and find that inconsistencies are partly due to coding problems (eg the same case coded to retail in SIC80 coded to wholesale in SIC92) and partly due to incompatibilities in the 4-digit categories.

The biggest loss of jobs in both countries has been in the traditional production sector (Fig 2a) where employment fell by nearly 14% in Germany and 11% in Britain. Nevertheless, Germany continues to have a significantly larger non-service sector than is the case in the UK with nearly 42% of all jobs in Germany found in this sector compared to 28% in the UK. Job growth has been located in the service sector. The consumer sector in both countries has the highest rate of employment of all sub-service sectors accounting for nearly 22% of jobs in the UK compared to 16% in Germany. Despite a rapid growth of this sector in Germany during the mid 1990s, since 1999 employment here has fallen significantly. As we will see from subsequent analysis, this is the sector where a number of intermediate service occupations are found, and that it is these type of jobs that are lacking in the German economy.

The second largest sector in terms of employment has been business services. This is more developed in the UK than in Germany, although this is a sector which has increased in terms of employment rapidly since the late 1990s, accounting for nearly a 5% increase in jobs. Employment in distribution and transport account for around five percent or less of total employment and have not changed radically over this observation period.

The health and education sector in Britain has over the 1990s tended to employ more people as a percentage of total employment than is the case in Germany. However, since 1992 employment rates here have increased more so in Germany than in the UK, although this could also be due to the integration process of German unification. There was also a small fall in employment in public administration in both countries.

Fig 2b Employment change in consumption, business and transport services in Britain and Germany

Fig 2c Employment change in health, education and public administration services in Britain and Germany

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### **Distribution of skilled jobs in the service and non-service sector in Britain and Germany**

Using the international standard classification of occupations (ISCO-88) we distinguish between four skill groups: Professional/managerial, Intermediate, Skilled manual and Unskilled manual. (A fuller breakdown of all the jobs covered under these categories is available in the methodological appendix). Graphic 3. clearly shows how the proportion of high skilled professional and managerial jobs has increased in the German service sector during the 1990s, rising from 26% in 1984 to 35% of all employment by 2001. In Britain there were more of these high skilled jobs at the beginning of the 1990s, but a significant and continuous increase mean that the number of people in such jobs is broadly similar between the two countries.

However, one of the striking differences between the two countries has been in the development of intermediary skilled jobs in services. Here there has been little change in Germany, while in Britain a much higher proportion of employment can be found in this category. These jobs largely consist of office clerks, personal care and protective service workers in retail (see methodological appendix for a full breakdown of all the occupations covered under categories 4 & 5). As we will see in later analysis these jobs provide an important 'sponge' in the UK economy both for integrating those not in employment as well

as absorbing both downward and upward occupational mobility. Contrary to much debate in Germany about encouraging low-wage low-skilled employment, our analysis would suggest that it is in these intermediary jobs that Germany has the biggest deficit compared to the UK.

In terms of unskilled manual jobs in the service sector we have seen a convergence between the two countries: in Germany these have increased from around 6% of all employment in 1984 to just over 8% in 2001. In the UK the proportion of such jobs has fallen slightly from 9.4% in 1991 to 8.2% in 2001.

The picture of employment in the non-service sector shows a continued downward decline in particularly for skilled manual jobs which in Germany fell from 22% of employment in 1984 to 14% in 2001. The slight 'glitch' in the proportion of professional and managerial jobs in 1990 is most probably due to the integration of the former East Germany. In Britain traditional industrial employment is considerably lower than in Germany and it is unskilled manual jobs that have seen the biggest fall here. Intermediary and higher skilled jobs have remained fairly constant.

Graphic 3. Skill distribution of employment in services and non-services in Germany and Britain, (as a percentage of total employment)

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Given the sharp rise in **professional and managerial occupations** in German services, which increased by just over 9% of total employment between 1984-2001, it is worth looking a little more closely at this group to see what kind of jobs these are (Table 4). The groups that have made the biggest contribution to increasing employment have been: *Other associate professionals* which includes jobs such as Finance and sales associate professionals, Business services agents and trade brokers, Administrative associate professionals, Customs, tax and related government associate professionals, Police inspectors and detectives, Social work associate professionals, Artistic, entertainment and sports associate professionals, and Religious associate professionals. This group of workers accounted for just over 12% of total employment in Germany in 2001. In Britain there were only half as many people in these kinds of employment. Other occupations which also increased their proportion of employment in Germany have been *Physical, mathematical and engineering science professionals*, including jobs such as Physicists, chemists, Mathematicians, Computing professionals, Architects & engineers; *Life science and health associate professionals* including health professionals, Nursing and midwifery, and traditional medicine practitioners and faith-healers & *Other professionals* including Business & Legal professionals, librarians, social sciences professionals, Writers and artists, as well as Religious professionals. General managers were the only category to experience a fall in this occupational group over this period in Germany.

The pattern of job growth amongst professional and managerial jobs in the UK is quite different. Here we find that there has actually been a fall in occupations such as Physical and engineering science associate professionals and Life science and health professionals, whereas in Germany these are the occupations that have grown the most. The most significant growth since 1991 in the UK has been amongst corporate managers

Looking at **intermediate services** we find that in terms of overall employment intermediate service workers account for around 32% of all jobs in the UK compared to 22% in Germany. While there has been an overall decline in these types of jobs in Germany, a fall

of 0.84% between 1984-2001, in Britain this group of workers has increased in the period 1991-2001 by 1.81% of total employment. Office clerks although one of the largest groups in this category have seen employment in this occupation decline as a percentage of overall employment in both countries. These jobs include secretaries, keyboard-operators library, mail and other clerks. The fall in these occupations is most likely due to the increasing integration of these tasks into other more senior managerial jobs through the use of information technology. Customer service clerks have increased their share more so in the UK than in Germany and these include jobs such as cashiers, tellers and information clerks. The sector which has grown the most in the UK and less so in Germany is in the category of *Personal and protective service workers*. These jobs include travel attendants, housekeepers and restaurant services workers, personal care and related workers, astrologers, fortune-tellers, protective services workers, models, salespersons and demonstrators, shop salespersons and demonstrators, stall and market salespersons. In the UK these jobs account for 11% of employment in 2001 compared to 7% in Germany. These differences could be related to the fact that German women drop out of the labour market to provide these services unpaid at home, whereas in Britain they are more likely to be commodified and purchased on the market.

Table 4 Contribution of professional and managerial occupations to job growth  
Table 4a Contribution of intermediate occupations to job growth  
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## Transitions and Turnover Tables

In table 5 we examine transition patterns for service workers by pooled cross-section time series analysis comparing an individual's employment status in the previous year and where they ended up in the following year. This data can give us an indication of the types of mobility patterns we can observe in each country as well as indicating the relative importance of different occupations for absorbing people from outside employment.

### Integrative transitions

#### *Moving from non-employment into work*

The vast majority of those without employment tended to stay in this category from year to year. However, German women were less likely to move out of non-employment compared to all other groups. Of those that did move out of non-employment German women ended up in professional and managerial jobs (4%) or intermediate services (6%). This was fairly similar to transition patterns for British women, except that nearly twice as many moved into intermediate services with nearly 11% of female transitions ending up in this status a year later. Transitions to manual service jobs was negligible for women. German men also ended up in professional and managerial service positions (4% of transitions) intermediate services (2.5%) or unskilled manual services (2.5%) after a period of non-employment. A higher proportion of British men moved out of non-employment and there transitions were fairly similar to those of German males although twice as many British men ended up in intermediate services (5%). Intermediate services in the UK clearly absorbs a lot more people who were previously not employed, than is the case in Germany.

## Upward mobility

*Unskilled manual service* workers are less likely to move than those in skilled manual jobs. However British workers seem to have a higher likelihood of ending up in a better job than is the case in Germany. Amongst British women over 16% of transitions out of these jobs were into the intermediate services which was much higher than in Germany where only 6% of female transitions fell into this category. A similar pattern is also identifiable among *skilled manual service* workers: British women are the most likely to move out of these jobs compared to all other groups. When they move they are also more likely to end up in intermediate jobs (14%) or professional and managerial jobs (13%). Only around 5% of the transitions made by German women are in this direction. It would seem that there are more opportunities for British women to move up the occupational structure than appears to be the case for German women in lower manual skilled jobs.

British men were more likely than any other group to move out of intermediate services and they usually ended up in professional and managerial jobs (nearly 15% of transitions) which is nearly twice as many as the case for German men (just under 8% of male transitions). More British than German women also appeared to be able to move up to a higher status job from intermediary service work (6.5% in Germany compared to 10% in the UK). This difference in mobility patterns between the two countries could well reflect the impact of the more regulated credential and training system in Germany which effectively acts as a barrier to movement between different occupations (Gangl 2001).

## Downward mobility and dropping out

In the category of professional or managerial jobs German men were the least likely to move out of these higher status jobs, while British women had a higher rate of transition out of this employment status. Nevertheless nearly 5% of transitions for German men ended up in non-employment and 2.4% in intermediate services. British men who moved out of professional and managerial jobs were more likely to end up in intermediate services (4.5%) or to a lesser degree in manual occupations; nearly 4% of transitions were into non-employment. Women in these higher status jobs had a higher risk than men of moving to non-employment (9% in Germany and 7% in Britain). Nearly twice as many British women moved into intermediate services (10% in the UK compared to 6% in Germany).

Among intermediate service workers nearly 4% of transitions for British men were into unskilled manual jobs in the service sector compared with only 2% for German men. Transitions from intermediate services to unskilled manual work accounted for 2% of transitions for British women and just over 1% for German women. Women were more likely than men to move into non-employment (just over 11% of transitions for German women and 10% for British women compared with around 7% for men in both countries).

German women employed in *skilled manual services* were more likely to end up as non-employed (14%). And, to a lesser degree, German men are also more likely than British men to end up in non-employment (9% in Germany compared to 6% in the UK). German workers in these types of jobs have a higher tendency to end up outside employment than is the case for British workers. *Unskilled manual service workers* had the highest drop out rates of all workers, with nearly 10% of German male transitions and 16% of German female transitions ending in non-employment, compared to 8% and 15% for British men and women respectively.

The main message coming out of this analysis is

1. There is more mobility in the UK where workers seem to experience both more downward and upward status mobility than is the case in Germany.
2. Intermediate occupations in the UK provide an important 'sponge' absorbing a lot of incomers and movers both in terms of downward and upward occupational mobility.

3. When German workers move out of a job they are more likely to end up in non-employment, especially women.
4. Men have a higher likelihood of being able to move up to a better status job than is the case for women.
5. Lower status jobs are associated with higher rates of transition into non-employment.

### **Some initial conclusions**

In this section we have been able to show that one of the most significant differences in the composition of service sector employment in the two countries is related to the much higher proportion of intermediate jobs in the UK economy. This group appears to be more open for those outside employment. It also plays an important role in Britain in absorbing those who are upwardly mobile, from both skilled and unskilled manual service sector jobs, as well as those who were previously employed in higher status professional and managerial jobs. One of the reasons there would be appear to be a gap in these types of occupations in Germany can be seen from our earlier comparison of the development of different sub-sectors. Here we saw how the consumer sector in Germany has experienced a significant fall in employment since 1999, and this is where we might expect to find more of these intermediate types of employment. There are a number of factors which could account for this development.

One of the major issues in German debates has been the impact of macro-economic policy. Given the relatively low rates of inflation in the German economy the effectively high interest rates maintained by the European Central Bank, together with lower wage rises has meant that there has been an effective lack of purchasing power in domestic demand. In particular this would appear to affect the consumer sector most immediately. This type of explanation would seek to identify why there has not been sufficient domestic demand for services which would lead to a growth of employment in this sector.

Additionally, we also need to make an attempt to explain why German mobility is more closely associated with labour market exits, in contrast to the absorbing effect played by intermediate service occupations in the UK, both in terms of accommodating downward and upward occupational mobility. One potential explanation for this could lie with at the door of the much exalted apprenticeship training system. This tends to be orientated towards manufacturing occupations so that a smaller proportion of training positions are available in newly developing sectors and in particular in consumer services. The development of these intermediate jobs is taking place more slowly in the German employment system than is the case in the UK. (For a discussion of the development of call centre jobs in both countries see Rubery et al. (2000)).

Other explanations of why there is this gap would focus on the constellation of institutions which serve to encourage a male breadwinner household model where the wife drops out of paid employment and provides these services to the home. This would also tie in well with the arguments made by Gershuny that reduced working time, together with increased overall levels of wealth tend to encourage households to become increasingly self providing. This could fit well with the German constellation, and is one that we will need to examine in the future.

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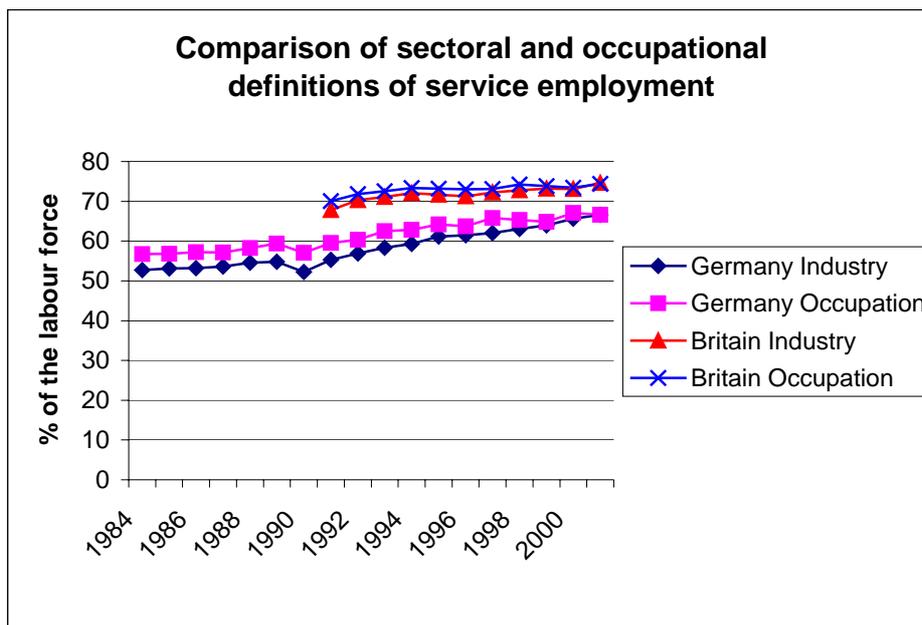
**TABLES**

**Table 1. Trends in service by occupation and industry, BHPS and GSOEP, weighted**

Year	Germany		Britain	
	Industry	Occupation	Industry	Occupation
1984	52.71	56.77		
1985	53.14	56.80		
1986	53.23	57.23		
1987	53.57	57.11		
1988	54.55	58.24		
1989	54.82	59.37		
1990	52.24	57.07		
1991	55.32	59.56	67.78	70.02
1992	56.86	60.36	70.30	71.82
1993	58.30	62.47	71.11	72.54
1994	59.26	62.83	72.02	73.33
1995	61.15	64.21	71.67	73.15
1996	61.50	63.74	71.25	72.98
1997	62.02	65.79	72.20	73.07
1998	63.09	65.32	72.77	74.19
1999	63.95	64.81	73.19	73.84
2000	65.61	67.12	73.11	73.41
2001	66.58	66.62	74.59	74.42

Source: BHPS & SOEP

**Figure 1 comparisons of sectoral and occupational definitions of service employment**



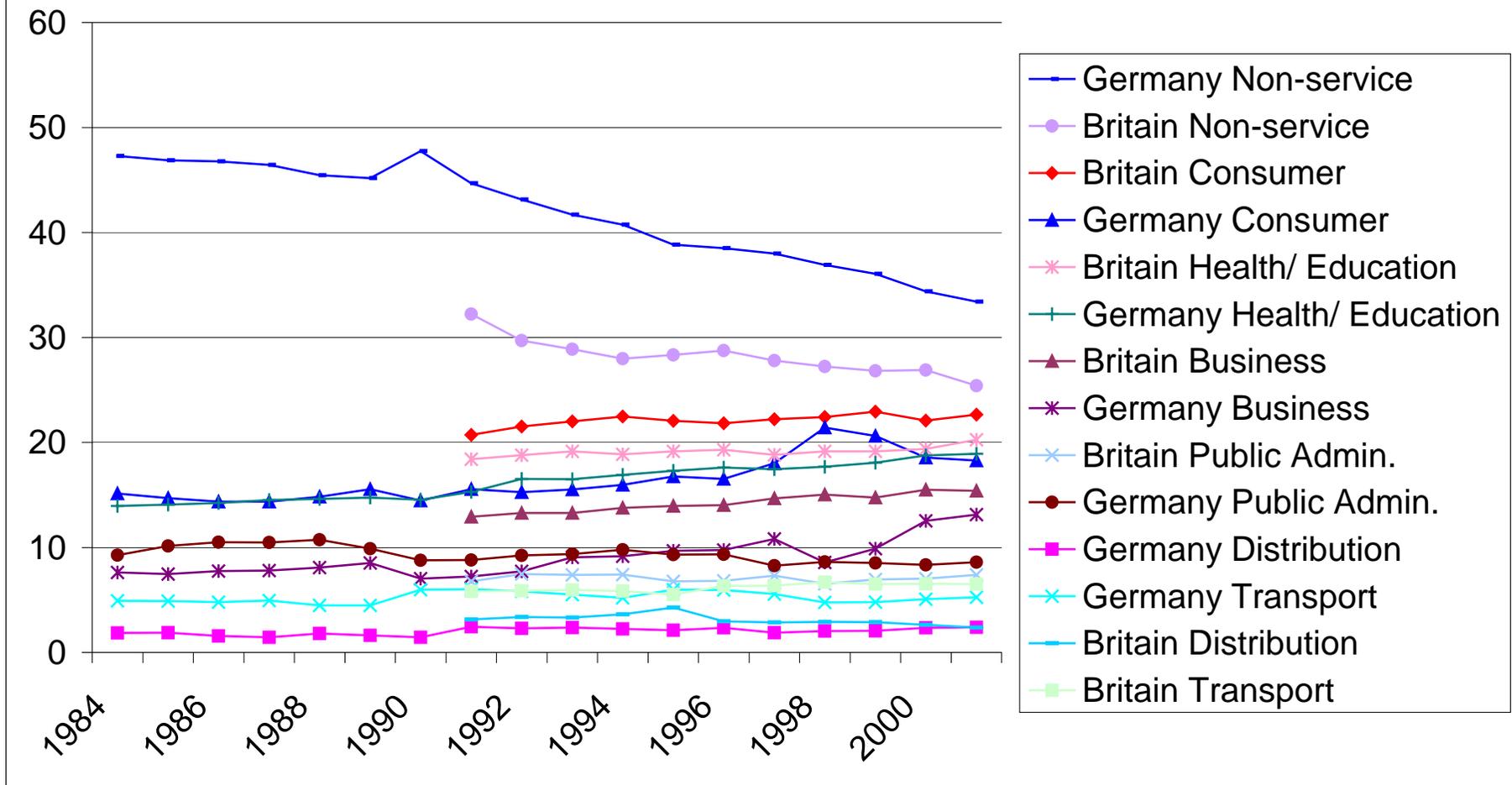
**Table 2. Evolution of sub-sectors, Germany, weighted**

Year	Germany							Total
	Distribution	Consumer	Transport	Business	Public Admin.	Health/ Education	Non-service	
1984	1.85	15.13	4.92	7.61	9.26	13.94	47.29	100
1985	1.87	14.69	4.90	7.47	10.14	14.08	46.86	100
1986	1.58	14.37	4.79	7.75	10.50	14.24	46.77	100
1987	1.45	14.37	4.93	7.81	10.48	14.52	46.43	100
1988	1.80	14.83	4.48	8.09	10.74	14.61	45.45	100
1989	1.61	15.55	4.47	8.53	9.89	14.76	45.18	100
1990	1.45	14.46	5.96	7.03	8.79	14.55	47.76	100
1991	2.44	15.54	6.02	7.23	8.80	15.28	44.68	100
1992	2.29	15.26	5.82	7.72	9.23	16.53	43.14	100
1993	2.36	15.52	5.51	9.05	9.37	16.49	41.70	100
1994	2.23	15.95	5.21	9.17	9.78	16.90	40.74	100
1995	2.12	16.75	5.96	9.68	9.33	17.31	38.85	100
1996	2.33	16.53	5.94	9.75	9.35	17.60	38.50	100
1997	1.89	18.03	5.57	10.81	8.27	17.45	37.98	100
1998	2.03	21.42	4.76	8.58	8.62	17.68	36.91	100
1999	2.07	20.62	4.80	9.89	8.51	18.07	36.05	100
2000	2.33	18.56	5.08	12.53	8.33	18.77	34.39	100
2001	2.39	18.27	5.24	13.14	8.60	18.93	33.42	100
Total	2.04	16.44	5.24	8.99	9.33	16.21	41.78	100
% change 84-01	0.54	3.14	0.32	5.53	-0.66	4.99	-13.87	

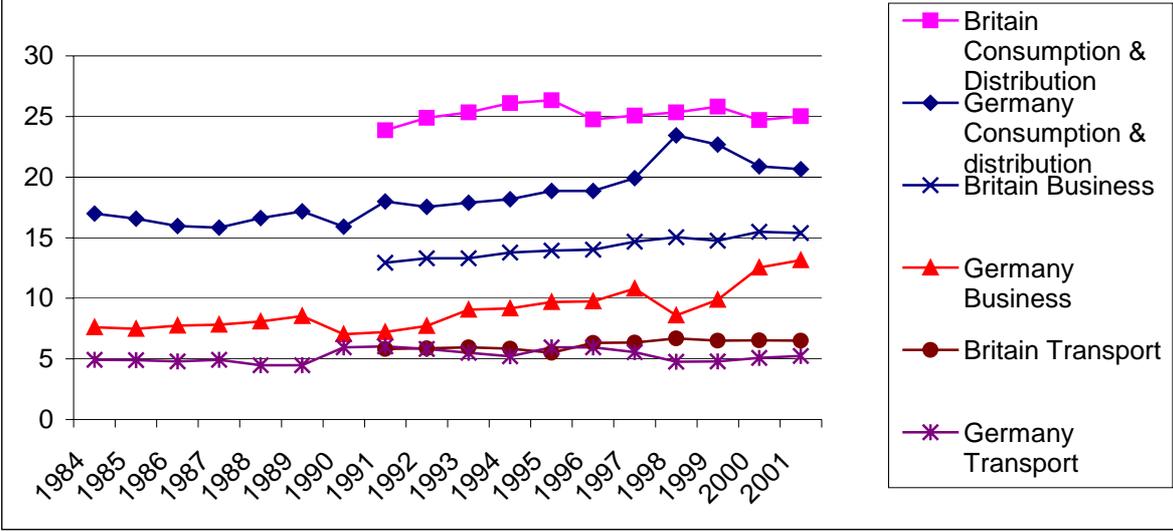
**Evolution of sub-sectors, Britain, weighted**

Year	Britain							Total
	Distribution	Consumer	Transport	Business	Public Admin.	Health/ Education	Non-service	
1991	3.14	20.73	5.81	12.93	6.76	18.40	32.22	100
1992	3.37	21.52	5.87	13.29	7.46	18.79	29.70	100
1993	3.32	22.02	5.95	13.29	7.39	19.14	28.89	100
1994	3.62	22.48	5.85	13.77	7.41	18.87	27.98	100
1995	4.26	22.07	5.50	13.94	6.76	19.15	28.33	100
1996	2.95	21.82	6.33	14.02	6.82	19.31	28.75	100
1997	2.87	22.21	6.36	14.66	7.30	18.81	27.80	100
1998	2.92	22.43	6.69	15.03	6.54	19.16	27.23	100
1999	2.88	22.93	6.51	14.76	6.94	19.16	26.81	100
2000	2.62	22.08	6.53	15.50	7.02	19.37	26.89	100
2001	2.37	22.66	6.50	15.39	7.40	20.27	25.41	100
Total	3.04	22.15	6.23	14.39	7.07	19.19	27.93	100
% change 91-01	0.3	2.04	1.7	5.5	-1.11	2.2	-10.64	

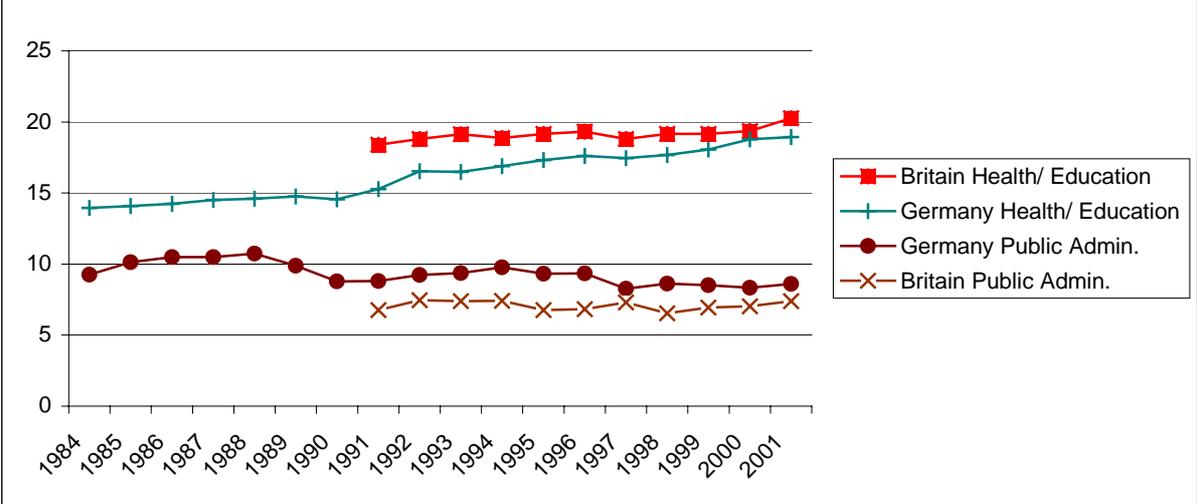
**Fig. 2a. Overall employment change in Britain and Germany**



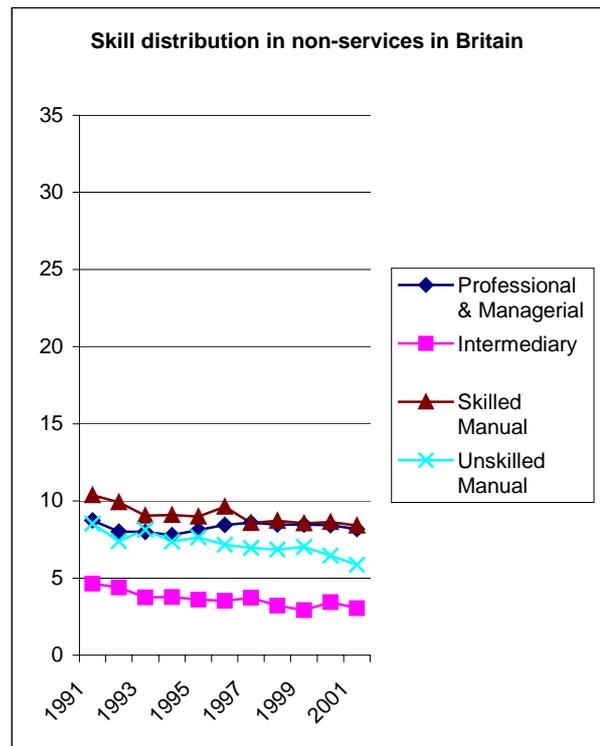
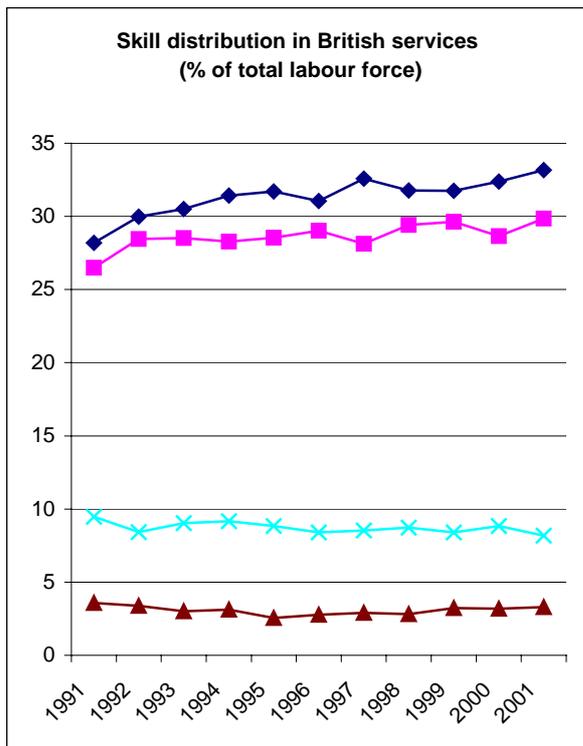
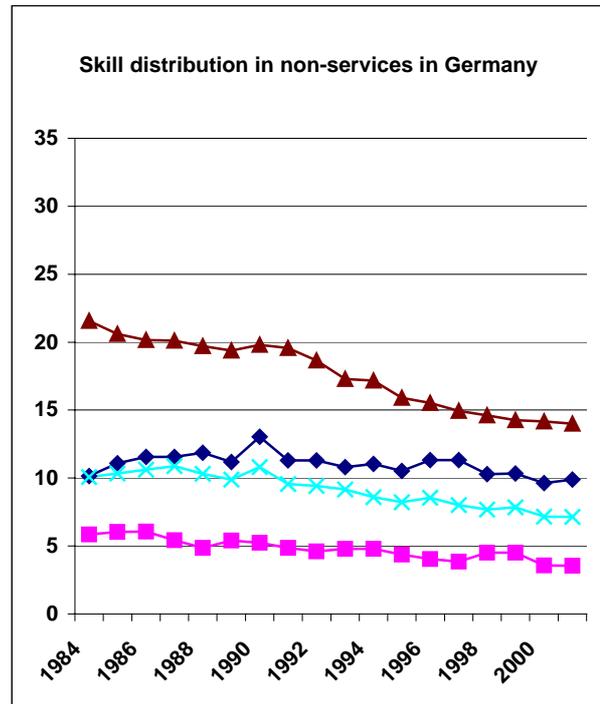
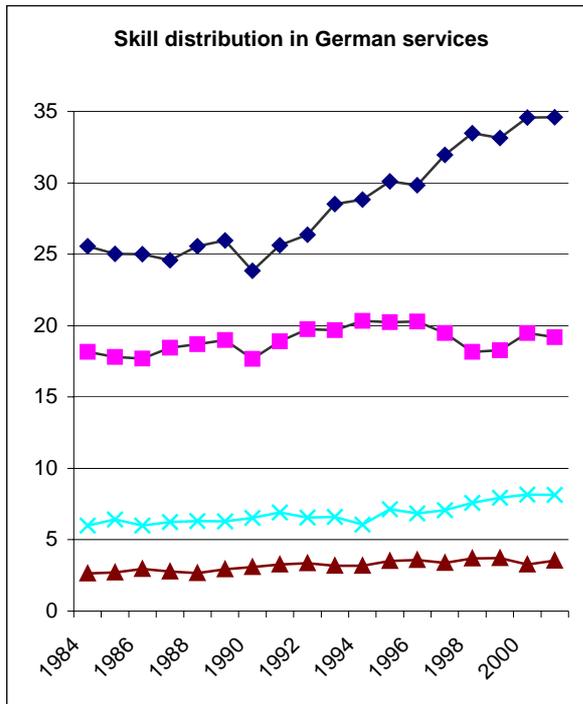
**Fig. 2b Employment change in consumption, business and transport services in Britain and Germany**



**Fig 2c. Employment change in health, education and public administration services in Britain and Germany**



**Graphic 3. Skill distribution of employment in services and non-services in Germany and Britain, (as a percentage of total employment)**



Data for Figure 3.

Share of employment by skill group and industry Germany

<b>Services</b>	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Professional & Managerial	25.56	25.02	25	24.58	25.57	25.96	23.84	25.63	26.37	28.51	28.83	30.1	29.84	31.95	33.47	33.14	34.58	34.59	28.89
Intermediary	18.15	17.81	17.68	18.46	18.69	18.98	17.67	18.89	19.75	19.69	20.32	20.24	20.28	19.49	18.17	18.28	19.47	19.18	19.05
Skilled Manual	2.63	2.7	2.95	2.78	2.67	2.94	3.08	3.27	3.35	3.17	3.17	3.51	3.58	3.37	3.68	3.71	3.26	3.53	3.24
Unskilled Manual	6	6.42	6	6.23	6.3	6.29	6.53	6.92	6.56	6.59	6.06	7.14	6.85	7.06	7.58	7.95	8.17	8.15	6.91
<b>Non-Services</b>																			
Professional & Managerial	10.15	11.09	11.55	11.55	11.87	11.17	13.04	11.29	11.31	10.8	11.05	10.52	11.32	11.33	10.3	10.33	9.62	9.88	10.97
Intermediary	5.86	6.03	6.07	5.43	4.87	5.4	5.25	4.87	4.6	4.79	4.8	4.38	4.04	3.86	4.52	4.51	3.58	3.54	4.69
Skilled Manual	21.57	20.6	20.15	20.11	19.7	19.37	19.8	19.57	18.64	17.3	17.17	15.9	15.52	14.94	14.6	14.25	14.16	14	17.3
Unskilled Manual	10.08	10.34	10.62	10.87	10.32	9.9	10.8	9.55	9.43	9.15	8.6	8.21	8.56	8.01	7.68	7.84	7.17	7.13	8.96
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Share of employment by skill group and industry Britain

<b>Services</b>	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Professional & Managerial	28.19	29.99	30.5	31.42	31.7	31.04	32.57	31.77	31.75	32.38	33.16	31.47
Intermediary	26.5	28.46	28.51	28.29	28.55	29.03	28.13	29.42	29.64	28.64	29.85	28.74
Skilled Manual	3.57	3.39	3.02	3.12	2.55	2.77	2.91	2.82	3.24	3.19	3.3	3.1
Unskilled Manual	9.47	8.43	9.04	9.17	8.84	8.4	8.54	8.72	8.41	8.83	8.19	8.1
<b>Non-Services</b>												
Professional & Managerial	8.73	8.02	8	7.78	8.12	8.46	8.59	8.48	8.48	8.43	8.19	8.32
Intermediary	4.63	4.4	3.75	3.77	3.6	3.52	3.72	3.21	2.92	3.44	3.05	3.57
Skilled Manual	10.38	9.91	9.05	9.09	8.99	9.62	8.57	8.72	8.55	8.63	8.4	9
Unskilled Manual	8.53	7.4	8.13	7.37	7.65	7.17	6.96	6.86	7.02	6.47	5.86	7.11
Total	100	100	100	100	100	100	100	100	100	100	100	100

**Table 4 Contribution of professional and managerial occupations to job growth**

ISCO – 88 code		% of total employment in 2001 in Germany	% of total employment change 1984-2001 in Germany
34	Other associate professionals	12.35	2.05
21	Physical, mathematical and engineering science professionals	5.22	1.73
32	Life science and health associate professionals	3.88	1.47
24	Other professionals	5.52	1.37
12	Corporate managers	3.8	1.16
33	Teaching associate professionals	1.85	0.75
22	Life science and health professionals	1.33	0.73
23	Teaching professionals	3.66	0.45
31	Physical and engineering science associate professionals	4.68	0.29
11	legislators and senior officials	0.09	0.04
13	General managers	2.0	-1.01
		44.4	9.03

ISCO – 88 code		% of total employment in 2001 in Britain	% of total employment change 1991-2001 in Britain
12	Corporate managers	9.83	2.27
23	Teaching professionals	4.6	0.9
34	Other associate professionals	6.93	0.54
13	General managers	5.6	0.47
24	Other professionals	3.79	0.22
32	Life science and health associate professionals	3.05	0.16
21	Physical, mathematical and engineering science professionals	3.6	0.12
11	legislators and senior officials	0.35	0.03
33	Teaching associate professionals	0.12	0.01
31	Physical and engineering science associate professionals	2.69	-0.35
22	Life science and health professionals	0.68	-0.04
		41.3	4.33

**Table 4a Contribution of intermediate occupations to job growth**

ISCO 88		% of total employment in 2001 in Germany	% change in employment 1984- 2001 in Germany	% of total employment in 2001 in Britain	% change in employment 1991-2001 in Britain
41	Office clerks	9.83	-0.9	11.7	-1.18
42	Customer service clerks	1.83	0.46	4.6	0.82
51	Personal and protective services workers	7.25	0.19	11	1.69
52	Models, salespersons and demonstrators	3.78	-0.59	5.62	0.48
		22.69	-0.84	32.9	1.81

**Table 5 Outflow patterns for men and women -Transition tables: state last year by state this year, outflow percentages, ages 16--59/64, by sex**

Germany, Males

last2	Not employed	Prof/Man services	Intermed services	Skilled Manual services	Unskilled manual services	Non-service	total
Not employed	77.4	3.93	2.52	1.45	2.47	12.23	100
Prof/Man services	4.69	87.39	2.44	0.74	0.87	3.87	100
Intermed services	6.58	7.92	79.19	0.84	2.23	3.23	100
Skilled Manual services	8.68	3.16	2.03	68.7	2.97	14.46	100
Unskilled manual services	9.84	2.71	2.78	1.6	75.75	7.33	100
Non-service	7.36	1.56	0.57	1.28	1.1	88.12	100
Total	22.26	15.66	6.52	3.91	5.83	45.83	100

Germany Females

last2	Not employed	Prof/Man services	Intermed services	Skilled Manual services	Unskilled manual services	Non-service	total
Not employed	83.57	4.39	5.74	0.29	2.1	3.91	100
Prof/Man services	8.62	83.38	5.42	0.12	0.46	2	100
Intermed services	11.14	6.5	78.05	0.17	1.23	2.91	100
Skilled Manual services	13.79	5.26	4.9	61.71	3.27	11.07	100
Unskilled manual services	15.77	2.37	5.78	1.01	71.6	3.47	100
Non-service	12.31	3.13	3.53	0.49	1.14	79.4	100
Total	41.42	19.17	18.39	0.76	4.59	15.66	100

British males

last2	Not employed	Prof/Man services	Intermed services	Skilled Manual services	Unskilled manual services	Non-service	total
Not employed	78.04	4.79	5.1	1.37	2.66	8.03	100
Prof/Man services	3.86	82.74	4.5	1.46	1.36	6.07	100
Intermed services	6.6	14.96	67.23	0.95	3.94	6.32	100
Skilled Manual services	5.62	9.5	3.38	59	4.5	18	100
Unskilled manual services	7.66	5.23	6.58	2.55	67.76	10.22	100
Non-service	5.34	4.45	1.79	2.36	2.25	83.8	100
Total	22.47	24.03	9.68	4.16	6.67	32.99	100

British females

last2	Not employed	Prof/Man services	Intermed services	Skilled Manual services	Unskilled manual services	Non-service	total
Not employed	79.65	4.85	10.58	0.09	2.1	2.74	100
Prof/Man services	6.91	80.13	10.02	0.1	0.73	2.11	100
Intermed services	9.71	10.02	74.82	0.3	2.22	2.94	100
Skilled Manual services	8.05	12.75	14.09	48.32	3.36	13.42	100
Unskilled manual services	14.77	4.28	16.02	0.46	60.03	4.45	100
Non-service	10.12	6.07	8.93	0.59	2.47	71.81	100
Total	33.97	22.93	28.83	0.39	4.41	9.46	100

## Methodological Appendix

Our analysis is based on data from the British Household Panel Survey (BHPS) and the German Social Economic Panel (GSOEP). These data sets are a representative sample of households and their members are surveyed repeatedly each year (panel wave). The first GSOEP panel wave started in 1984. There are approximately 13 000 individual respondents living in 6968 households, which since 1990 includes eastern Germany, as well as western German and foreigners belonging to the original sample. The BHPS has a similarly sized household and individual sample with approximately 9000 individuals living in 5000 households. The first wave of the BHPS contains the survey results from 1991, including work-history data for the previous year.

Both databases allow us to control for changes in the employment status for each month through the calendar files. Retrospective data about the employment career since the end of full-time education and information about the employment status between the panel surveys are integrated into one file in the BHPS, but for the GSOEP this needs to be constructed from various files and is only available since the beginning of the survey in 1984. Data management and processing was carried out using STATA. In both panel data sets the longitudinal files only contained a small number of personal characteristics. Thus, cross-sectional information from each wave was merged with the episode data set.

By drawing on the work history and calendar files we will construct a database of the population that has moved into service sector employment. With this sample we will be able to assess the length of time spent in a given employment status using survival hazard rate analysis. We will also be able to estimate the factors that give most explanatory weight to different transition patterns to and from service sector employment by using a maximum likelihood Cox regression model. This is a standard statistical estimation model used in event history analysis. The advantages of this model are that they allow us to handle censored data (i.e. data where a given employment status has not yet come to an end). This approach also allows us to estimate and compare the likelihood of moving between a range of different transition possibilities i.e. to estimate competing risks. This analysis will allow us to assess and compare the extent to which service sector employment is creating new employment opportunities, who is benefiting from these jobs and whether they offer stable patterns of labour market integration.

NACE definitions of sub-sector NACE /sic92

### Distribution

51 WHOLESALE TRADE AND COMMISSION TRADE, EXCEPT OF

Consumer services (Retail/hotels/catering etc)

50 SALE, MAINTENANCE AND REPAIR OF MOTOR VEHICLES AND

52 RETAIL TRADE, EXCEPT OF MOTOR VEHICLES AND MOTORCYCLES;  
REPAIR OF

55 HOTELS AND RESTAURANTS

92 RECREATIONAL, CULTURAL AND SPORTING ACTIVITIES

95 PRIVATE HOUSEHOLDS WITH EMPLOYED PERSONS

93 OTHER SERVICE ACTIVITIES (Personal services)

### Transport

60 LAND TRANSPORT; TRANSPORT VIA PIPELINES

61 WATER TRANSPORT

62 AIR TRANSPORT

63 SUPPORTING AND AUXILIARY TRANSPORT ACTIVITIES;

64 POST AND TELECOMMUNICATIONS

Business services

- 65 FINANCIAL INTERMEDIATION, EXCEPT INSURANCE AND
- 66 INSURANCE AND PENSION FUNDING, EXCEPT COMPULSORY
- 67 ACTIVITIES AUXILIARY TO FINANCIAL INTERMEDIATION
- 70 REAL ESTATE ACTIVITIES
- 71 RENTING OF MACHINERY AND EQUIPMENT WITHOUT
- 72 COMPUTER AND RELATED ACTIVITIES
- 73 RESEARCH AND DEVELOPMENT
- 74 OTHER BUSINESS ACTIVITIES

Public admin

- 75 PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY
- 90 SEWAGE AND REFUSE DISPOSAL, SANITATION AND SIMILAR
- 99 EXTRA-TERRITORIAL ORGANISATIONS AND BODIES

Health/Education/Social services (voluntary orgs)

- 80 EDUCATION
- 85 HEALTH AND SOCIAL WORK
- 91 ACTIVITIES OF MEMBERSHIP ORGANISATIONS NOT

SIC80 definitions of sub-sector

SIC

Distribution

- 61 Wholesale distribution (except dealing in scrap & waste materials)
- 62 Dealing in scrap & waste materials
- 63 Commission agents

Consumer/ leisure services

- 64/65 Retail distribution
- 66 Hotels & catering
- 98 personal services
- 99 domestic services
- 97 media, libraries, sport (>50% sport)
- 67 Repair of consumer goods & vehicles

Transport

- 71 Railways
- 72 Other inland transport
- 74 Sea transport
- 75 Air transport
- 76 Supporting services to transport
- 77 Miscellaneous transport services & storage nec
- 79 Postal services & telecommunications

Business services

- 81 Banking & finance
- 82 Insurance, except for compulsory social security
- 83 Business services
- 84 Renting of movables

- 85 Owning & dealing in real estate
- 94 Research & development

Public admin

- 00 state/civil service
- 91 Public administration, national defence & compulsory social security
- 92 Sanitary services

health/education/social services

- 93 Education
- 95 Medical
- 96 social service/voluntary

**International standard categorisation of Occupations ISCO-88**

**MAJOR, SUBMAJOR AND MINOR GROUPS**

<http://www.ilo.org/public/english/bureau/stat/class/isco.htm>

- Major group 1: Legislators, senior officials and managers
  - 11 Legislators and senior officials
    - 111 Legislators
    - 112 Senior government officials
    - 113 Traditional chiefs and heads of villages
    - 114 Senior officials of special interest organizations
  - 12 Corporate managers
    - 121 Directors and chief executives
    - 122 Production and operations department managers
    - 123 Other departmental managers
  - 13 General managers
    - 131 General managers
- Major group 2: Professionals
  - 21 Physical, mathematical and engineering science professionals
    - 211 Physicists, chemists and related professionals
    - 212 Mathematicians, statisticians and related professionals
    - 213 Computing professionals
    - 214 Architects, engineers and related professionals
  - 22 Life science and health professionals
    - 221 Life science professionals
    - 222 Health professionals (except nursing)
    - 223 Nursing and midwifery professionals
  - 23 Teaching professionals
    - 231 College, university and higher education teaching professionals
    - 232 Secondary education teaching professionals
    - 233 Primary and pre-primary education teaching professionals
    - 234 Special education teaching professionals
    - 235 Other teaching professionals
  - 24 Other professionals
    - 241 Business professionals
    - 242 Legal professionals
    - 243 Archivists, librarians and related information professionals
    - 244 Social sciences and related professionals
    - 245 Writers and creative or performing artists
    - 246 Religious professionals
- Major group 3: Technicians and associate professionals
  - 31 Physical and engineering science associate professionals
    - 311 Physical and engineering science technicians
    - 312 Computer associate professionals
    - 313 Optical and electronic equipment operators
    - 314 Ship and aircraft controllers and technicians
    - 315 Safety and quality inspectors
  - 32 Life science and health associate professionals

321 Life science technicians and related associate professionals  
322 Modern health associate professionals (except nursing)  
323 Nursing and midwifery associate professionals  
324 Traditional medicine practitioners and faith-healers  
33 Teaching associate professionals  
331 Primary education teaching associate professionals  
332 Pre-primary education teaching associate professionals  
333 Special education teaching associate professionals  
334 Other teaching associate professionals  
34 Other associate professionals  
341 Finance and sales associate professionals  
342 Business services agents and trade brokers  
343 Administrative associate professionals  
344 Customs, tax and related government associate professionals  
345 Police inspectors and detectives  
346 Social work associate professionals  
347 Artistic, entertainment and sports associate professionals  
348 Religious associate professionals

Major group 4: Clerks

41 Office clerks  
411 Secretaries and keyboard-operating clerks  
412 Numerical clerks  
413 Material-recording and transport clerks  
414 Library, mail and related clerks  
419 Other office clerks  
42 Customer service clerks  
421 Cashiers, tellers and related clerks  
422 Client information clerks  
Major group 5: Service workers and shop and market sales workers  
51 Personal and protective services workers  
511 Travel attendants and related workers  
512 Housekeeping and restaurant services workers  
513 Personal care and related workers  
514 Other personal service workers  
515 Astrologers, fortune-tellers and related workers  
516 Protective services workers  
52 Models, salespersons and demonstrators  
521 Fashion and other models  
522 Shop salespersons and demonstrators  
523 Stall and market salespersons

Major group 6: Skilled agricultural and fishery workers

61 Market-oriented skilled agricultural and fishery workers  
611 Market gardeners and crop growers  
612 Market-oriented animal producers and related workers  
613 Market-oriented crop and animal producers  
614 Forestry and related workers  
615 Fishery workers, hunters and trappers  
62 Subsistence agricultural and fishery workers  
621 Subsistence agricultural and fishery workers  
Major group 7: Craft and related trades workers  
71 Extraction and building trade workers  
711 Miners, shot-firers, stonecutters and carvers  
712 Building frame and related trades workers  
713 Building finishers and related trades workers  
714 Painters, building structure cleaners and related trade workers  
72 Metal, machinery and related trades workers

721 Metal moulders, welders, sheet-metalworkers, structural-metal preparers and related trades workers  
722 Blacksmiths, toolmakers and related trades workers  
723 Machinery mechanics and fitters  
724 Electrical and electronic equipment mechanics and fitters  
73 Precision, handicraft, printing and related trades workers  
731 Precision workers in metal and related materials  
732 Potters, glass-makers and related trades workers  
733 Handicraft workers in wood, textile, leather and related materials  
734 Printing and related trades workers  
74 Other craft and related trades workers  
741 Food processing and related trades workers  
742 Wood treaters, cabinet-makers and related trades workers  
743 Textile, garment and related trades workers  
744 Felt, leather and shoemaking trades workers

Major group 8: Plant and machine operators and assemblers

81 Stationary plant and related operators  
811 Mining and mineral-processing plant operators  
812 Metal-processing plant operators  
813 Glass, ceramics and related plant operators  
814 Wood processing and papermaking plant operators  
815 Chemical processing plant operators  
816 Power production and related plant operators  
817 Automated assembly-line and industrial robot operators  
82 Machine operators and assemblers  
821 Metal and mineral products machine operators  
822 Chemical products machine operators  
823 Rubber and plastic products machine operators  
824 Wood products machine operators  
825 Printing, binding and paper products machine operators  
826 Textile, fur and leather products machine operators  
827 Food and related products machine operators  
828 Assemblers  
829 Other machine operators and assemblers  
83 Drivers and mobile plant operators  
831 Locomotive engine-drivers and related workers  
832 Motor vehicle drivers  
833 Agricultural and other mobile plant operators  
834 Ships' deck crews and related workers

Major group 9: Elementary occupations

91 Sales and services elementary occupations  
911 Street vendors and related workers  
912 Shoe cleaning and other street services' elementary occupations  
913 Domestic and related helpers, cleaners and launderers  
914 Building caretakers, window and related cleaners  
915 Messengers, porters, doorkeepers and related workers  
916 Garbage collectors and related labourers  
92 Agricultural, fishery and related labourers  
921 Agricultural, fishery and related labourers  
93 Labourers in mining, construction, manufacturing and transport  
931 Mining and construction labourers  
932 Manufacturing labourers  
933 Transport labourers and freight handlers

Major group 0: Armed forces

01 Armed forces  
011 Armed forces