

Service sector dynamics and service regulation

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Introduction

In most industrialised economies, service sectors do not only show high growth rates of output and employment : they also go through dramatic changes with respect to use of technology, innovation, and regulatory frameworks. Service sector performance becomes more and more important for the competitiveness of national economies. However, not all services grow at the same pace, and the growth of the sector as a whole is accompanied by changes in its structural configuration. These changes are due to driving forces which affect some sectors more than others. In recent years the most influential driving forces have been the following:

- technological change - mainly the diffusion of information technology in services;
- the internationalisation of service activities;
- new patterns of co-operation between manufacturing and service industries; and
- the deregulation and re-regulation of important service markets.

This paper will illustrate the dynamics of service sectors in Europe with special emphasis on Germany. In the first part, some statistical evidence about service sector dynamics will be presented. In the second part, the impact of three of the main driving forces¹, a new division of labour between sectors, introduction of information technology in services, and regulation on service sector development will be discussed. The third part will focus on the process of deregulation and re-regulation of the German telecommunication sector as an example of service market regulation in the case of transition from monopoly to competition. Finally, some conclusions will be drawn with respect to service policies and regulation.

¹ The internationalisation of service markets will only be mentioned implicitly, because it follows patterns of economic dynamics, political negotiations and statistical representation, which require separate analyses. For a presentation of the relevant arguments, see Hodge 1998.

1 Service sectors in transition

1.1 *The development of service sectors in Europe*

Structural change from an economy based on manufacturing to a service-oriented economy is often taken as an indicator for modernisation. Employment growth in services was long believed to compensate for job losses in manufacturing and thus to provide new employment opportunities while the economy goes through a process of restructuring. The following statistical overview will present indicators for the development of European and (as far as possible) American and Japanese service sectors.

Unfortunately, service statistics are in a very poor state and do by no means express the eminent importance of the sector. Only highly aggregated data are available. Thus, many changes, the emergence of new IT-related or of business services cannot be adequately documented. Data are often not internationally comparable, because countries adopt different classifications. These classifications are changed arbitrarily, and thus the construction of comparative time series becomes impossible. However, with the few figures that are available, some facts about recent service sector developments can be demonstrated². The focus of the statistical overview will be on European countries, while regulatory issues will mainly refer to the German situation, which is, however, strongly influenced by initiatives of the European Union to harmonise regulation in the community.

In the countries of the European Union as well as in Japan and the United States, service sectors have grown over the last decade, although not in all

² EUROSTAT, the European Union's Statistical Office, has provided a harmonised framework for service statistics which contains detailed categories for service activities and is supposed to function as a European-wide basis for service statistics. However, these attempts have been jeopardised by the fact that very few European countries actually collect data according to the new schemes so far. At the moment the transition to new classifications causes disruption, because some countries adopt old schemes, while others adopt new schemes.

countries with a steady upwards trend. Table 1³ shows that in Europe service sectors contributed between 46.8 percent (Greece) and 57.4 percent (Belgium) to the Gross Domestic Product (GDP) in 1980 and between 49.5 percent (Finland) and 62.2 percent (Netherlands) in 1995. Compared with the US, European countries started from a lower initial value in 1980, but made up for some of the lag until 1995. Especially in the UK the service sector developed dynamically during this period⁴. However, the UK is a prominent example of growing shares of services in GDP as a result of a dying manufacturing sector. In absolute terms, service activities did not show the same outstanding performance.⁵ The same phenomenon could recently be observed in East Germany: the huge manufacturing combines of the former socialist state were dissolved, and many dismissed employees founded their own service enterprises. As a consequence, output and employment rose in the service sector. However, these gains have to be valued against the losses in manufacturing. It should also be kept in mind that many service activities rely on manufacturing companies as their clients. Therefore, a growing service sector alone often does not lead to sustainable economic structures in the long run⁶.

1.2 *Service employment*

³ Data are not completely comparable between countries, because in 1995 for the first time some countries have used EUROSTAT's NACE classification, while others have still adopted the old ISIC schemes.

⁴ It should be noted, however, that this analysis is based on a structural perspective of service sector development and thus neglects the fact that in some countries many service activities are located within manufacturing companies. These activities are counted statistically as "manufacturing". It can be shown that adopting a functional perspective, i.e., counting services independently from the industries in which they are performed, wipes out most of the differences between Germany and the USA. See DIW 1996 and DIW 1997.

⁵ See Preissl 1997a, Appendix, Tables B-6.2 and B-13.2.

⁶ See, for example, Cohen and Zysman 1987.

The European service sector employed 64.15 million people in 1985, 72.73 million in 1990 and 77.24 million in 1995⁷. Thus, service employment has

Table 1

Share of Services in Gross Value Added (percent) in constant prices

	1980	1985	1990	1991	1992	1993	1994	1995
Austria	50.0	51.8	53.8	51.9	52.3	53.0	52.7	53.3
Belgium	57.4	57.9	57.7	58.1	58.8	59.6	59.6	59.6
Denmark	56.8	55.9	58.2	58.0	58.2	57.8	57.1	56.7
Finland	48.2	49.8	53.4	51.0	51.7	51.5	50.3	49.5
France	55.0	57.9	59.3	60.2	60.7	61.7	61.9	62.2
Germany	48.3	50.8	52.7	53.3	54.3	56.2	56.1	56.7
Greece	46.8	50.7	52.4	52.3	53.2	54.3	53.9	54.9
Ireland	-	-	49.0	49.1	47.1	48.0	46.9	47.0
Italy	55.8	58.0	57.4	57.4	57.4	58.3	58.2	57.9
Luxembourg	55.2	55.6	57.5	57.5	58.0	59.4	59.6	59.6
Netherlands (1)	56.0	57.2	58.1	58.4	58.8	59.3	59.1	59.4
Portugal (1)	-	-	51.3	60.4	53.2	53.7	52.9	52.8
Spain	-	54.8	54.2	54.4	55.2	56.3	56.4	56.5
Sweden (1)	54.3	54.0	55.2	56.0	56.6	54.7	55.5	54.4
United Kingdom (2)	47.7	54.9	54.8	55.4	55.6	56.0	55.9	56.1
USA	67.6	69.9	70.3	71.2	71.3	71.1	70.9	-
Japan	57.9	57.3	56.1	56.1	56.7	57.7	58.2	58.3

(1) Price bases adjusted; (2) In current prices

Source: Statistisches Bundesamt, Statistisches Jahrbuch 1997 für das Ausland

⁷ Statistisches Bundesamt 1997, Statistisches Jahrbuch für das Ausland 1997, Table 3.5 (includes only West Germany, because there are no figures for Germany prior to 1991).

expanded significantly and has absorbed employees made redundant in manufacturing and agriculture. Evidence from the US shows that, if any growth in employment can be expected, it will clearly be in the service sector⁸. Services employ relatively more people than their shares in GDP would suggest (see Tables 1 and 2)⁹. This indicates that, on the average, less value added per person was generated than in other sectors. The relation between shares in total employment and shares in GDP varies considerably between countries. Some of the variation can be explained by differences in the impact of part-time jobs in the sector.

Table 2

Service Employment Trends: Services as % of Total Employment

	1985	1990	1994 (1)
Austria	59.7	62.1	65.3
Belgium	67.6	69.3	69.6
Denmark	68.0	69.2	70.5
Finland	60.5	64.6	68.2
France	65.3	68.0	71.4
West Germany	55.2	56.8	60.9
Greece	58.0	61.3	66.8
Ireland	62.2	63.0	65.6
Italy	58.5	60.1	63.2
Luxembourg	62.7	67.2	68.4
Netherlands	68.7	69.5	72.2
Portugal (2)	49.2	53.2	60.2
Spain	56.1	58.2	61.2

⁸ Appelbaum/Schettkat 1994, p. 34.

⁹ Please note that Austria uses a "job count" concept in employment statistics, whereas the other countries count "heads". Italy and the Netherlands adopt "units of labour" and "full-time-equivalents" concepts.

Sweden	68.2	68.5	71.3
United Kingdom	65.9	69.8	73.1
USA (3)	70.1	72.7	74.4
Japan	59.4	60.5	61.3
(1) Belgium 1992; Greece 1993; Spain 1992 and USA 1993			
(2) Change of classifications in 1986, figures for 1990 and 1994 estimated.			
(3) Change of classifications in 1987.			
Source: OECD Services. Statistics on Value Added and Employment, Paris 1996.			

Though generally services show a clear positive employment trend, in recent years (1992-1995), in some countries - Finland, Italy and Sweden - this trend has been broken, and service employment has declined in absolute terms. This may be a delayed effect of recessions and of reductions in public spending, but is certainly also an indicator of the beginning of rationalisation efforts in many service sectors. Although in each country services still perform better than the economy as a whole, they have ceased to be merely labour-intensive, low-capital and low-technology activities. The trends of higher capital intensity, technological (mainly ICT-based) and organisational innovation have diminished the potential of traditional services to be large job creators. This seems to be increasingly true also for Europe as a whole, where growth rates of service employment are declining (from an average of 2.66 percent per year between 1985 and 1990 to an average of 1.24 percent between 1990 and 1994)¹⁰. Apart from reflecting cyclical influences, this development suggests that in many service industries ever higher growth rates of output will be needed to create additional employment.

1.3 *The development of service industries*

Data on services sectors hide the dynamics of structural change within the service sector. In fact, the growth of services is promoted by substantial increases of output and employment of some service industries, while others did not change much or even declined. The following analysis will shed more

¹⁰ Statistisches Bundesamt 1997, Table 3.5.

light on these developments.

Table 3 shows indicators for GDP in service sub-sectors in 1994, based on GDP in 1985¹¹. The most striking result is the wide variation of figures between countries as well as between services.

Table 3

Gross Domestic Product 1994
1985 = 100
constant prices

	Belgium	Denmark	France	Germany	Italy
WRT	116.9	115.3	111.5	130.6	120.4
RHOT	128.9	95.1	110.3	116.4	103.2
TRS	126.6	177.9	130.7	*132.6	132.4
COM	135.7	150.4	178.9	144.1	182.6
FIN	159.0	108.5	94.3	156.8	157.2
REBUS	n.a.	113.4	142.8	n.a.	n.a.
CMSOP	135.6	112.9	142.5	171.1	118.9
* estimated					
Source: Adapted from OECD National Accounts. Detailed tables. 1981 – 1993.					
WRT = Wholesale and Retail Trade, RHOT = Restaurants and Hotels, TRS = Transport and Storage, COM = Communications, FIN = Financial Institutions and Insurance, REBUS = Real Estate and Business Services, CMSOP = Community, Social and Personal Services					

	Netherlands	United Kingdom	Sweden	Finland	Japan
WRT	129.2	127.4	125.6	92.4	145.6

¹¹ The figures are taken from OECD National Accounts Tables. Despite unified classifications for all countries in these tables, services are often attributed to different categories in the national statistics from which the data are taken. The allocation of business services is particularly unreliable in this context. See Preissl 1997a.

RHOT	144.3	125.5	95.2	115.0	n.a.
TRS	154.0	*139.1	142.0	129.7	137.3
COM	*141.1	*164.7	148.0	159.6	n.a.
FIN	103.7	*122.8	137.8	94.3	n.a.
REBUS	131.1	n.a.	117.8	130.1	n.a.
CMSOP	120.5	212.3	112.2	106.9	141.2

* estimated

Source: Adapted from OECD National Accounts. Detailed tables. 1981 – 1993.

WRT = Wholesale and Retail Trade, RHOT = Restaurants and Hotels, TRS = Transport and Storage,
 COM = Communications, FIN = Financial Institutions and Insurance, REBUS = Real Estate and
 Business Services, CMSOP = Community, Social and Personal Services

If we ignore the rather exceptional case of Japan, the sub-sector with the highest indicator on average¹² is *communication* (162), followed by *community, social and personal services* (155), by *transport and storage* (137) and by *financial institutions and insurance* (134). The high average indicator for *real estate and business services* (141) is based on only five countries, for which data were available, and should not be directly compared with the other categories, all the more since the category's content differs from country to country.

Relatively low average indicators were reached by *distributive services* (122) and by *restaurants and hotels* (115). These averages, however, conceal large variations among countries. Especially in *financial services* reductions in GDP between 1985 and 1994 (e.g., from 100 to 94 in France) go along with equally impressive increases (from 100 to 159 in Belgium and to 157 in Germany). *Community, social and personal services* expanded most notably in the UK (212) and in Germany (171), more moderately in France (141) and rather slowly in Sweden (112) and in Italy (119) over the same period of time. This is probably the result of strict saving policies in Sweden and Italy. In Germany, the accelerated growth of GDP in this category from 1989 onwards reflects socio-economic and political factors related to German unification. However, it should also be borne in mind that business services are hidden in this category

¹² Weighted averages.

in German statistics.

High values for *communication* as well as *transport and storage* hint at the growing importance of services that are mainly provided for enterprises (other than *business services*) and highlight the significance of new logistic concepts for service as well as for manufacturing industries.¹³

The development over time of shares of service industries or sub-sectors in the GDP of all services indicates that there are "old" service industries with declining impact, "new" ones with significantly increasing importance and "stable" ones that more or less keep their positions.

Wholesale and retail trade belong to the first category. As expected, the big winners are *business services* (listed either with real estate or with community services). This result confirms the findings of many recent studies¹⁴. In countries in which *community services* do not include *business services*, they belong to the third group of rather "stable" services, together with *transport and storage*, *communications*, *financial institutions* and *insurance*.

Tables 4 and 5 illustrate the development of "Total Employment" in service industries between 1985 and 1995¹⁵.

¹³ Figures for *communication services* are often distorted, because they traditionally comprised only the activities of national monopolies for telecommunications. Since these monopolies have been abolished in many countries, the category only covers an ever smaller part of the market for communication services. Private communication services are usually included in the category *business services*, which takes part of its growth potential exactly from rapidly expanding telecommunication markets.

¹⁴ See, for example, Strambach 1997 and Kaiser 1998.

¹⁵ Unfortunately, not all countries provide employment data for OECD National Accounts Statistics. Therefore, Tables 6 and 7 only contain data for 8 EU countries and the US (Italy is not included). For the UK the OECD tables give only data for large service categories.

In all countries, by far the largest share in employment is held by *distributive services*, followed by *community, social and personal services*. Again, growth rates vary considerably between industries and countries. Though generally services show a clear positive employment trend (with the exception of Finland and Sweden), in *communication services* employment figures have been falling in all countries in recent years. This reflects massive cuts in the labour-force of deregulated and/or privatised monopolies for telecommunications. Employment starts to fall in financial services in some countries as a consequence of the adoption of information technologies, mainly in retail banking and insurance.

Table 4
Total Employment in Services 1985 and 1995
in 1000's

	Belgium		Denmark		Finland		France	
	1985	1994	1985	1995	1985	1995	1985	1995
WRT	583	590	284	281	311	250	3044	3153
RHOT	102	116	49	57	61	53	629	786
TRS	166	164	131	133	116	106	796	876
COM	72	71	45	42	50	42	451	419
FIN	138	139	95	94	62	46	617	593
REBUS	n.a.	n.a.	128	162	99	132	1261	1923
CMSOP	541	746	136	150	80	64	1238	1614
Total (1)	2426	2618	1646	1722	1309	1244	13400	15656

Source: Adapted from OECD National Accounts. Detailed tables. 1981 – 1993.

(1) includes Government Services and "other producers."

WRT = Wholesale and Retail Trade, RHOT = Restaurants and Hotels, TRS = Transport and Storage, COM = Communications, FIN = Financial Institutions and Insurance, REBUS = Real Estate and Business Services, CMSOP = Community, Social and Personal Services, PGS = Producers of Government Services

	Germany	Netherlands	Sweden	USA

	1985	1995	1985	1995	1985	1995	1985	1994
WRT	3430	3894	786	913	583	516	21841	25200
RHOT	800	1008	107	156	88	88	1578	1548
TRS	965	1073	240	286	213	217	3177	3974
COM	524	481	79	74	75	56	1225	1262
FIN	793	947	171	187	82	92	4893	5622
REBUS	n.a.	n.a.	305	564	232	323	8662	12584
CMSOP	2798	4380	712	962	180	233	15256	21131
Total (1)	14493	17533	3156	3862	2874	2849	73249	89745
Source: Adapted from OECD National Accounts. Detailed tables. 1981 – 1993. (1) includes Government Services and "other producers."								
WRT = Wholesale and Retail Trade, RHOT = Restaurants and Hotels, TRS = Transport and Storage, COM = Communications, FIN = Financial Institutions and Insurance, REBUS = Real Estate and Business Services, CMSOP = Community, Social and Personal Services, PGS = Producers of Government Services								

Table 5

Total Employment 1995
Indicators 1985 = 100

	Belgium (1)	Denmark	France	Germany
WRT	101.1	99.0	103.6	113.5
RHOT	114.2	115.7	124.8	126.0
TRS	98.8	101.8	110.0	111.2
COM	98.3	92.2	92.8	91.8
FIN	100.6	98.6	96.1	119.4
REBUS	n.a.	126.8	152.5	n.a.
CMSOP	137.9	110.1	130.3	156.5
Total Services	107.9	104.6	116.8	121.0
(1) 1994				
Source: Adapted from OECD National Accounts. Detailed tables. 1981 – 1993.				
WRT = Wholesale and Retail Trade, RHOT = Restaurants and Hotels, TRS = Transport and Storage, COM = Communications, FIN = Financial Institutions and Insurance, REBUS = Real Estate and Business Services, CMSOP = Community, Social and Personal Services				

	Netherlands	Sweden	Finland	United States
WRT	128.6	95.9	80.4	115.4
RHOT	145.8	100.0	86.4	98.1
TRS	119.2	101.0	91.3	125.1
COM	93.7	73.6	84.4	103.0
FIN	109.4	111.9	73.3	114.9
REBUS	184.9	139.1	132.8	145.3
CMSOP	122.1	128.9	80.0	138.5
Total Services	122.4	99.1	95.0	122.5

Source: Adapted from OECD National Accounts. Detailed tables. 1981 – 1993.

WRT = Wholesale and Retail Trade, RHOT = Restaurants and Hotels, TRS = Transport and Storage, COM = Communications, FIN = Financial Institutions and Insurance, REBUS = Real Estate and Business Services, CMSOP = Community, Social and Personal Services

Service employment rose far more slowly than GDP in the respective industries. This is especially valid for communication services, which present the highest indicator value for GDP and the lowest for employment. Growth in employment exceeds growth in GDP only in the category *real estate and business services*, thus supporting the hypothesis that *business services* have a large potential for further growth in employment. Growth of GDP in service industries in the UK was the lowest in Europe (except Finland) over the observation period. However, as far as employment is concerned, the UK holds a position in the centre-field, behind the Netherlands, Germany and France. This might be a consequence of extensive labour market deregulation which made employment more flexible, but also more precarious. However, it might also be a sign of a lack of productivity improvement in the respective industries. The lowest employment indicators relative to growth in GDP were reached by Belgium and Germany, followed by Denmark and France.

In countries in which *business services* are included in *community, social and personal services* (Germany and Belgium), the employment indicator for this latter category lies far above the average of all countries, thus providing some evidence that in these countries business services play an equally important role

for service sector development as in others. However, employment in business services did not grow continuously in all countries over the last few years. After phases of dynamic growth in business services, expansion slows down and becomes more vulnerable to cyclical movements of the economy.

2 Industry dynamics and driving forces

The heterogeneity of development in the various industries and various countries shows some regularity. It seems obvious that three trends are prevailing:

- (1) business services grow more dynamically than personal services;
- (2) technology-intensive services show more significant changes than others; and
- (3) services with a high degree of change in regulatory patterns react with considerable changes in output and employment.

It can be shown that these phenomena are the result of driving forces which initiate, stimulate and enhance the restructuring of service markets. The first trend refers to changing dynamics of co-operation between manufacturing and services, which drives the development of advanced business services. The second trend documents the impact of information technology in service sectors. The third trend, finally, expresses a process of re-organisation of markets induced by deregulation measures. In the following section, the driving forces will be discussed in greater detail with special reference to German service markets.

2.1 *A new division of labour between manufacturing and services*

Three phenomena characterise changes in the division of labour between manufacturing and service industries¹⁶:

- the outsourcing of service functions;
- the differentiation of service markets towards high-quality knowledge-intensive services; and
- the supply of services by manufacturing companies.

Germany's strong manufacturing sector is a major client for business service

¹⁶ See also Preissl 1998a.

firms¹⁷. An internationally competitive economy needs efficient production-related services to support business processes and operations as well as a strong research and strategic development base to keep its position in a changing market and to take advantage of business opportunities. Traditionally, in Germany these functions have been allocated in internal service departments of manufacturing firms¹⁸. Increasingly, however, these firms refer to the market to satisfy their service needs.

More services are being purchased from the business services market, partly because manufacturing and large service firms have externalised functions which had previously been provided in-house. This tendency is the result of comprehensive lean production strategies which make firms concentrate on their core competencies and delegate support functions to other firms. The advantage of this solution is that service capacities do not have to be held continuously, but can be bought from outside according to actual needs. In addition, a larger variety of different services can be found in the market than what could possibly be available internally. Therefore, in many cases outsourcing has led to cost savings and to an increase in flexibility.

The increasing demand for business services is also partly due to a change in the service quality which is required. Modern production processes need sophisticated knowledge-intensive services which would be too costly to provide in-house. Short innovation cycles, and survival in highly competitive markets require specialisation and a continuous renewal of expertise and knowledge. Obviously, this can be achieved more efficiently by a service firm which concentrates on specific fields of knowledge and thus has a better chance to cover a certain field with the necessary depth, and to keep up-to-date.

¹⁷ With the strengthening of the service sector, increasingly the market for business service firms also comprises other service firms.

¹⁸ See DIW 1996 and 1997, see also Strambach 1997b, p.7.

Thus, business service firms act as facilitators of innovation for their customers. They support the diffusion of information technology, as they assist firms in its implementation. They are also carriers of knowledge, because they filter, systemise and elaborate information according to the customer's needs. Another advantage of market services is the positive effect on the transfer of knowledge between firms. Service companies use the expertise gained in service provision for one firm to solve another firm's problems.

The role of business services in assisting their clients to keep up with innovative cycles goes beyond the satisfaction of needs defined by the customer. Since an intrinsic characteristic of information and thus knowledge is that the client cannot ask for it, because he does not know it exists¹⁹, the demand for knowledge has to be defined in a complex process of interaction between service provider and client. Thus, the scope of co-operation between business firms and their clients comprises the identification of problems and fields of action as well as the search for the appropriate package of knowledge needed by the client firm.

In some manufacturing industries competition is shifting from price to quality parameters. Thus, services that come along with goods become more and more important. This holds for pre-sales as well as for after-sales customer services. Manufacturing firms offer maintenance and repair services, help with the implementation of machines, with the financing of purchases or they assist customers in the solution of organisational problems. The sale of services, some of which were provided before, but not charged to the customer, is also a strategy to diversify product ranges in declining goods markets.

Given the existing configuration of service provision for manufacturing in Germany with its strong reliance on internal services, the current re-consideration of firm strategies in terms of outsourcing, lean production and efficiency seems to point towards mixed strategies. On the one hand, outsourcing provides opportunities to develop economies of specialisation and

¹⁹ See Macdonald 1995, p.560.

an increase in service quality through competition²⁰; on the other hand, economies of scope in integrated service-manufacturing units, and valuable insider knowledge in service departments are definite advantages of in-house service departments. In order to overcome the potential lethargy and protectionism of internal service provision, companies encourage their service departments to sell excess service capacity to the outside world, where productivity and competitiveness will be challenged in the market. Thus, for most larger companies, a combination of external and internal services seems to be the most appropriate solution.

It is often assumed that the emerging service society will bring about an emphasis on customer service and thus a highly individualised culture of service provision. The availability of information technologies which allow the processing of detailed customer data and a flexible reaction to varying needs, supports this assumption. It has also been argued that flexibility with respect to the (changing) individual needs of service users is the main criterion for the quality of business services²¹, and therefore only highly specific services can adequately respond to the clients' problems and thus be competitive. Recent empirical evidence in Germany, however, presents a more differentiated picture. It seems that in service management a central task is to define service packages that contain the right *mix of standardised and individual modules*²². With the growing need for services, phenomena of "mass production", and thus more standardised services, are unavoidable; consultants and software providers try to economise service provision by producing standard modules, which can be re-used in different projects and sold to different clients. Large service firms tend to offer more standardised services, since this allows them to realise

²⁰ However, there are no empirical studies that verify the theses that services are provided more efficiently when they are outsourced than when they are provided internally.

²¹ See Strambach 1995, pp.149-150.

²² See Preissl 1997b.

economies of scale. However, despite this trend, the increasing need for problem solution packages enhances the tendency for combinations of more routine and more client-specific service elements. These packages are then highly individualised solutions. Thus, individualisation and standardisation are parallel, not alternative trends.

The emerging business service market comprises services which are knowledge-intensive and provide jobs for highly qualified experts. However, the process of outsourcing also affects support functions in large firms, such as office cleaning, catering or security. Although these services are becoming more "professional" and quality oriented, and thus require well-trained personnel, there is also scope for low-pay, low-qualification jobs in business services industries.

2.2 *Information technology as a driving force in services*

For a long time, services have been considered adverse to innovation, and were seen as low-tech, low-productivity industries with little impact on a country's economic performance. With the widespread use of information and communication technologies (ICT) in services the picture has changed. Service firms use ICT for process and product innovation.

The introduction of technology into services enhances the assimilation of service and manufacturing sectors²³. Services develop features of "industrialisation", as processes of service provision become more capital-intensive and standardised. With a tighter control on information flows, the automation of information processing and the standardisation of communication patterns, craft-like processes are turned into mass-production and can easily be controlled and improved by adopting the strict logic of digital systems in business processes. As a consequence, service production shows features that are well known from manufacturing: ICT introduces a potential for productivity growth in service industries. Automated processes of

²³ See Miles/Boden 1998; Gallouj/Weinstein 1997.

production require standardised inputs and produce standardised outputs. As a consequence, economies of scale become a significant feature in service production. Apart from the impact of the adoption of ICT in services, the technology relies heavily on services for its successful use in the economy. New complementarities between equipment producers and service providers arise in the diffusion, implementation and maintenance of ICT and the exploitation of its potential on the users' side.

The technical characteristics of ICT give them a considerable potential for innovation in services²⁴. ICT is a key technology²⁵, which means that it can be used in almost any industry for different purposes. The fact that one of the main elements in many service activities is the creation, processing, transformation, and transmission of information and knowledge, means that a technology, which revolutionises the handling and communication of information, will induce significant changes in these activities. However, in order to fully exploit its potential to drive innovation, it is not only important *that* ICT is adopted in service firms, but also *how intensively* it is used, *what kind* of ICT is chosen and *how* it is combined with other technological and organisational settings in a company²⁶.

However, it should be kept in mind that the sector consists of a range of heterogeneous activities. For some services the use of ICT is revolutionising

²⁴ See Preissl 1997b and 1998b.

²⁵ Information and communication technologies comprise data processing equipment of various kinds, from mainframes to PC's and software, as well as communication technology, its backbone, the international communication networks, user equipment and communication services. It might therefore be misleading to talk about ICT as a homogenous "technology". The different elements of ICT have a different impact on companies and on the economy. It can be assumed that the impact becomes more significant with the transition from mainframes to PC's and from there to networked ICT systems. See Licht/Moch, p.4.

²⁶ See Preissl 1995.

processes of service provision, while others are hardly affected by the diffusion of technology²⁷. Varying absorption capacities for ICT in different service industries determine the impact that ICT can have on innovative activities in each industry. The heterogeneity of the service sector implies that the capacity of different service industries to use ICT varies considerably with the information-intensity of the service and with the way ICT is used in any particular case²⁸.

In services, process and product were considered inseparable and, consequently, services were consumed in the moment of their provision and they required the presence of supplier and customer at the same place. This conception has to be abandoned with the emergence of ICT. The possibility of storing services in the form of information removes the constraint of time in the provision of services, and delivery via electronic networks without the physical movement of either supplier or client removes the location constraint. As a consequence, a global reorganisation of service companies is expected to take place²⁹.

The nature of information itself implies specific production characteristics. Information can be consumed or used many times without visible signs of consumption. Thus, one process of production potentially results in an infinitely large number of identical products. This raises problems of property rights and exclusion, but also offers potential for economies of scale. Apart from innovations that make services independent from time and space, major ICT-related innovations in services are concerned with supplier-customer interfaces. ICT can intensify a consumer's participation in the design and the delivery of the service. The use of computer terminals for information services, where the

²⁷ See Preissl 1998c.

²⁸ See Preissl 1998c.

²⁹ See Bressand 1986; Daniels 1993. At present, this tendency can be observed in financial services and in accounting, auditing and management consulting services.

customer himself/herself provides the service in interaction with the machine, is a prominent example of this. Customers gain more flexibility and often better control of the service in these self-service procedures, but they may also find it more difficult to get access to the required information.

The crucial question of the employment effects of the introduction of ICT in services does not have a straightforward answer. Opportunities to create new services around network technologies and the generation, diffusion and managing of information have to be weighed against job losses due to automation processes and organisational improvements made possible by the technology. In any case, jobs will be lost in routine functions which can be automated, and new jobs will be generated in the handling of information and its transformation into knowledge.

There is no doubt that ICT opens up large potentials for change in services. Processes of mass production can be introduced, and the limitations with respect to time and space do not apply any more. However, service sector development will to a large extent depend on how efficiently these opportunities can be exploited. Still, in many service industries, regulatory constraints hinder innovation dynamics in services that could be based on newly emerging technological options.

2.3 Regulation in services

Many service markets are subject to more or less intensive government regulation. In some services there are historical reasons for this exceptional practice, in others the intervention derives from the nature of the service which prevents markets from working with satisfactory results. However, often regulation has resulted in unjustified protection of existing players from competition; it has thus hindered the market mechanism to function and to introduce the necessary dynamics of innovation and change. In the course of the internationalisation of markets and with rapid technological change, structures which - for regulatory purposes - impede the realisation of new market constellations and new methods of production, have become obsolete and are due to be substituted by more flexible schemes. Therefore, the

implementation of new regulatory patterns is an important driving force in many service industries. On the other hand, new technologies might also give rise to new regulatory needs. For example, the possibility to multiply and disseminate the results of intellectual work in global communication networks has created a need for the regulation of intellectual property rights in electronic systems. The more widespread use of networks thus depends on satisfactory regulation of this topic, and hence regulation becomes an important driver of the Internet³⁰.

In this chapter, some general remarks about regulation will be presented, and examples of regulation and regulatory changes will be provided for selected industries. The special case of regulation in the course of the abolition of a monopoly will be discussed in Section 3.

As a rule, in market economies competitive regimes with as little government intervention as possible produce the best results in terms of output and welfare. However, not all markets are perfect, and there are situations in which specific rules have to be set for market participants in order to achieve the desired results. The following justifications for regulatory intervention can be found³¹:

- *Market failure.* The most common argument for regulation is market failure. It is argued that the market, if left by itself, would not guarantee adequate supplies of goods or services. This can be manifest in deficiencies in the provision of essential commodities, or in market prices which are too high for the people who need to consume the products.
- *Guaranteeing competition.* Competition, a necessary ingredient for the functioning of the market mechanism, is not always a stable condition. In fact, competition has a tendency to abolish itself. Any market participant who is in a strong position will try to swallow

³⁰ See Haas, Preissl, Rickert, 1998, Preissl 1998d.

³¹ See also Kahn 1993.

competitors and thus induce a concentration process. Therefore, in some markets it is necessary to adopt instruments which protect the weaker market participants. Sometimes, regulatory intervention is necessary to establish competition in a market or to set rules for the players, which guarantee competitive procedures and monitor their observation. This is, for example, essential if there are bottleneck facilities which have to be shared by all actors, like radio waves in mobile communication.

- *Correction of market results.* In markets for so-called basic goods, for example, in food or housing markets, governments want to make sure that the market result does not lead to a lack in the satisfaction of essential needs. Therefore, these markets are regulated with respect to prices, the rationing of supply or minimum quality standards.

A similar situation arises when market results do not correspond with socially desired provision of goods and services. In these cases, regulation is used to achieve social targets, for example, the implementation of standards for environmental protection, the control of food distribution for hygiene purposes or the control of book prices.

Regulatory instruments comprise *price control, quality control, universal service obligations and market entry control.*

- Price control prevents strong suppliers from using their position to gain monopoly rents at the expense of the consumer, and it hinders competitors from adopting unfair (predatory) pricing in order to drive other players out of the market. Price control regulation therefore also includes rules about cross-subsidisation (i.e., establishing low prices in important markets which are subsidised by high profits gained in other market segments), price calculation methods and the transfer of productivity gains to the consumer.
- Quality control refers to minimum standards that are established in cases in which the violation of these standards might seriously harm

customers or the public, for example in health services, the distribution of medicine, food processing or environmentally relevant services, such as the recycling of industrial waste.

- In some markets it is profitable for companies to serve only certain market segments. For example, recycling firms might choose to cover only the larger suppliers of material, because collecting waste from all households would be too costly. In these cases, local governments can issue licenses under the condition that a so-called universal service is guaranteed, i.e., all citizens have to be offered the service at affordable prices.
- In some markets it might be economically wise to limit the number of suppliers or to check whether potential suppliers are qualified for the service in terms of expertise and financial resources. In the first case, the intervention is usually justified with the existence of bottleneck facilities, like network capacity. In the second case, security or welfare reasons might be the cause for regulation.

As markets change, the rationale for regulation changes. Regulation can be conceived as a transitory instrument to establish competition or to protect the generation of new industries (infant industry protection). It can also be of a permanent nature, for example in the case of hygiene controls in food processing or the rationing of scarce resources in radio transmission. In both cases, justifications for market intervention and the adopted procedures have to be questioned from time to time. The concrete regulatory measures might not be adequate for the actual market constellation any longer, or the competitive situation might have been stabilised so that no intervention is necessary. Even with permanent regulation, technical progress or new organisational settings might make existing regulatory patterns obsolete.

Some examples for regulation in different service industries might illustrate the importance and practical handling of regulation in German service markets.

Table 6 shows the variety of regulatory measures as well as the diversity of justifications. Professional services are a highly regulated industry³².

Table 6
Examples of Regulation in German Service Industries

Sub-sector	Industry	Regulatory measures	Justification
Wholesale and retail trade	Retailing	Opening hours, handling of perishable food	Protection of SME, hygiene and health
Hotels and restaurants	Hotels	Registration of guests	Prevention of crime, collection of local tax
Transport and storage	Road freight transport	Maximum travelling hours per driver, maximum weight of loaded lorries, market entry control	Road safety, prevention of ruinous competition which stimulates risky driving
Communication	Telecommunication services	Price control, entry control	Transition from monopoly to competition, bottlenecks in network infrastructure
Financial services	Banking and insurance	Credit limits, policy price control	Protection of creditors, protection of customers from risk
Business services	Professional services Real estate	Locational limits (lawyers), market entry control for auditors and tax consultants, qualification schemes, obligatory memberships, rent control	Protection of customers and law firms, guaranteeing service quality by certification of service providers' qualification, guaranteeing supply at affordable prices

Source: DIW 1998

Barriers exist in the form of specific qualification requirements, usually a university degree for lawyers, accountants, tax consultants, architects and engineers. Often membership in professional organisations is a prerequisite for practising, the levels and structures of fees are strictly controlled, restrictions to business

³²

See also Strambach 1997b, p.23.

expansion limit and control spatial and professional innovation, and codes of conduct govern business activities.

Revisions of regulatory regimes have led to major deregulation efforts in the EU in the last fifteen years. Regulation often proved to be little else than barriers to entry for foreign competitors, and thus as an obstacle for the realisation of the Single European Market. Justifications for specific regulatory rules had lost their validity because of technical progress or changes in the balance of market power. To a certain extent, deregulation was pushed indirectly by general clauses in the EU Treaty which gave each company the right to do business in any country of the union. Regulation that limited market entry for foreigners thus had to be revised. These clauses also implied that national public monopolies, for example, in telecommunications and in energy and water supply, could not be maintained. Other industries, that were considerably affected by harmonisation and liberalisation policies in the EU, were insurance, transport, auditing and legal as well as real estate services³³.

In some European countries national regulation preceded European regulation. This was, for example, the case in telecommunications in the UK. In others, European directives are important drivers of deregulation, which due to specific constellations of political power, would not be possible in a national context alone. Italian communication markets belong to this latter category. Germany in principle agreed with European deregulation directives, but was very slow in implementing them. Part of this reluctance was due to an attempt to protect national players from competition for as long as possible, part of it derived from difficult decision-making structures in a Federal State and the typical German thoroughness in conceiving legislation. In the following, the main features of German telecommunication regulation will be presented in a historical and an analytical perspective.

³³

The complex structures of these industries and their eminent importance for national economies required specific efforts by the European Commission to prepare, orchestrate and monitor deregulation at the national and at the European level. See Costa, Pontarollo and Preissl 1995; Crowther 1996 and Cowie 1996.

3 Telecommunication Regulation in Germany

3.1 The Monopoly

The German telecommunication market had been a national monopoly for almost one hundred years, before it was deregulated in the late eighties and early nineties. There were two main reasons for the monopoly, an economic and a political one. The economic reason was that telecommunications were considered a natural monopoly. It was assumed that the telephone network reached its optimal efficiency only for a scale of production which comprised the whole national market. Distributing the production capacity necessary to serve the national market over several suppliers would lead to higher costs per unit.

The second (political) reason was that telecommunication services were considered of eminent national importance (especially for military purposes) and that supply had to be guaranteed by a reliable state-controlled institution that could guarantee the necessary continuous, sufficient and universal supply of services. Historically, the monopoly in telecommunications derived from an extension of the monopoly in postal services. Telephony seemed just another way of sending messages that needed the same protection as the handling of written communications.

3.2 Dissolving the Monopoly

The central argument for the abolition of the monopoly was technical progress. New technologies had led to the integration of computing, broadcasting and communication in one communication system. Automatically the monopoly seemed to expand into the newly integrated fields, and the Ministry for Post and Telecommunications tried to extend its monopoly privileges and obligations to all services and equipment that were operated in and connected with the

telephone network. It claimed exclusive rights in cable TV³⁴, wanted to control the certification of networked computers and had monopolies in all telecommunication services. However, telecommunications had shifted from the mere transmission of signals to the supply of a large variety of services. These services and the underlying technologies do not show the technical and economic indivisibilities of a natural monopoly. Thus, there is no *economic* justification for a monopoly in these markets. Similarly, neither for user equipment nor for TV programmes do monopolies seem economically inevitable. Therefore, a clear definition had to be conceived for the extent of monopoly rights in telecommunications.

New transmission and switching technologies provided sufficient capacity for communication. Thus, the argument that state control was needed to take care of the supply of strategically important services did not hold either³⁵.

Given the poor justification for monopolistic telecommunication markets, it seemed obvious that the benefits of competition in terms of price, service quality and dynamics of innovation should not be given away by keeping up a monopolistic market structure.

3.3 *Some principles of deregulation in telecommunications*

A distinction has to be made between liberalisation, deregulation and privatisation:

³⁴ The monopolist at some point even claimed the right to control broadcasting programmes via the selection of broadcasters who were granted access to the cable network. The channels are now attributed to tenders by committees with representatives from parties and other interest groups.

³⁵ There is still some concern in Germany, however, about political and/or social control of contents that are transmitted over new electronic systems. Politically extreme, racist or other unethical material should be banned. However, this should not obstruct the creative potential of network technologies or introduce unwarranted forms of censorship. See Preissl 1998d.

Liberalisation describes the abolition of monopolies and hence the freedom of new players to enter a market.

Deregulation changes the conditions under which companies and individuals operate in a market.

Privatisation substitutes state ownership of telecommunication companies with private ownership.

The transition from monopolistic to competitive telecommunication markets comprises all three steps. However, they do not all happen at the same time, and their combination and actual realisation constitute an important set of variables in the re-organisation of markets. Liberalised markets can be highly regulated and dominated by government-owned enterprises. Giving up monopolies usually involves de-regulation and re-regulation. With the appearance of new competitors the market configuration becomes more complex and new rules are needed to organise the co-ordination of players, especially if service supply is based on network infrastructures. There are two reasons for re-regulation in a liberalised and deregulated telecommunication markets³⁶:

(1) *Transitory regulation*

There are *transitory* regulatory purposes which derive from the fact that the legal or political act of abolishing a monopoly does not right away lead to a competitively functioning market. It became quite obvious that at least for some time after deregulation *more regulation* would be needed than before the reforms³⁷.

³⁶ For the US this has been shown quite clearly by Cimattorus, De Tommaso and Neri 1998.

³⁷ See Geppert, Ruhle, Schuster 1998, p.36.

In most countries which deregulated their telecommunication systems, network infrastructures are still mainly provided by the former monopolist. All new competitors have to use - in one way or another - the network facilities of the old monopolist that has also remained the dominant service supplier. In these circumstances, rules have to be established which allow new suppliers to get access to the existing network under fair conditions, to interconnect their own lines with those of the former monopolist and share other bottleneck facilities - like telephone numbers - in a way which does not hinder fair competition.

Apart from this, the former monopolist traditionally controls access to consumers in private households. Whereas high capacity transmission lines can easily be built between the large economic centres and thus reach a certain number of big firms by connecting a few switching points, building up a network which serves all private households is a much bigger task. Usually, it requires investment capital which exceeds the means of new telecommunication service providers, and might lead to a doubling of infrastructures which is not economically efficient. Covering the "last mile" to the customers' premises is a problem which puts new competitors at a comparative disadvantage and makes market entrance difficult. Regulation is needed to organise local access and the co-operation of incumbent and new operators³⁸.

The former monopolist is likely to have a dominant position in the market for quite a long time after the formal abolition of the monopoly. It can be argued that in order to compensate for this almost inevitable dominance, stricter regulatory rules should hold for the monopolist than for other market participants, for example with respect to price setting practices. Some regulation theories propose "asymmetric regulation", i.e., they argue for different rules for the former monopolist on the one hand and for new entrants on the other. Other theories come to the conclusion that only symmetric regulation, i.e., the same rules for everybody, can guarantee fair market

³⁸ See, for example, Cimattoribus, De Tomaso and Neri 1998 on the regulatory solutions adopted in the US.

conditions in the long run³⁹.

(2) *Permanent regulation*

In some markets, regulation is required permanently, independently from transitory functions in the establishment of competitive markets. Peculiarities of telecommunication services cause such a continuous need for regulatory intervention. All network-based service markets have to deal with problems regarding the *shared use of infrastructures*, the *definition of standards* that allow the interconnection of equipment and the *administration of bottleneck facilities*.

As it is unlikely that a second blanket-cover telecommunication network will be laid⁴⁰, the network provider has to grant access to the existing network for new service providers. The conditions and pricing of this network access have given rise to complex regulatory rules and intensive litigation between network operators and service providers, both in the US and in Germany. The main critical points were the resale of network capacity, which had been bought from the operator, to third parties, and finding the right price for network usage.

The establishment of standards for communication systems has traditionally been handled by the International Telecommunications Union (ITU) and its various committees consisting of representatives of national governments. Increasingly, however, industry standards, which are imposed on the market by dominant suppliers, prevail in information technology. These "market-led" standards have quick diffusion rates and their conception does not require lengthy negotiations between nations with different interests. They therefore

³⁹ See, for example, Schankerman 1996, Weisman 1994.

⁴⁰ Mercury, the most important competitor to BT after deregulation in England, had originally announced its intention to build up a second comprehensive network to private households. In the end these plans were given up, because the investment did not seem to be profitable.

seem to make large parts of regulatory intervention in this field superfluous. Problems arise, however, because dominant suppliers use standards to strengthen their market position and to make it more difficult for their competitors to enter the market. In this case, regulation might prevent anti-competitive usage of standards as barriers to market entry.

Typical bottleneck cases are radio frequencies, which are scarce for physical reasons, and telephone numbers which are infinite in supply, but there is competition for easy-to-remember and short numbers, because they are seen as more customer-friendly.

Regulatory functions that affect the transition from monopoly to competition are expected to become superfluous in the long run, when a competitive system has been created by market entries and the market mechanism works. Functions of observing mechanisms of competition in markets are then taken over by anti-trust authorities. With respect to permanent regulatory functions, in market economies the principle should be to have as little regulation as possible and as much as needed.⁴¹ Thus, a central criterion for regulation concepts is to keep regulatory intervention to a minimum.

Apart from their transitory or permanent nature, it turned out in the process of designing the regulatory framework that a clear delimitation of competencies between institutions was essential. There is likely to be a zone where competencies of the political system - mainly the definition of frameworks - and those of the legal system - guaranteeing that laws are implemented and respected - overlap with those of a telecommunication regulator. The same holds for the delimitation of competencies between the regulator of telecommunications (or any other regulator in a specific market) and a general anti-trust authority. While telecommunication regulators mostly intervene ex-ante and thus shape the market outcome, anti-trust authorities usually react ex-post

⁴¹ Only one country, New Zealand, has given up regulating telecommunication markets altogether. All tasks of market control are allocated at institutions that supervise competition.

to sanction and correct anti-competitive behaviour. These overlapping competencies can be important obstacles for service suppliers. It may happen that either all institutions deny that they have any competencies to make decisions, or that more than one institution claims competencies so that market participants do not know who has the authority to give valid information or make a decision. Furthermore, they might be forced to apply to several institutions to be sure not to violate any regulatory rules.

Another crucial point in establishing a consistent regulation system was the exact definition of the regulator's rights to intervene in market participants' operations. For example, price regulation requires knowledge about the suppliers' cost structures, and especially about Deutsche Telekom's cost structures. It is quite unclear, however, to which extent the regulator needs to get access to accounting systems of incumbent operators or other suppliers.

Since there was little experience in how to endow regulators with sufficient, but not too generous competencies, pragmatic solutions have been adopted and the results were not always unambiguous.

3.4 Historical steps of deregulation

The transition from a state monopoly to competitive markets in Germany required several steps which were taken over a period of more than eight years:

In 1989 a new organisational and regulatory framework for telecommunication markets was proclaimed (Postreform I). The main purpose of this first reform phase was to separate sovereign functions and prerogatives of the Federal State from entrepreneurial functions of the telecommunication operator. Thus, a publicly owned enterprise was formed and separated from the Ministry of Posts and Telecommunications (BMPT), the former monopolist. The BMPT assumed the functions of the regulator. The reform left the network monopoly intact, liberalised so-called value-added network services (VANS) and defined a set of services for which the incumbent network operator had universal service obligations (Pflichtdienste).

The 1989 reform created problems which could not be resolved within the chosen setting. The ministry held two basically incompatible functions as the (neutral) regulator for all market participants and as the owner of the most powerful network and service provider. Furthermore, the hierarchical relationship between the BMPT and the newly created DBP Telekom caused considerable inconsistencies. For example, the Minister of Finances imposed financial burdens on the telecommunication operator via the BMPT that had no other economic justification than the fiscal consideration of balancing out the federal budget. Under these circumstances, financial planning was impossible for DBP Telekom, and resources, which were needed to become fit for competition, were deviated for government purposes. It was therefore decided to privatise DBP Telekom by introducing its shares in the stock market (Postreform II). However, the Federal Government will hold the majority of the company shares for the rest of the century.

The network monopoly and the monopoly for basic voice telephony were only abolished at the beginning of 1998 on the basis of a new law on telecommunications which had been published in July 1997. This law also establishes rules for the operating of a regulatory authority and lays down principles of interconnection, licensing and universal service.

3.5 The implementation of regulation

3.5.1 The regulator

The Ministry for Posts and Telecommunications has been dissolved and the regulatory authority has been allocated to the Ministry for Economics. The former regulator is thus independent from the incumbent operator. However, there are two reasons to doubt this independence: (1) The Federal Government still holds a considerable share in Deutsche Telekom, and thus it is in the interest of the regulator not to harm the former monopolist too much⁴². (2) The

⁴² However, recent experience with regulatory steps against Deutsche Telekom's price policy showed that the regulator was obviously not affected by this sort of

regulatory institution's formal status is that of a "supreme federal office" (Oberste Bundesbehörde). As such, it is hierarchically subordinated to the Ministry of Economics and therefore not politically neutral. Further complications arise from the influence of State Governments (Länderregierungen) that have a central role in the so-called regulation council, the central decision-making body in the regulatory institution. From an economic point of view it would therefore have been preferable to establish a truly independent institution with less political interference.

3.5.2 *Licensing*

The 1997 Telecommunications Act requires that providers of telecommunication infrastructures and suppliers of basic telephone services have a licence as a condition for operating. In preparation of market liberalisation, a large number of licenses had been granted to potential market entrants. Still the process was delayed, because it took the regulator a long time to publish rules and conditions for the licensing procedure, and thus new entrants did not have enough time to prepare the launching of services that should have been available immediately after liberalisation. A lot of confusion was caused, because the Federal Government again tried to use the supposedly profitable telecommunication market for fiscal purposes by establishing an outrageously high license fee. After intensive protests by experts and industry representatives, the fees had to be reduced to about 10 percent of the original figures on average.

3.5.3 *Universal Service*

Access to telecommunication networks is considered essential for the participation in civic society and for not losing out in economic and social competition. However, access prices in private markets are cost based, and the costs of providing telecommunication services might be too high to guarantee even basic services for everybody. Universal service regulation has

apprehension.

the purpose of guaranteeing basic telecommunication services at affordable prices to everybody, regardless of the geographical location and economic affluence.

Universal service regulation deals with two problems: (1) Households and small enterprises in geographically remote locations for which network access requires high infrastructure investment, and (2) Social groups that cannot afford basic telephone services, if prices reflect costs.

Indeed, price adjustments from administered prices to cost-oriented price structures normally lead on the one hand to higher prices for telephone access, monthly fees that are independent from telephone usage and for local calls⁴³; and on the other hand, long distance calls become cheaper. As a rule private low-income customers have a higher percentage of local calls, and business customers have higher shares of long distance calls, therefore business customers will benefit relatively more than low-income private customers⁴⁴.

Three problems have been discussed in universal service debates: (1) Is there a need to subsidise access costs? This can be denied in Germany's case, but not for the United States where different geographical conditions and different social structures prevail. (2) Which services should be included? With rapid technical progress, full participation in the information society will not only require a telephone line, but also access to the Internet. (3) Who is supposed to pay for universal service? Here various models exist: the government might assume responsibility as part of its social obligations, infrastructure and regional

⁴³ Contrary to Europe, local calls in the US do not seem to have gone through the same price increases. Most of the time local calls are integrated in monthly access fees and customers are not charged extra per call.

⁴⁴ For Germany see Nett 1998, p.46-47. Nett found that tariff reforms between 1990 and 1996 led to a net gain of 600 million DM for business users and a net increase of 187 million DM for private users for a fixed service basket.

policies. Another possibility is a fund into which all service providers make contributions or a fund which is only financed by those operators who do not guarantee universal service. Finally, income subsidies might be given to those who cannot afford to pay cost-based prices.

3.5.3 *Price regulation*

Price regulation affects prices for interconnection and network access and for telecommunication services.⁴⁵ Since telecommunication technology is developing rapidly, costs of service provision and thus prices are due to fall accordingly. As long as there is a dominant supplier, the market mechanism might fail to transfer cost savings to the customer in the form of decreasing prices, and the incumbent operator might not have a sufficient incentive to invest in modern technology. Therefore, the regulator should set rules for the development of service prices which reflect the possible technical progress. Prices can be negotiated in advance and fixed in co-operation with the regulator, or the regulator can choose to observe market prices and only monitor price setting by the suppliers.

Interconnection prices are an important variable in establishing competitive structures. On the one hand, prices have to be such to allow the network provider to invest in network maintenance and upgrading. On the other hand, new service providers should not be disadvantaged by interconnection prices that lie above costs. Otherwise the network provider, who uses his own network, would have an undue cost advantage. Discussion about the "right" method of calculation for the cost of network provision is far from being settled⁴⁶.

The main problems of price regulation in telecommunications are:

⁴⁵ For an overview see Mitchell and Vogelsang 1991.

⁴⁶ See Laffont and Tirole 1994. For Germany, see Geppert/Ruhle/Schuster 1998, pp.191-210.

- it is difficult to estimate the possible productivity gains, which form part of most price setting formulas, in advance: therefore price reductions demanded by the operator might be unrealistic;
- the true cost of network provision can only be calculated by making assumptions about
 - future investment needs,
 - the "value" of networks which have long been written off economically, and
 - the ability of the operator to turn technical progress into cost savings;
- transparency in the price setting process requires that the dominant supplier gives almost full access to its accounts, which is a problematic concept in a competitive setting.

3.6 *Telecommunication Regulation: Work in Progress*

Since the regulation of telecommunication markets is a relatively new experience in Germany, and markets are just beginning to develop for network provision and voice telephony, the regulatory process is still rather tentative. This holds for inconsistencies in legislation as well as for a lack of implementation of the existing rules. The degree of market liberalisation reached has to be mirrored against the directives issued by the European Union (formal and legal aspects) and against the actual development of competitive structures (actual realisation of liberalisation goals). The translation of European directives into national legislation has been successfully completed with the 1996 Telecommunications Law, and thus full liberalisation was reached in the beginning of 1998. However, the actual regulatory practice in the light of market development and the behaviour of incumbent and new operators needs further improvement. BT has recently published an assessment of the liberalisation of telecommunication markets in Europe which contains the

following conclusions for Germany:⁴⁷ Liberalisation indicators show an average of 17 out of 25 possible points (for full liberalisation) in Germany with a European average of under 15⁴⁸. The regulator's work shows typical problems of early regulation experience.

- The definition of actors, such as *network operator*, *service provider*, *reseller*, *end user*, is not precise enough in the law, and thus it remains unclear to whom specific articles apply.
- There is some confusion about competencies of the telecommunication regulator and the competition agency.
- There seems to be a general lack of transparency in the regulatory process. Some decisions have been made (mainly in favour of new entrants and limiting the power of Deutsche Telekom) which were welcomed by market analysts, but still it remained quite unclear on which basis the regulator reached the respective verdicts.
- Interconnection with Deutsche Telekom's network has been basically resolved. However, it takes too long to install links, and not enough network capacity is provided for new competitors.
- Numbering plans still slightly favour Deutsche Telekom.
- The monopoly of Deutsche Telekom for the cable TV network gives the company a dominant position with respect to household access.
- Accounting separation has not been realised, which makes it almost impossible to control price policies of Deutsche Telekom.

⁴⁷ British Telecommunications (BT) 1998.

⁴⁸ BT 1998, p.6.

The market is developing dynamically. There are many new competitors, prices are being re-adjusted, and Germany's lack of service availability is becoming less obvious. While market entrants would like to see quicker decision-making in cases of conflict with Deutsche Telekom, the latter criticises the regulator of biases in favour of new competitors. It cannot yet be seen who will be the winners and losers of the liberalisation process. However, British experience suggests that all consumers of telecommunication services will win if price reductions are drastic enough. However, gains in efficiency will inevitably lead to negative employment effects. The redundancies caused in the area of network provision can hardly be compensated by new jobs in service provision.

4 Service Sector Dynamics and Regulation

Many service markets do not need any specific form of regulation. They develop by being driven by forces such as the internationalisation of markets or the diffusion of ICT. Here growth and employment can be stimulated by referring to general instruments of economic policy. Service-specific policies might emphasise support of small and medium-sized companies and revise innovation and technology as well as education and qualification policies with respect to the special needs of service industries.

Other service markets might - for the reasons stated above - need regulatory intervention. Part of the re-regulation is motivated by the internationalisation of service provision and thus the prospect of exploiting newly generated economies of scale. These processes are supported by international agreements which aim at the opening of markets for competition. As a consequence, barriers to entry that also exist in the form of national regulation have to be abolished or lowered. In many cases, this automatically leads to processes of re-regulation which take into account the new market constellation and establish codes of conduct for the competing firms. Increasingly, bilateral or multilateral international co-operations will be needed to conceive regulatory systems which fit the needs of internationally networked service suppliers and customers.

In the light of internal innovative dynamics of service markets and with respect to international competitiveness, existing regulatory frameworks and regulatory practices might show considerable potential for deregulation. In newly emerging markets, such as electronic commerce, new regulation requirements might emerge. Consumer protection, an undeniable element for the acceptance of electronic forms of the distribution of information and goods, but also political decisions guided by social aims or other issues of national interest, such as environmental or public health concerns, might be reasons for temporary or permanent regulation.

Regulatory policies for individual service industries should start with an analysis of existing rules and procedures, revise them in the light of technologically and geographically changing markets and re-define purpose, scope and targets of regulation. A procedure for the evaluation of regulatory frameworks, institutions and practices at regular intervals should be established⁴⁹.

The example of telecommunication services has shown that market liberalisation and functioning re-regulation can give an important stimulus to market development. In other sectors, such as transport and insurance, liberalisation gains have to be weighed against a possible loss in security and consumer protection.

The question is therefore not whether regulation is "bad" and deregulation is "good", but whether the existing regulatory framework is reasonably justified, properly designed with respect to regulatory aims and efficiently handled. Well-functioning regulatory systems can be a positive factor for international companies' location decisions; they stimulate market dynamics and are thus important elements of economic policy.

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⁴⁹ Preissl 1998e.

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