The price effects of deregulation and privatisation in the product markets

In recent years, broad areas of mains-related public utilities in Germany have been gradually deregulated and, in part, privatised following the implementation of the EU single market programme. Behind these developments is the perception, which is gaining ground, that product markets which are free from government constraints and rigid conditions are, in the long run, best able to supply ranges of reasonably-priced goods that meet customers' needs. That also benefits the labour market. The first step was the release of telecommunications from the government-controlled or -organised monopoly system; it was followed by the energy market, with electricity and gas. A further step is pending in the area of traditional postal services, with the abolition of the letter monopoly. The opening-up of water supplies, of rail-related transport and of local public transport is also under discussion.

In the market for telecommunication products and services, burgeoning competition has resulted in sharp price falls. In the electricity industry, some established suppliers have reduced their prices substantially. In the gas industry, deregulation may likewise have significant effects on prices. The present article traces major developments in the aforementioned industries, and describes the associated price changes, insofar as they are currently discernible.

The regulatory task

Government interventions in market structures – whether in the form of public enterprises or by creating "exceptional areas" in competitive terms – (rather like interventionism in the field of subsidies)[1] generally constitute an element that is foreign to the system. As a rule, they engender substantial economic (opportunity) costs, on regulatory and allocative grounds. According to this underlying perception, deregulation and privatisation enhance macroeconomic efficiency. Moreover, the potential of technological innovations can be exploited more effectively if the web of government constraints is at least thinned out and cut back.[2]

Deregulation of telecommunications, ...

Since about the mid-nineties, the propensity in Germany to open up hitherto largely closed markets has gained ground. Major considerations were included in the Deregulation Report drawn up by the Federal Economics Ministry, in which attention was drawn to relevant measures and plans for a number of sectors, ranging from the railways and local public passenger transport to genetic engineering. Telecommunications were an initial focus of deregulation efforts since, in that sector, strong growth stimuli were to be expected, not only for telecommunications itself, but also indirectly for the rest of the economy. Notably the Commission of the European Communities advocated the opening-up of that market sector, in order to avert competitive distortions in the single EU market.[3] In 1993 the Council of the European Union decided to liberalise public voice telephony by January 1, 1998. At the end of 1994, the ground was prepared for the deregulation of the telecommunications infrastructure. In Germany, that paved the way for the three-stage reform of Deutsche Bundespost.

... the electricity market ...

In the field of mains-related sources of energy, too, the European Commission imparted a strong stimulus to deregulation and enhanced competition. After thorough preparatory work, which started back in the mid-eighties and was aimed at creating a single European market for energy, the Green Book "Towards an energy policy of the European Union" was approved in 1995. At the beginning of 1997, the EU Electricity Market Directive, which required member states to issue appropriate implementing orders and amend their legislation as necessary by February 1999, came into effect. In Germany, the Act against Restraints of Competition was thereupon amended early in 1998 and the legislation governing the energy sector was restructured. Since then, but for a few exceptions, the ground rules of competition have governed the German electricity market.

... and the gas market

In addition, the liberalisation of the gas industry was initiated by the EU Gas Directive dating from autumn 1998. In the middle of the present year, the business associations concerned, chaired by the Federal Economics Minister, agreed to shape access to natural gas mains in a non-discriminatory fashion,

1 On this point, see the article "Subsidy trends in Germany since the start of the nineties" beginning on page 15 of this Report.
2 Specifically, see, for instance: A. Boss, C.–F. Laser, K.–W. Schatz et al., *Deregulierung in Deutschland* (Deregulation in Germany) Kieler Studien 275, Tübingen, 1996.
3 The "Green Book on the development of the common market for telecommunication services and telecommunication equipment" appeared back in 1987.

and to define general rules for the use of those mains. To enable households and small traders to benefit from the opening-up of the gas market, what are known as "load profiles", i. e. specific consumption patterns, are to be defined before long. In the view of the Economics Ministry, that could be in less than one year.

Further deregulation schemes

Right up to the end of the period under review, it has primarily been European initiatives that have triggered deregulation schemes, in the sense of deepening the single European market. Only recently, the European Parliament has spoken out in favour of a progressive liberalisation of rail traffic in the European Union. According to that suggestion, member states are to be required to open up their rail networks to foreign railway operators. It is also planned largely to privatise local public passenger transport.

But most of these projects have so far only been statements of intent, and are likely to take concrete shape, or be implemented, only in the next few years. For telecommunications, data transmission and electricity generation, however, initial conclusions can already be drawn. From the standpoint of the central bank, it is primarily the effects of deregulation on prices that are of interest.

Telecommunication market

Post Office reform

Deregulation in the telecommunication sector began with the splitting-up of the former monopoly enterprise Deutsche Bundespost. In several stages – known as "Bundespost Reforms I, II and III", in 1989, 1994 and 1996 – the three business fields "Yellow Post Office" (letter and parcel post), "postal banking" (post office giro and post office savings bank) and "Grey Post Office" (telecommunications) were formed and granted organisational and financial autonomy. The deregulation process in the field of the Yellow Post Office, and particularly in that of the Grey Post Office, is being supervised and managed by the specially established Regulatory Authority for Telecommunications and Postal Services. The function of this official supervisory body is "To foster competition and ensure appropriate and adequate services throughout Germany...".[4] For the telecommunication sector, the principal issues are market access and the licensing of new competitors, the safeguarding of a minimum range of services and a scale of charges. Added to these are regulations on access and on interconnections in the telephone network, which hitherto has mostly been the property of the old monopolist, even if new competitors are now pushing forward. This list of functions reflects the fact that the telecommunication market is not by any means fully liberalised as yet, and that the Regulatory Authority has a key role to play in strengthening competition.

Market for equipment liberalised

As early as the first stage of deregulation in 1989, the market for telecommunication equipment was decontrolled. However, it is difficult to reconstruct how the consumer prices of those goods responded after the ending of the postal monopoly. After all, the

4 1998/99 Report of the Regulatory Authority for Telecommunications and Postal Services, Bundestag paper 14/2321 dated December 2, 1999, p. 16.

official statistics added such products to the price survey only upon the recalculation of the index with the base-year 1995. Anyway, it can be said that the prices of telephone and telefax equipment (including repairs) have practically halved in the past five years. The decline in the market has actually been somewhat steeper if it is borne in mind that the rate of value-added tax was raised from 15 % to 16 % in April 1998.

Voice telephony liberalised

In the field of voice telephony, Deutsche Telekom lost its monopoly position early in 1998. Its privileged position in the area of network infrastructure was relinquished back in autumn 1996. Initial licences for mobile phones were awarded to Telekom's competitors at the beginning of the nineties. That meant that the market was largely opened up, and many new competitors began to compete with Telekom. According to the Regulatory Authority, around 300 Class 4 licences, which relate to voice telephone services, and over 500 Class 3 licences, relating to transmission lines, had been issued by the middle of the present year.

Owing to the mounting competition, some perceptible price adjustments occurred. They had started at the beginning of the decade, when, with the splitting-up of Deutsche Bundespost, the cross-subsidisation of general postal services by earnings from long-distance and international phone calls came to an end. In the wake of deregulation, fewer and fewer such earnings were available to subsidise local calls, since the profit margins on long-distance and international calls, in particular, were squeezed. Moreover, massive productivity gains were recorded, for one thing by Telekom itself, and for another as a result of the emergence of new suppliers in the market.

Price movements

As regards price movements for telecommunication services at the consumer level, new detailed figures from the official statistics have been available since 1995. At that time, the price survey was adjusted to the changed consumption pattern. Since then, both the new suppliers in the fixed phone network and in the mobile phone sector have been taken into account. (For details, see page 35.) According to the figures, in the mobile phone sector prices have dropped by around three-fifths during the past five years. The adjustments in the prices of international calls were similarly pronounced. The price reductions for long-distance calls within Germany fell only a little short of that, although they suggest that the price cuts were all the smaller, the shorter the distance of the calls was. Local calls at the consumer level have actually become much more expensive since the middle of the past decade, in several steps. Last autumn, according to the official statistics, they exceeded the level of 1995 by almost one-quarter. That owed something to the introduction of the turnover-tax liability on telephone services from January 1, 1996, which superseded the former lump-sum payment by the Bundespost to the Federal budget, and which is a component of consumer prices.[5] Furthermore, Telekom has adjusted the charge levied from public telephone boxes. In addition, the

5 The effect of the turnover-tax liability on prices is mitigated by the input tax deduction, which has been possible ever since.

Facets of price measurement in deregulated sectors

The German consumer price index is calculated in accordance with "Laspeyres fixed-base approach". "The object of that approach is the measurement of 'pure' price movements with a constant quantity component over a medium length of time", normally encompassing five years. At the end of each such period, "there is a fundamental revision of the index, with the 'basket of goods' also being updated". [1]

If – as is not unlikely in the case of deregulations and liberalisation measures – rapid and strong changes in consumption patterns or in the supplier structure occur, the fixed-base approach poses the risk of a distorted presentation of the inflation rate. [2] That is so if new low-price competitors are not taken into account, or if the traditional suppliers adjust their prices only after significant losses of market shares have taken place.

If such changes in the market are not taken into consideration, the inflation rate is initially shown too high, and later, after the old suppliers have reduced their prices, too low. Moreover, the old suppliers are sometimes able to stabilise their market shares even when a positive price gap vis-à-vis their competitors remains. Frequently, after all, a change to a new supplier involves costs, the requisite market overview can be obtained only with appreciable effort, or the quality of the new services is lower because, for instance, capacity bottlenecks arise. Only in ideal circumstances does the price difference obtaining between the old and the new market players precisely match the monetary equivalent of such a difference.

By way of example, the impact of different index approaches on price measurement can be illustrated by means of a model calculation. As a simplification, in the initial period prior to the appearance of the new competitors in the market, a fictitious price is entered at which the demand it accounts for is virtually zero.

As is to be expected, a distinct difference in the outcome emerges between the Laspeyres index and the Paasche index. The Fisher index, which constitutes a combination of the Laspeyres and the Paasche indices, can additionally illustrate the significance of the index method in intertemporal price comparisons, especially during periods of pronounced deregulation effects.

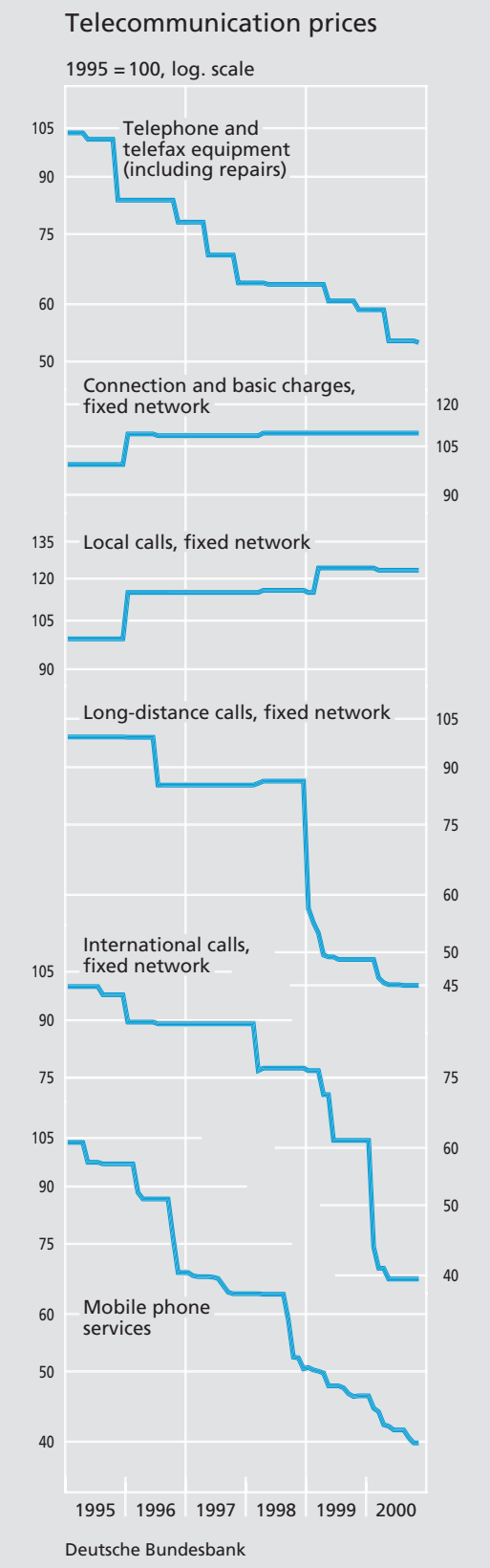
	Old suppliers		New competitors	
Period	Quantity	Price	Quantity	Price
1	10	100	0	120
2	9	100	2	90
3	8	100	4	80
4	8	90	4	80
5	8	90	4	80

	Laspeyres index	Paasche index	Fisher index
1	100	100	100
2	100	95	97
3	100	88	94
4	90	81	86
5	90	81	86
	Change from previous period		
1	.	.	.
2	0 %	– 5 %	– 3 %
3	0 %	– 8 %	– 4 %
4	– 10 %	– 7 %	– 9 %
5	0 %	0 %	0 %
1 to 5	– 10 %	– 19 %	– 14 %

Because of the deregulation of the telecommunication sector, the Federal Statistical Office has devised a new consumer price index for telecommunication services that takes due account of the new conditions and better reflects the increased complexity of price movements in that sector. [1] The weighting pattern was derived from data supplied by Deutsche Telekom AG for 1996. Since January 1999, the prices charged by the new telephone companies for domestic calls and, since January 2000, also those charged for international calls and for connections to mobile phone networks, have been included. For domestic calls, an average price covering several suppliers has been computed. The upshot of this has been that, firstly because of the structural effect and secondly on account of price cuts by Deutsche Telekom AG, the new index has worked out substantially lower than that of December 1998.

1 On this point, see: Beuerlein, I., *Neuberechnung des Verbraucherpreisindex für Telekommunikationsdienstleistungen auf Basis 1995* (Recalculation of the consumer price index for telecommunication services with the base-year 1995), Wirtschaft und Statistik 1999, pp. 329–336. — **2** For details, see: Hoffmann, J., *Probleme der Inflationsmessung in Deutschland* (Problems of inflation measurement in Germany) Discussion paper 1/98, Economic Research Group of the Deutsche Bundesbank.

Deutsche Bundesbank



charges for connection and basic charges have recently been running about one-tenth above the level ruling in mid-decade.

Specimen prices of the Regulatory Authority

According to calculations by the Regulatory Authority for Telecommunication and Postal Services, in mid-2000 a domestic German telephone call in the fixed network cost between 85 % and almost 90 % less than in 1997, the last year prior to the complete liberalisation of the voice telephone service. The spread reflects slightly divergent developments at different times of day. The prices relate to the most favourable supplier chosen for the call (standard rate without discount, "call by call"). International calls have also fallen dramatically in price. For instance, a call to the United States in July 2000, utilising the cheapest offer, was over nine-tenths cheaper than at the end of 1997. For calls to the United Kingdom, the price advantage amounted to about 90 %; for calls to France, Austria and a number of other countries, the advantage was hardly smaller.

But the findings of the Regulatory Authority probably overstate the price reduction, inasmuch as they assume the extreme case of the exploitation of all possible advantages, which is hardly representative. Firstly, the scales of charges are meanwhile very diverse, from the viewpoint of the consumer not easy to take in, and subject to frequent changes, so that ongoing careful monitoring is necessary. Secondly, any change from one company to another may entail some special administrative arrangements, which often acts as a deterrent.

Consumer prices and consumer spending

Judging by the data from the official statistics, the price cuts in the telephone sector have perceptibly dampened overall consumer-price movements in the past few years. Excluding the telecommunication sector, i. e. excluding telephone and telefax equipment and excluding telephone, telefax and telegraphic services, the rise in the consumer-price index of all households between 1995 and today would in the aggregate have been about ½ percentage point larger. Households' expenditure budgets have likewise benefited distinctly from the price reductions. The national accounts show that private individuals spent around DM 48½ billion on communication in 1999. For lack of any more detailed subdivision, this sum includes postal services and private courier services as well as telephone services, but that probably does not distort the picture unduly. In 1995, consumer expenditure in the communication sector was some DM 10 billion lower. In real terms, i. e. at 1995 prices, expenditure in 1999 exceeded the level of the base year by over DM 20 billion, or distinctly more than one-half. Thus, on account of the sharp price reductions, the increase in spending remained perceptibly smaller than the simultaneous marked expansion of consumption. In many cases, the price cuts presumably triggered additional demand, and thus greatly fostered the rapid expansion of new products in the market. This is also suggested by the fact that, in recent years, communication has been among the fastest-growing sectors in the German economy.

There is also major potential for price reductions in the field of local calls in the fixed network, known as the "last mile", in which Deutsche Telekom continues to have a dominant position in the market. The use of the cable network, which hitherto has chiefly been employed for television transmissions, to transmit telephone calls has frequently been discussed; radio connections have also been contemplated. Moreover, some research activity has been directed towards the use of domestic electricity mains for communication purposes. The Regulatory Authority has required Deutsche Telekom to grant competitors "unbundled" access to subscriber-connecting lines. "Unbundled" means that an outside company can rent from Telekom the "last mile" for a customer changing to itself from Telekom without having to resort to additional connection engineering.

Further price-cutting potentials

Electricity market

Legislative measures

The deregulation of the electricity market started only a few years ago. Under the impact of the deadlines set by the European Commission, the sixth amendment of the Act against Restraints of Competition was passed early in 1998; it was followed in the spring of the same year by the restructuring of the legislation governing the energy industry. In this way, the legislature ended the electricity industry's exemption from cartel law, and made it subject to competition. The area monopolies which had existed until then, ranging from large supra-regional public utilities, via regional suppliers, to municipal power stations, have now been broken up. Permission to conclude licensing agreements with exclusive terms has been revoked. On the question

of access to the electricity mains, which is a matter of particular importance given the necessity of a network and the fact that electricity cannot readily be stored, the legislature opted for what is known as "negotiated network access", i.e. access on a contractual basis. In contrast to the telecommunication sector, no particular supervisory authority was set up in order to introduce and safeguard competition. Instead, the government is relying on agreements between electricity producers, network operators and consumers. Two such agreements have now been signed; the most recent has been in force since early 2000. It includes provisions on network access, scales of charges and the consumption patterns of households over time.

Electricity exchanges

The institution of open markets at the same time fosters the setting-up of electricity exchanges. At present, Leipzig and Frankfurt are exchange centres. In this respect, Germany is following the example set by other countries, in which such trading platforms have existed for some time. Europe's largest electricity exchange at present, the Scandinavian NordPool, links up the countries of Norway, Sweden, Finland and Denmark. Approximately one-quarter of all the electricity consumed in that region (other than in Denmark) is traded daily through that exchange.

Increasing competition

Competition in the German electricity sector has increased perceptibly as a result of deregulation. The previously earned monopoly receipts have been reduced, and profit margins have narrowed distinctly. That applies particularly to the major electricity producers, but less to the local suppliers at municipal level. Some of them have admittedly lost their autonomy, and have been sold to supra-regional public utilities. Others, however, have amalgamated into larger units and negotiated better delivery terms from their electricity suppliers. They have benefited from the fact that they own the local networks, and thus the connections to households (comparable to Deutsche Telekom, with its influence over the "last mile"). In some cases, there has been opposition to the transmission of "outside electricity" to households that have changed to new lower-priced suppliers. Only when competition-law proceedings had been held before the Federal Cartel Office and court rulings had been issued was an opening of the market possible.

Little propensity to change on the part of households

Hitherto, households have taken little advantage of the option of changing to a lower-priced supplier. According to press reports, only 2% to 3% of final consumers have availed themselves of that option. Firstly (as surveys have shown), this is because many consumers fear delays in processing their applications, faulty invoices, or even "shady" suppliers. Moreover, not a few households find it difficult to gain an overview over the different scales of charges of the greatly enlarged number of suppliers. Secondly, many of the traditional regional electricity suppliers have now started to offer lower charges themselves. In particular, some municipal suppliers that do not generate any electricity of their own are taking advantage of cheap inputs from major electricity producers and are passing on at least part of their lower purchase prices to their customers.

Electricity prices for households

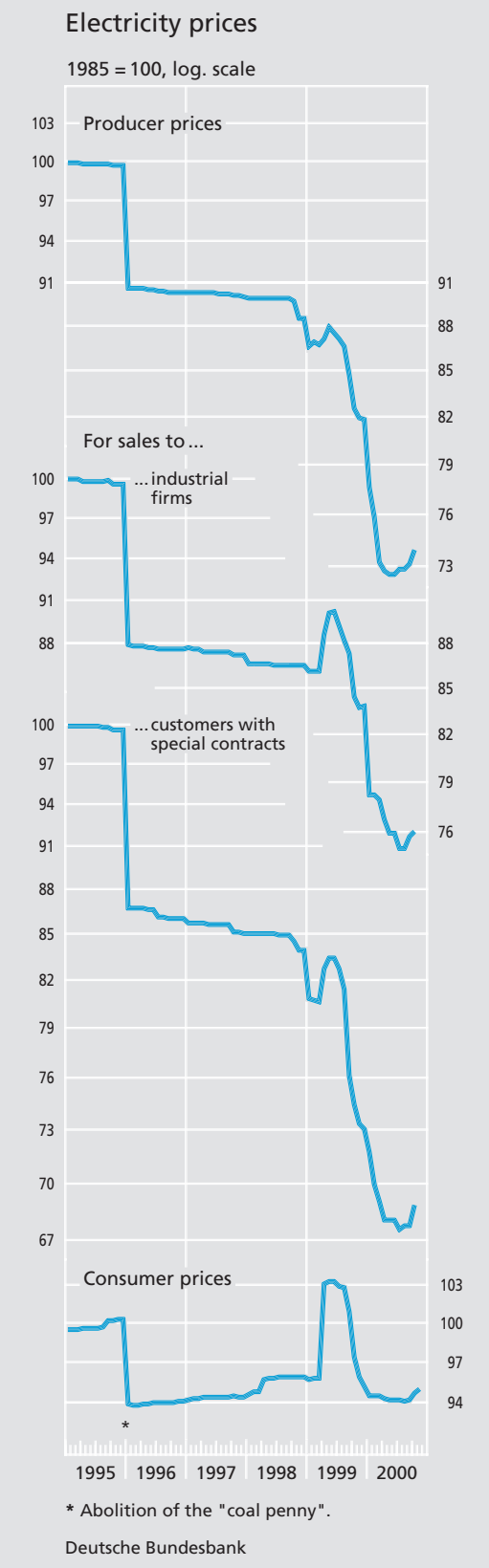
According to the consumer price index for all households, in autumn 2000 electricity prices at the consumer level were just as high as at the beginning of 1998, when liberalisation began. It would, however, be wrong to infer from this that deregulation has so far had no effects at all on prices at the consumer level. Rather, it should be borne in mind that, since then, several government measures have been taken which have pushed up prices. Specifically, those measures were the raising of the value-added-tax rate from 15 % to 16 % as from April 1, 1998 and tax burdens in the context of the ecological tax reform. An electricity tax at the rate of 2 Pfennige per Kilowatt hour was introduced with effect from April 1, 1999. On January 1, 2000 that tax went up by a further 0.5 Pfennig per kWh; further increases by 0.5 Pfennig each have already been approved for the years from 2001 to 2003 under the Act Continuing the Ecological Tax Reform.

The object of the additional energy taxation is "[to raise the price of] energy in moderate steps in order to provide an economic incentive for taking advantage of existing energy-saving potentials, for resorting increasingly to renewable energy sources and for conserving finite resources."[6] Altogether, between 1998 and today, the cost of electricity to households has risen by an estimated one-tenth as a result of tax measures. Against the background of international commitments to reduce the level of CO_2 emissions, further cost-enhancing measures have been taken very recently. For instance, under the Renewable Energies Act, the minimum remuneration for electricity generated by wind power, by solar power, by water power, or by means of tip gas, mine gas, sewage gas or biomass, and fed into the mains, was raised dramatically with effect from April 1, 2000. Moreover, under the Act to Protect the Linking of Power and Heat, which came into effect on May 18, 2000, the protection of such generation for a limited period was introduced, especially among municipal public utilities. The increase in the cost of electricity that has been reflected recently in the consumer price statistics owes something to all these provisions. Whether and, if so, to what extent, the agreement reached between the Federal Government and power station operators on a gradual withdrawal from nuclear energy will have any impact on electricity prices is not clear at present.

Electricity prices for business

Enterprises have benefited distinctly more than households from the price cuts in the wake of deregulation. According to the official statistics on industrial producer prices, electricity prices in that sector in October 2000 were about 17 % lower than at the end of 1997, although government intervention exerted an impact in that area, too. Specifically, customers with special contracts, who normally consume large quantities of electricity, were able to negotiate better-than-average supply conditions. In that case, the statistics show a fall of about one-fifth in prices. For industrial enterprises as a whole, price reductions of around 13 % were registered. In agriculture, by contrast, rates dropped perceptibly less, at only 2 %, al-

6 "The promotion of environmental protection in German tax legislation", in Economic and Financial Reports of the Federal Ministry of Finance, January 2000, p. 10 f.



though this development was rather more favourable than that among households. A feature common to all customers was that the period of declining prices now seems to have tapered off, and has latterly given way to price rises.

Gas market

Measures by the Federal Government

Much as in the electricity sector, the prime stimuli to deregulation in the gas industry came – as mentioned above – from the European Union. In May 1998 the Council of Energy Ministers adopted the EU Gas Directive, in which a gradual opening-up of the markets is laid down. Thereupon the German legislature safeguarded the right to unimpeded network access, as part of the Act Against Restraints to Competition. Moreover, the gas industry was subjected to the general provisions of cartel law, and the special provisions that had applied until then (under which area monopolies were admissible) were revoked. That measure was intended to ensure unimpeded access to natural gas mains, and to permit the free construction of such mains. Under the auspices of the Federal Economics Minister, "ground rules" for the transmission of gas and the level of charges were agreed in a voluntary accord between the associations of suppliers and customers, which rules came into force in the middle of this year and will be effective until the end of September 2001. Hitherto, however, only large-scale customers have been able to take advantage of that accord since the "load profiles" needed for invoicing households have not yet been compiled. In view of the brevity of the period of

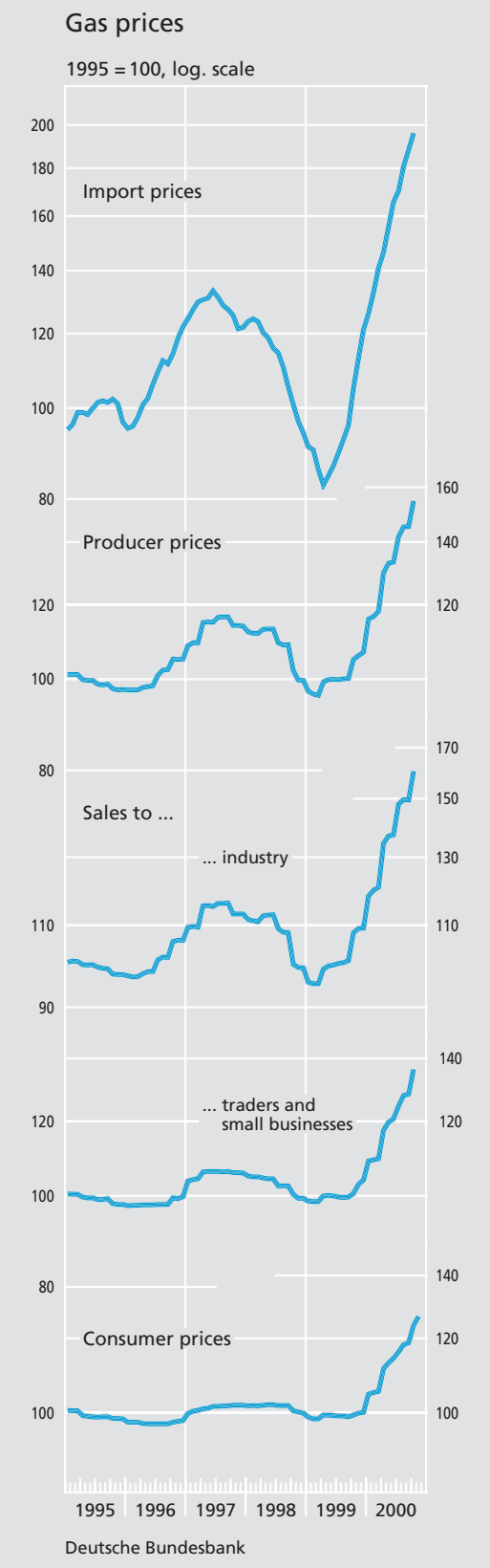
existence of an open market, statements about the price effects of deregulation in this market segment are not yet possible.

Linking of gas prices to heating-oil prices ...

For the pricing of gas, it is fundamentally of significance that the main area of use of this source of energy is the heating market, where it competes primarily with light heating-oil, and partly also with district heating, coal and electricity. For that reason, and because of the heavy investment required in gas mains and gas storage capacities (such investment pays for itself only in the long run), following the advance of gas in the sixties and seventies, gas prices were coupled to the price movements of crude oil or light heating-oil. Another reason why this development was obvious is that many producers supply oil and gas alike, and, in principle, the prices are coupled to each other via a heat equivalent. In connection with deregulation, it follows from this that the level of the raw material price is largely fixed. On the other hand, room for manoeuvre exists, apart from the profit margin, in transport, storage and distribution costs between the numerous suppliers, which are often controlled or licensed by local authorities, whose areas are traditionally distinguished from one another by demarcation contracts.

... complicates price analysis

The coupling of gas prices to heating-oil prices implies that the sometimes sharp fluctuations in oil prices are also reflected in gas prices. Very recently, for instance, there have been some sharp price rises in both sectors. If international oil prices go down again in the course of the coming year in the light of an increasing supply, gas prices will likewise re-



spond in a similar way. It would, however, presumably be difficult to distinguish deregulation influences from oil-price effects. Taking the example of electricity, it has already become evident that distinction is possible only with the aid of ancillary calculations under specific assumptions. Relatively precise computations are possible in the telecommunication sector.