

Michael Böheim

Competition, Competition Policy and Economic Growth

The competition-oriented structural reforms of the 1990s have contributed significantly to the positive development of the Austrian economy. But their impact has weakened lately. New efforts to intensify product market competition will be necessary. Empirical evidence shows that there is plenty of margin in Austria for a growth-oriented competition policy, which is both theoretically and empirically well founded.

Michael Böheim is an economist at WIFO. The author is grateful to Gunther Tichy for useful and constructive comments. The data were processed and analysed with the assistance of Sonja Patsios. • E-mail addresses: Michael.Boeheim@wifo.ac.at, Sonja.Patsios@wifo.ac.at

Market competition takes place as a "process of creative destruction" (*Schumpeter, 1942*) and can be interpreted as a "search and discovery process" (*Hayek, 1968*). Competition as a perpetual search and discovery process for new products, processes and markets ensures that producers are forced to continuously adapt their products and/or processes to changing consumer preferences in order to keep their existing customers or even find new ones. Existing products and processes are challenged by innovations and will be driven out of the market if innovative products and processes fit customer needs better. New markets might develop.

Based on the insights gained from the theoretical model of perfect competition (see Box "Microeconomic Foundations of Competition Policy"), it has been widely recognised that competition is an important force in achieving allocative efficiency, providing incentives for the efficient organisation of production, and pushing forward innovation activities.

According to this line of thought, we can identify three forms of incentives for improved efficiency provided by competition (*Armstrong – Cowan – Vickers, 1995*).

First, competition tends to "select" more efficient firms at the expense of less efficient ones, thus resulting in overall improvements in productivity. In an adaptation of the core principles of Darwin's natural selection theory, it is argued that competition drives enterprises to better adapt to their environment because of threats to their survival. Firms with market power are shielded from this kind of selective competition and can therefore survive without constant efforts to enhance their efficiency. The precise mechanism by which competition fosters the "survival of the fittest" depends upon the nature of the competitive process (*Vickers, 1995*), yet the conclusion is quite robust.

Second, competition provides managerial incentives for the reduction of organisational slack and X-inefficiency (*Leibenstein, 1966*), thereby improving productivity and corporate performance. Darwinian tradition emphasises that competition drives inefficient firms out of the market. The higher the degree of competition, the stronger the pressure to reduce organisational and managerial slack.

Third, one can expect that sharpened incentives (see above) may well lead to productivity improvements, which may be (partly) induced by increased efforts being put into R&D and innovation. The theoretical support for the proposition that competition fosters innovation exists, but this is yet far from conclusive.

**Theoretical
foundations of a
growth-oriented
competition policy**

Microeconomic Foundations of Competition Policy

One of the key paradigms of modern economics is the model of perfect competition. On the basis of simplifying assumptions (complete information, preference neutrality, multitude of both suppliers and consumers with each having only a little share of total supply and demand, respectively, absence of externalities) this model allows for analyses of interactions between consumers and producers and thus the derivation of specific characteristics of markets (Borrmann – Finsinger, 1999).

According to this model, competition guarantees the efficient (Pareto optimal) allocation of scarce resources. Since equilibrium prices are set equal to marginal cost, producers are not able to earn a profit higher than the risk-adjusted normal rate of return. Otherwise, consumers would switch immediately to alternative suppliers and producers would lose all their customers. The efficient allocation of resources means that total welfare (as the sum of consumer and producer surplus) is maximised. Consumers profit immediately through lower prices, better quality and more product variety compared to any situation with imperfect competition (oligopoly, monopoly). The expected long-term effects of competitive markets on the macroeconomic level would be higher levels and/or higher growth rates of innovation and productivity as well as better overall economic performance.

Within the framework of perfect competition ("ideal markets") there is neither the need for regulation nor for competition policy for improving the allocation of resources. An intervention scenario for competition policy presents itself only under imperfect competition - a paradigm that is much closer to reality than the model of perfect competition. Since, however, interactions on markets with imperfect competition are in many cases comparable with those on ideal markets, the model of perfect competition has proven to be a useful point of reference for competition policy.

Since rational producers, however, will strive for higher profits, the competitive equilibrium proves not to be stable - neither in theory nor in real world markets. To foster corporate growth and raise profits above the normal level, producers, in principle, face two alternative routes: on the one hand, the supply of innovative products and, on the other hand, anti-competitive behaviour. Which route the market participants will choose depends crucially on the incentives they face. Given the theoretically derived micro- and macroeconomic benefits of (perfect) competition, society certainly does have a vital interest in the reduction of incentives for anti-competitive behaviour. Since the market mechanism might not automatically deliver perfect competition in real world markets, public competition policy acts as an instrument to correct this kind of market failure. Therefore, the role of competition policy can best be viewed as an attempt to make the latter alternative as unattractive as possible. In this way it is ensured that only innovative entrepreneurs will be able to make higher profits ("temporary monopoly rents").

Competition economics based on this simple model suggests that this can best be done by trying to "implement" (i.e., approximate) the equilibrium solution of perfect competition in real world markets. This recommendation, however, might not always be "best practice", because due to specific industry characteristics (e.g., technology, economies of scale, economies of scope and entry barriers), oligopolistic market structures could be induced. Oligopolistic market structures, however, need appropriate regulation and effective supervision by competition authorities.

During the intense discussion whether competition fosters or hinders growth – a controversy that originally dates back to the early 1940s – two "competing" theories, which are facing each other as thesis and antithesis, have been developed and ambiguous evidence was found on the efficacy of competition. After sixty years of research, economics is now at least able to specify the conditions under which competition will produce better economic performance or, alternatively, cause deterrence of innovation. Deregulation efforts as well as interventions by competition policy aimed at increasing the competition intensity on a market are always moving within the field of tension between positive impulses for economic performance on the one hand and negative incentives for innovative entrepreneurs in the form of reduced monopoly rents on the other hand.

A series of studies in the tradition of principal-agent theory shows that competition induces a firm to be more efficient by reducing its agency problems (Mookherjee, 1984, Willig, 1987, Hermalin, 1992).

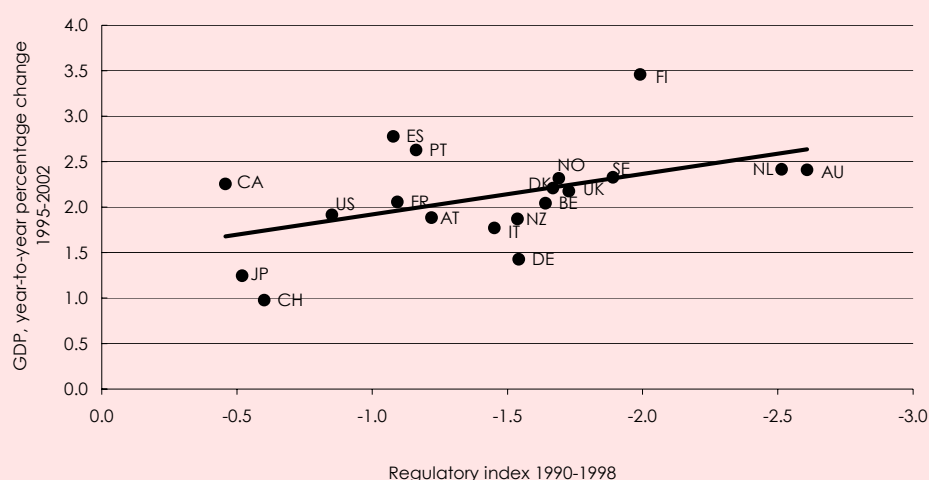
Aghion *et al.* (2001) demonstrate in a model with step-by-step innovation that competition has a positive effect on growth by pointing out that a technological leader in a more competitive industry earns higher profits relative to other firms in the industry due to the "selection effect" of market competition. In this institutional setting, a strong motive for innovation and/or investment in R&D comes from the possibility of escaping from competition with "neck-to-neck" rivals ("escape-competition effect").

Empirical evidence for the Darwinian assumption that competition forces firms to innovate and to be more efficient, thereby raising productivity and enhancing growth, is quite broad (e.g., Nickell, 1996, Blundell – Griffith – Reenen, 1995, Geroski, 1990, 1995).

Porter (2000) found empirical evidence for both the intensity of local competition and the effectiveness of national antitrust policy¹ having a positive relationship with the level as well as the growth rate of GDP per capita. The argument that more competition has a positive impact on growth is also confirmed by the fact that the OECD countries having started to deregulate network industries most ambitiously in the early 1990s enjoyed the highest GDP growth per capita in the late 1990s (see Figure 1).

Thesis: Competition necessitates innovation and boosts economic growth

Figure 1: Higher growth through deregulation



Source: OECD, WIFO calculations. Regulatory index according to Nicoletti – Scarpetta – Boylaud (2000).

Despite the strong empirical support for a positive relation the efficiency between competition and growth remains a controversial issue. According to Schumpeter (1942), an atomistic firm operating in a perfectly competitive market may be a perfect vehicle for static resource allocation, but a large firm with substantial market power is the most powerful engine of progress and long-run expansion of total output.

Schumpeter (1942) identified two effects of market power on innovation. First, he argued that expected ex-post market power, even though it would be transient, induces firms to have an incentive to innovate. If firms expected excessive rivalry after the innovation, they would have little incentive for innovation. Second, Schumpeter also argued that an ex-ante oligopolistic market structure and the possession of ex-

Antithesis: Competition impedes innovation and curbs economic growth

¹ Since "intensity of local competition" and "effectiveness of national antitrust policy" are both qualitative "soft indicators" that have been constructed on the basis of interviews with a sample group of (national) business managers, any far-reaching conclusions derived from these indicators have to be treated with due care.

ante market power are favourable to innovation. This is because it is easier for firms to predict rivals' behaviour under an oligopolistic market structure and therefore there is less uncertainty of excessive rivalry. Schumpeter thought that profit from ex-ante market power could serve as a source of internal financial resources for innovation activity by implicitly assuming an imperfect capital market (Cohen – Levin, 1989).

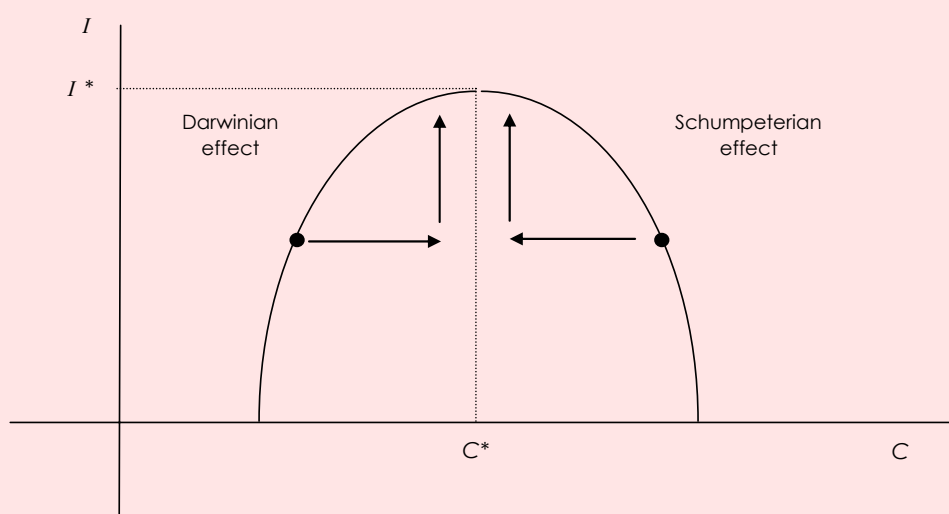
By further exploring Schumpeter's basic propositions in the context of endogenous growth theory (e.g., Aghion – Howitt, 1992, Grossman – Helpman, 1991, Romer, 1990), no compelling evidence for the negative trade-off between competition and growth was found. Schumpeter's results rather proved to be very sensitive to the underlying assumptions (Aghion – Howitt, 1997).

In an attempt to "reconcile" both lines of argumentation, recent research in the Schumpeterian tradition provides evidence that, with the monopoly at one extreme, competition enhances efficiency (only) until a certain level of market concentration is reached, while competition hampers efficiency if it is too intense. This non-monotonic relationship between competition and efficiency (or productivity and growth) is known in the literature as the "inverted U-shape" hypothesis. According to Aghion *et al.* (2002), the relationship between product market competition and innovation is "inverted U-shaped" because at low levels of competition, the "escape-competition effect" tends to dominate while the Schumpeterian effect tends to dominate at higher levels of competition.

The logic of the "inverted U" implies that the effects of a relative change in competition intensity on growth depend on the current level of competition ("Laffer curve" problem; see Figure 2). The combination of Darwinian and Schumpeterian effects leads to an "inverted U-relationship" between competition and growth.

Synthesis: Non-monotonic relationship between competition and innovation, and growth, respectively

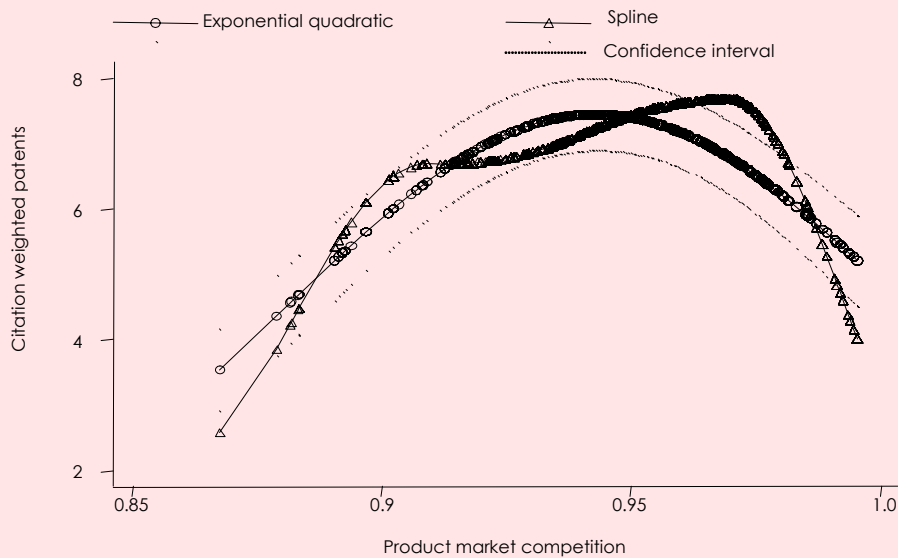
Figure 2: The "inverted U"



Source: Aghion *et al.* (2002), WIFO. – C . . . competition intensity, C^* . . . "optimum" competition intensity, I . . . innovations indicator, I^* . . . "optimum" innovation level.

By using data for UK manufacturing industries, Aghion *et al.* (2002) found that negative "Schumpeterian" effects of competition on innovation (and growth) only materialise at very high competition intensity levels (see Figure 3). According to this research, the escape-competition effect is strongest in industries with a small technology gap ("neck-and-neck" industries) and the appropriability effect is strongest in industries with a large technology gap because of expected larger (temporary) monopoly rents.

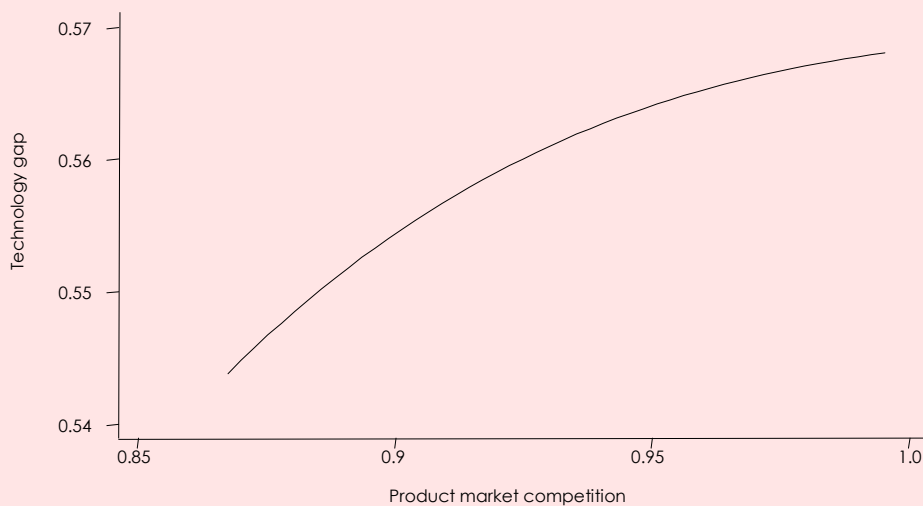
Figure 3: Empirical evidence on the "inverted U"



Source: Aghion et al. (2002), WIFO.

However, in case of really strong competition, not too many industries will remain neck-and-neck (composition effect; see Figure 4). On the other hand, weak competition leads to many industries remaining neck-and-neck, where the escape-competition effect dominates, while strong competition unlevels them, making the appropriability effect dominate ("composition effect", Figure 4).

Figure 4: The composition effect



Source: Aghion et al. (2002), WIFO.

Empirical evidence for the "inverted U" is quite broad and strong (e.g., Scherer, 1967, Scott, 1984, Levin – Cohen – Mowery, 1985, Caves – Barton, 1990, Green – Mayes, 1991, Caves et al., 1992, Aghion et al., 2002).

In recent years, a number of OECD and EU countries have implemented a wide range of structural and regulatory reforms which were based on the theoretical assumption that regulatory and structural reforms of product markets will increase multi factor productivity (MFP) growth. Meanwhile this hypothesis on the efficacy of (de)regulation on (productivity) growth has been substantiated by convincing empirical evidence (Scarpetta *et al.*, 2002, Nicoletti *et al.*, 2001; for a concise review see also Ahn – Hemmings, 2000)².

These structural and regulatory reforms include, i.a., deregulation and liberalisation of product markets (particularly telecommunications, utilities and financial services) as well as privatisation of public enterprises (Nicoletti *et al.*, 2001). Despite several years of intense regulatory reforms, the "friendliness" of the regulatory environment towards product market competition still varies substantially across the OECD countries. The UK, Ireland, Australia and the USA appear to have the least restrictive overall regulatory environment, while the environment in Italy, Greece and Norway is still characterised by comparatively rigid regulations (Nicoletti – Scarpetta – Boylaud, 2000). In international country rankings of economy-wide product market regulation, Austria takes a place in the midfield with more or less average indicator scores (Table 1; Nicoletti – Scarpetta, 2003). Furthermore, the general picture drawn by international comparisons shows that like in other small countries, concentration indices are generally above average in Austria (OECD, 2003).

Product market regulation and competition: empirical evidence for Austria

Table 1: Indicators of product market regulation

	Nicoletti – Scarpetta – Boylaud (1999)		Kaufman – Kraay – Zoido-Lobatón (1999)		Pryor (2002)	
	Scores	Ranks	Scores	Ranks	Scores	Ranks
Australia	0.24	3	0.30	8	0.40	12
New Zealand	0.43	5	0.00	2	0.13	3
Canada	0.54	11	0.41	14	0.24	6
USA	0.28	4	0.09	6	0.62	16
Japan	0.58	12	1.00	21	0.61	15
Germany	0.52	10	0.39	11	0.31	7
France	0.88	18	0.60	18	0.78	19
Italy	1.00	21	0.75	20	0.87	20
Spain	0.64	13	0.42	15	0.58	13
The Netherlands	0.49	7	0.08	4	0.15	4
Belgium	0.80	17	0.50	17	0.74	18
Austria	0.49	8	0.37	10	0.39	11
Portugal	0.70	15	0.39	12	0.65	17
Finland	0.67	14	0.08	5	0.00	1
Greece	0.97	20	0.74	19	1.00	21
Ireland	0.20	2	0.06	3	0.32	8
UK	0.00	1	0.00	1	0.16	5
Sweden	0.49	6	0.43	16	0.37	9
Denmark	0.50	9	0.19	7	0.38	10
Switzerland	0.76	16	0.40	13	0.01	2
Norway	0.97	19	0.34	9	0.60	14
Average	0.58		0.36		0.44	

Source: Nicoletti – Pryor (2001). A higher number indicates a greater degree of regulation. All indices are scaled from 0 to 1; the original indices were, therefore, reversed (when necessary) and rescaled.

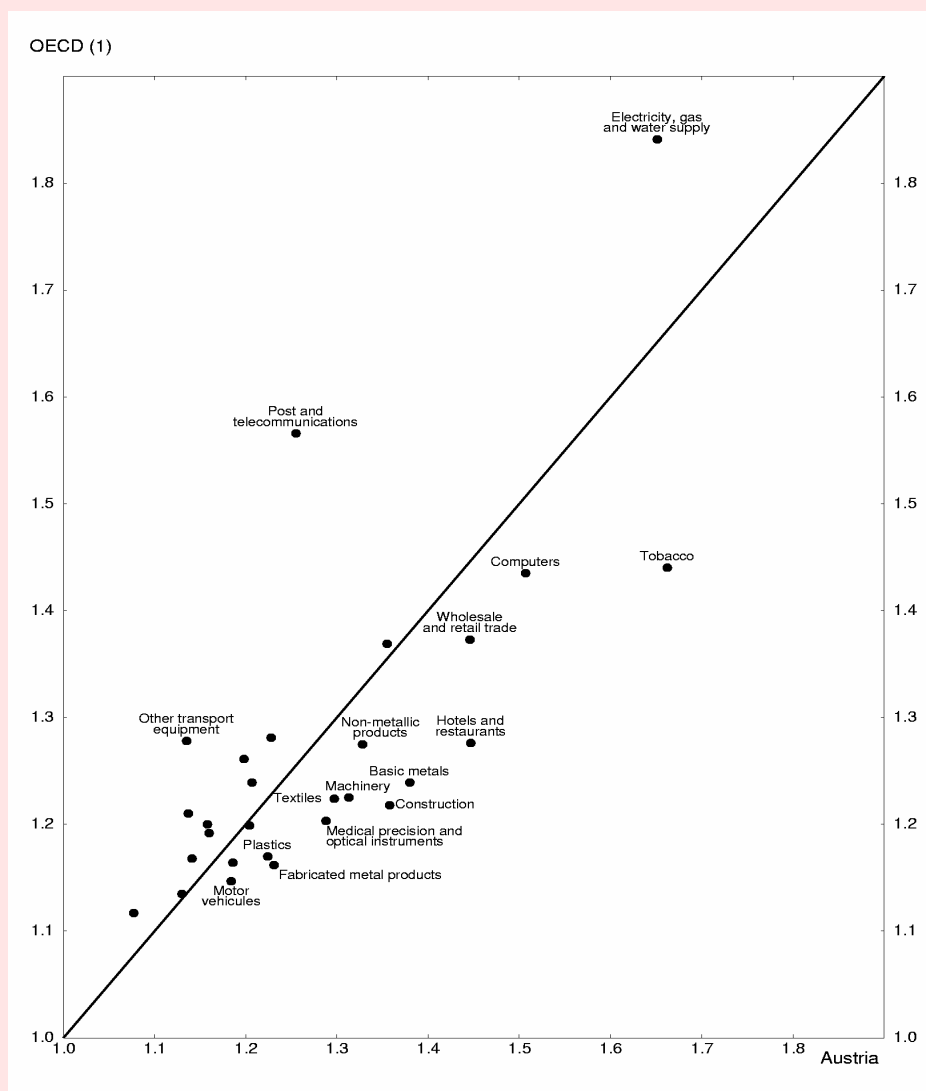
Price-cost margins are estimated to be higher in Austria than the average of a sample of OECD countries in some industries, but lower in others (see Figure 5). Pronounced mark-up reductions attributed to Austria's participation in the Single Market since its EU accession in 1995 were only found in the three industry groups mining

² For instance, using a panel data set of OECD countries for the period 1982-1998, Nicoletti – Scarpetta – Boylaud (2000) find that a significantly negative correlation between MFP growth and a general indicator of product market regulation exists.

and quarrying, wholesale and retail trade as well as financial services and real estate (Badinger – Breuss, 2004)³.

Figure 5: Industry-level mark-ups in Austria and other countries

From 1981 to the latest available year



Source: OECD, STAN database. OECD estimates based on the Roeger method. - ¹ Average of Austria, Belgium, Canada, Finland, France, Germany, Italy, Japan, the Netherlands, UK and USA.

Above-average mark-ups can be found mainly in non-manufacturing industries such as retail distribution, hotels and restaurants. In manufacturing, the steel and the tobacco industry are sectors with particularly high mark-ups. In the case of the steel industry above-average mark-ups are less an indicator for a low competition intensity on the home market than an indicator for the successful positioning of the former state-owned enterprises (VOEST Alpine, Boehler-Uddeholm) as quality suppliers on the world markets. On the contrary, the now privatised Austria Tabak is still protected by granted national monopoly rights in the retail distribution of tobacco products. The Austrian tobacco monopoly act prevents any competition on the retail level by fixing retail prices through wholesale prices which require approval by the Federal Ministry of Finance as well as legally granted margins for the retailers. This regime of simple fixed mark-up retail pricing does not provide enough incentives for

³ At the more disaggregate level, the picture is mixed since both increases and reductions in market power were found; for details see Badinger – Breuss (2004).

competitive pricing on the wholesale level which might at least partly explain the far above-average mark-ups of this sector in Austria⁴.

For the lower than average mark-ups in some network industries (telecommunication, electricity, gas and water supply) there is no unambiguous interpretation.

On the one hand, below-average mark-ups in some network industries could be interpreted as empirical evidence of successful deregulation and liberalisation processes (OECD, 2003). Selected Eurostat structural indicators also confirm this story of successful deregulation in network industries. This is especially valid for Austrian energy and telecommunication markets where prices have decreased substantially since the mid 1990s – although one has to take into consideration that the starting price levels were amongst the highest in Europe.

Empirical Measurement of Competition Intensity

Empirical measurement of competition draws on a broad array of indicators including similarities and convergence of price structures, differences in price levels as well as estimates of the levels and trends of market shares and profit margins. In influencing the competition intensity of a market by determining entry costs, product market regulation can serve as an additional competition indicator. Only the combined analysis of all available competition indicators provides a reliable assessment of the competition intensity of a market.

On the other hand, small mark-ups are no compelling evidence for effective market competition. Instead they can also indicate low pressure for rationalisation and profit maximisation from the company owners – a scenario which leaves plenty of room for managers to pursuing their own interests and maximising their rents at owners' costs. A scenario of public ownership which is "uninterested" in profit maximisation and instead gives "security" and "provision" of customers and employees top priority by willingly accepting excessively high costs, is an apt description of the actual situation in Austria where public utilities were too long protected by monopoly rights granting them unlimited market power. In the absence of profit orientation, high mark-ups were not necessary from the viewpoint of the monopolists, because consumer rents could easily be siphoned off by passing on excessive costs to consumers.

Together with the UK, Italy, Spain, the Netherlands and Germany, Austria is one of only six EU countries where both electricity (in Austria since 1 October 2001) and gas (in Austria since 1 October 2002) markets are already fully liberalised (*E-Control*, 2003) – long before the final deadline (1 July 2007) set by the European Commission.

**No effective competition
on energy markets
despite liberalisation**

Table 2: Effects of energy market liberalisation in Austria

2002	
	Differences to baseline ¹ , percent
<i>Electricity</i>	
Prices for industry	- 42.2
Prices for households	- 17.5
Overall electricity price	- 29.4
<i>Gas</i>	
Prices for industry	- 14.4
Prices for households	- 4.0
Overall gas price	- 9.3

Source: *Kratena* (2004). – ¹ Hypothetical scenario without liberalisation.

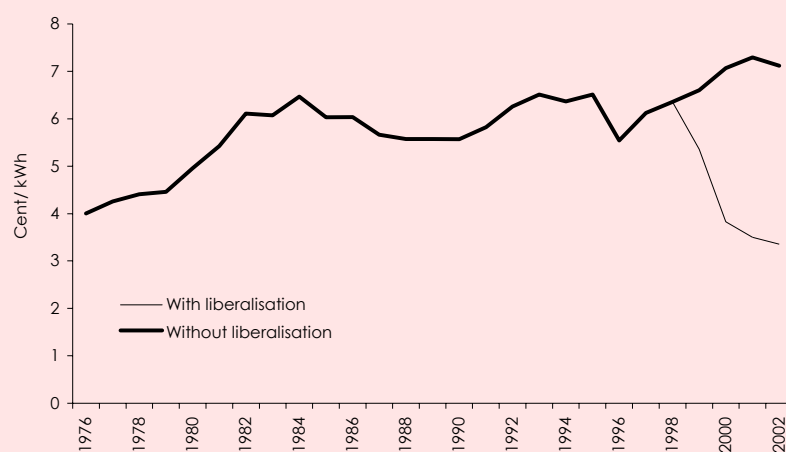
Industrial users as well as households could profit substantially from the liberalisation of Austrian energy markets, the former group, however, significantly more than the latter: prices of electricity and natural gas are about 40 percent and 15, respec-

⁴ Due to granted monopoly rights on the retail level which radiate onto the wholesale level, Austria Tabak was a highly profitable enterprise before privatisation which had the serious potential of becoming an Austrian "national champion" through successful expansion abroad from a strong home base. Instead the majority state-owned company was sold to the British Gallaher group, which still enjoys the same monopoly privileges and protected monopoly profits in Austria.

tively, lower for industrial users compared to a baseline scenario without liberalisation of energy markets. The same price effects for household amount to less than 20 percent for electricity and just 4 percent for natural gas (Kratena, 2004; Figures 6 and 7, Table 2).

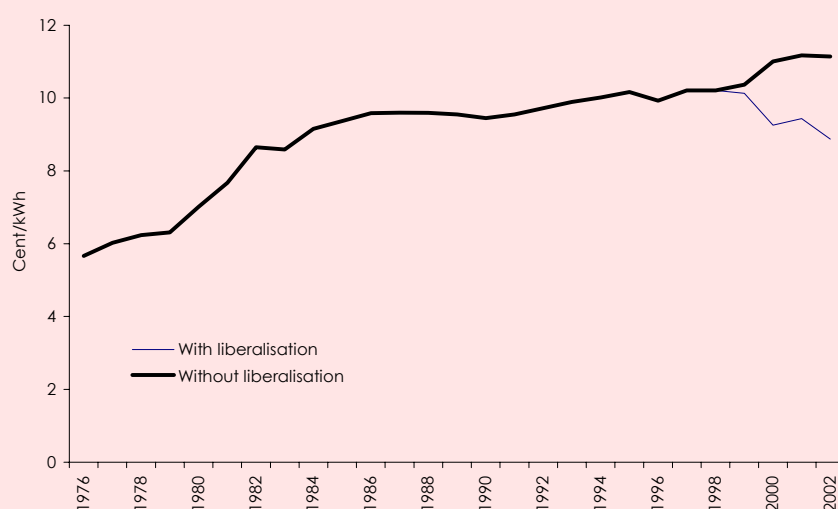
Price reductions for consumers were to a large extent compensated by increased public duties and taxes as well as network fees which leave plenty of room for reductions from the viewpoint of the Austrian energy regulation authority E-Control.

Figure 6: Net price of electricity for industrial users in Austria with and without market liberalisation



Source: Kratena (2004).

Figure 7: Net price of electricity for households in Austria with and without market liberalisation



Source: Kratena (2004).

Despite a strong increase of market concentration in the electricity markets in Austria (Table 3) mainly due to the merger of five regional suppliers to a market dominating enterprise (Energie Allianz), prices of electricity have developed more in favour of both private and industrial end users than in many other EU countries.

Table 3: Market share of the largest generator in the electricity market

	1999	2000 In percent	2001	2001 1999 = 100
UK	21.0	20.6	22.9	109.0
Finland	26.0	23.3	23.0	88.5
Germany	28.1	34.0	32.0	113.9
Austria	21.4	32.6	34.4	160.7
Denmark	40.0	36.0	39.0	97.5
Spain	51.8	42.4	43.8	84.6
Italy	71.1	46.7	45.0	63.3
Sweden	52.8	49.5	48.5	91.9
Portugal	57.8	58.5	61.5	106.4
France	93.8	90.2	90.0	95.9
Belgium	92.3	91.1	92.6	100.3
Ireland	97.0	97.0	96.6	99.6
Greece	98.0	97.0	98.0	100.0
EU 15	57.78	55.30	55.95	96.8

Source: Eurostat, WIFO calculations.

Against widely-held expectations, increasing market concentration has at least not until the year 2003 resulted in rising electricity prices for households (Table 4) and industrial users (Table 5). In addition, prices for natural gas in Austria have increased very moderately compared to other EU countries and are now roughly in line with the EU average (Tables 6 and 7).

Recent mergers in the energy sector – the "Austrian gas and electricity solutions" that were heavily promoted by Austrian political establishment despite serious objections from competition economists (Böheim, 2003) – may, however, put the economic benefits from the liberalisation of energy markets seriously at risk.

Table 4: Electricity prices for households

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2004 1996 = 100
	€ per kWh, without taxes									
Greece	0.0609	0.0619	0.0627	0.0622	0.0564	0.0564	0.0580	0.0606	0.0621	102.0
Finland	0.0770	0.0727	0.0706	0.0656	0.0645	0.0637	0.0697	0.0738	0.0810	105.2
UK	0.0876	0.0971	0.1039	0.0966	0.1056	0.0996	0.1031	0.0959	0.0837	95.5
Spain	0.1092	0.1050	0.0946	0.0929	0.0895	0.0859	0.0859	0.0872	0.0885	81.0
Sweden	0.0675	0.0675	0.0673	0.0653	0.0637	0.0629	0.0701	0.0838	0.0898	133.0
Denmark	0.0646	0.0639	0.0673	0.0681	0.0718	0.0781	0.0865	0.0947	0.0915	141.6
Austria	0.1032	0.0984	0.0969	0.0979	0.0949	0.0945	0.0932	0.0926	0.0981	95.1
EU 15	0.1100	0.1081	0.1073	0.1050	0.1031	0.1027	0.1033	0.1034	0.1030	93.6
The Netherlands	0.0869	0.0877	0.0868	0.0884	0.0938	0.0978	0.0923	0.0970	0.1031	118.6
Ireland	0.0717	0.0816	0.0795	0.0795	0.0795	0.0795	0.0883	0.1006	0.1055	147.1
Belgium	0.1237	0.1191	0.1186	0.1182	0.1171	0.1184	0.1137	0.1120	0.1145	92.6
Luxembourg	0.1090	0.1071	0.1060	0.1076	0.1056	0.1120	0.1148	0.1191	0.1215	111.5
Germany	0.1320	0.1270	0.1256	0.1277	0.1191	0.1220	0.1261	0.1267	0.1259	95.4
Portugal	0.1259	0.1278	0.1250	0.1201	0.1194	0.1200	0.1223	0.1257	0.1283	101.9
Italy	0.1508	0.1671	0.1682	0.1570	0.1500	0.1567	0.1390	0.1449	0.1434	95.1
France	0.1022	0.1005	0.0962	0.0949	0.0928	0.0914	0.0923	0.0890	.	.

Source: Eurostat, WIFO calculations. This indicator presents electricity prices charged to final domestic consumers, which are defined as follows: annual consumption of 3,500 kWh of which 1,300 kWh is overnight (standard dwelling of 90 m²).

This is the case because of the existence of quasi-monopolistic market structures at the national level. Some public utilities were very successful not only in preserving but also in extending their position as quasi-monopolists beyond market liberalisation through vertical and horizontal integration of the value chain. The anticompetitive effects of vertical integration could be contained relatively easily by (legal) "unbundling", i.e., the separation between ownership of network infrastructure and sales of electricity and gas. Another pending problem which is very difficult to get a grip on

after mergers have been cleared is horizontal concentration in Austrian energy markets, i.e., public utility firms dominating the entire market by controlling both main sources of energy (electricity and gas), thereby restricting substitution possibilities for end users.

Table 5: Electricity prices for industrial users

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2004 1996 = 100
	€ per kWh, without taxes									
UK	0.0544	0.0604	0.0627	0.0619	0.0664	0.0661	0.0614	0.0539	0.0478	87.9
Sweden	0.0413	0.0430	0.0392	0.0348	0.0375	0.0313	0.0310	0.0666	0.0520	125.9
France	0.0650	0.0635	0.0596	0.0583	0.0567	0.0557	0.0562	0.0529	0.0533	82.0
Spain	0.0756	0.0703	0.0620	0.0624	0.0636	0.0550	0.0520	0.0528	0.0538	71.2
Finland	0.0481	0.0414	0.0401	0.0389	0.0377	0.0372	0.0401	0.0566	0.0543	112.9
Greece	0.0571	0.0580	0.0588	0.0583	0.0571	0.0571	0.0590	0.0614	0.0630	110.3
Denmark	0.0473	0.0467	0.0512	0.0485	0.0504	0.0558	0.0639	0.0697	0.0631	133.4
EU 15	0.0689	0.0679	0.0663	0.0636	0.0625	0.0644	0.0620	0.0647	0.0636	92.3
Portugal	0.0756	0.0749	0.0712	0.0646	0.0643	0.0651	0.0665	0.0673	0.0684	90.5
Luxembourg	0.0747	0.0737	0.0725	0.0736	0.0709	0.0632	0.0645	0.0675	0.0690	92.4
Germany	0.0906	0.0845	0.0830	0.0791	0.0675	0.0669	0.0685	0.0697	0.0740	81.7
Belgium	0.0775	0.0746	0.0746	0.0739	0.0734	0.0752	0.0760	0.0764	0.0755	97.4
Ireland	0.0615	0.0691	0.0662	0.0662	0.0662	0.0662	0.0836	0.0762	0.0787	128.0
Italy	0.0638	0.0713	0.0721	0.0646	0.0693	0.0919	0.0776	0.0826	0.0790	123.8
The Netherlands	0.0608	0.0570	0.0566	0.0576	0.0669	0.0640	.	.	.	.
Austria	0.0814	0.0765	0.0755	0.0763	.	.	.	.	.	.

Source: Eurostat, WIFO calculations. This indicator presents electricity prices charged to final industrial consumers, which are defined as follows: annual consumption of 2,000 MWh, maximum demand of 500 kW and annual load of 4,000 hours.

Table 6: Gas prices for households

	1996	1997	1998	1999	2000	2001	2002	2003	2003 1996 = 100
	€ per GJ, without taxes								
UK	5.52	6.32	6.75	5.98	6.65	6.27	6.63	6.56	118.8
Luxembourg	5.62	5.75	5.76	5.29	5.68	7.63	6.64	6.91	123.0
Ireland	6.97	7.64	7.23	7.35	7.28	7.28	7.27	7.27	104.3
The Netherlands	5.82	6.23	6.16	5.72	5.62	6.31	7.03	8.17	140.4
Denmark	.	.	.	6.01	8.95	10.96	7.53	8.33	.
EU 15	6.64	7.22	7.34	6.81	7.24	8.49	8.42	8.37	126.1
Belgium	6.86	6.92	7.03	6.46	7.44	9.45	8.34	8.58	125.1
Austria	8.61	8.33	7.72	7.80	7.80	8.78	8.78	8.85	102.8
Germany	6.85	7.11	7.00	6.64	6.93	9.65	9.24	8.93	130.4
France	7.27	7.23	7.67	7.36	6.99	8.44	9.19	9.06	124.6
Sweden	.	7.21	7.24	6.79	7.63	9.13	9.63	9.85	.
Italy	7.80	9.00	8.84	8.05	8.79	11.07	9.95	9.86	126.4
Spain	9.28	9.16	9.10	8.85	9.15	11.06	10.46	10.43	112.4
Portugal	.	.	.	.	.	13.68	13.19	12.70	.
Finland	5.01	5.48	7.12	6.58	.	.	.	.	.

Source: Eurostat, WIFO calculations. This indicator presents the natural gas prices charged to final domestic consumers, which is defined as follows: annual consumption of 83.7 GJ (equipment: cooking, water heating and central heating).

Warnings issued recently by the energy regulator concerning concerted price hikes of the majority of electricity and natural gas suppliers seem to confirm these objections. Moreover in the meantime serious reservations concerning the negative effects of market concentration on prices have been expressed also by politicians who formerly were strongly in favour of Austrian "national champions" in the energy sector. In any case, a sustainable capture of the "liberalisation dividend" calls for interventions of the energy regulator with the goal of closing the gap between network fees and necessary cost as well as effective supervision of the sector by the competition authority directed at preventing abuses of market power.

Table 7: Gas prices for industrial users

	1996	1997	1998	1999	2000	2001	2002	2003	2003 1996 = 100
	€ per GJ, without taxes								
Spain	3.14	3.73	3.67	2.84	4.05	5.54	4.34	4.81	153.2
UK	2.60	2.89	3.18	3.15	3.53	4.01	5.42	4.87	187.3
Ireland	2.93	3.83	2.96	3.09	3.59	4.65	4.88	4.94	168.6
Denmark	3.42	4.03	3.59	2.65	4.59	5.99	4.49	5.26	153.8
Italy	3.58	4.42	4.23	3.48	4.14	6.58	5.87	5.38	150.3
Belgium	3.97	4.16	4.25	3.46	4.42	6.32	5.25	5.42	136.5
France	3.39	3.58	3.70	3.39	4.29	5.94	4.93	5.46	161.1
Austria	4.84	4.59	4.23	4.23	3.53	5.53	5.62	5.46	112.8
EU 15	3.60	4.03	4.03	3.49	4.22	6.12	5.75	5.56	154.4
Luxembourg	4.86	5.01	5.03	4.69	4.94	6.89	5.90	6.17	127.0
Finland	3.15	3.98	3.62	2.51	4.53	7.08	6.18	6.37	202.2
Portugal	.	.	.	.	.	6.88	6.26	6.39	.
Germany	4.41	4.96	4.98	4.21	4.78	7.76	7.28	6.73	152.6
Sweden	.	4.86	4.59	3.37	5.07	9.53	5.93	6.80	.
The Netherlands	3.38	3.72	3.72	3.09	4.06	5.40	.	.	.

Source: Eurostat, WIFO calculations. This indicator presents the natural gas prices charged to final industrial consumers, which are defined as follows: annual consumption of 41,860 GJ, and load factor of 200 days (1,600 hours).

The deregulation in the telecommunication sector is expected to lead to a better diffusion of ICT through lower access prices to telecom services and thus higher overall economic growth (Leo, 2002). The deregulation experience in Austria has many facets, but in general, it can be considered a success. Through intensive promotion of service competition in fixed-line telecommunication, Austria has managed to decrease telecommunication costs – measured by a combined indicator for both local and long distance fixed-line calls – by more than 70 percent albeit from the highest level of all EU countries in the mid-1990s (Table 8). This substantial price decrease is only due to lower rates for long-distance calls. In Austria, rates for fixed-line local calls remain the highest of all EU countries. Due to strong competition from alternative telecom providers, however, the market share of the incumbent Telekom Austria is now the second lowest in Europe – just a fraction higher than Telekom in Finland – but still well beyond the threshold of the Austrian cartel act (30 percent), indicating a dominante position on the market (Table 9).

The Austrian regulatory regime in the telecommunication sector still fosters alternative telecommunication service providers without own infrastructure. Compared with these, telecoms with own infrastructure (Telekom Austria, UTA) are put at a disadvantage. A shift from this regulation practice, however, would only be indicated in the case of capacity bottlenecks – a scenario which is not emerging yet.

**Substantial price
reductions for
telecommunication
services**

Table 8: Fixed-line telecommunication – prices

	1997	2003	2003 1997 = 100
	In €, 10 minutes local and 10 minutes national (long distance) call		
Sweden	1.10	0.60	54.5
Luxembourg	0.74	0.62	83.8
Denmark	1.43	0.74	51.7
The Netherlands	1.29	0.82	63.6
Greece	3.90	1.08	27.7
Finland	1.05	1.11	105.7
Belgium	2.70	1.12	41.5
Spain	3.43	1.16	33.8
Austria	4.36	1.23	28.2
Portugal	3.50	1.27	36.3
Ireland	3.35	1.33	39.7
France	2.60	1.35	51.9
EU 15	2.74	1.39	50.7
Italy	2.57	1.47	57.2
Germany	3.31	1.64	49.5
UK	2.11	1.69	80.1

Source: Eurostat, WIFO calculations.

Table 9 Fixed-line telecommunication – market shares of market leader

	2001	2002
	Percent	
Finland	32.0	44.6
Austria	50.0	45.0
UK	48.0	51.9
Sweden	69.0	58.0
France	62.0	59.6
Ireland	59.0	59.6
Germany	64.0	60.0
Denmark	74.0	67.4
Italy	73.0	69.2
EU 15	71.3	69.6
The Netherlands	76.0	75.0
Luxembourg	88.6	80.0
Spain	84.0	80.2
Belgium	84.5	81.3
Portugal	90.0	90.9
Greece	99.0	95.0

Source: Eurostat, WIFO calculations.

The importance of the liberal professional service sector for the competitiveness of an economy is undisputed. Although the liberal professions deliver important inputs to many industries, which, of course, are interested in reasonably priced high-quality professional services, competition in this sector is still very limited.

In contrast to other sectors of the economy, the liberal professions have so far largely been left unaffected by deregulation. Price fixing, recommended prices, advertising regulations, entry requirements and reserved rights as well as regulations governing business structure and multi-disciplinary practices are the most common restrictions to competition (*European Commission, 2004, p. 5*), some of which are questioned by liberal professions themselves (e.g., advertising restrictions) and some of which may be justified with reference to quality assurance (e.g., educational standards). The realisation of a single European market for services including the liberal professions ranks currently very high on the economic policy agenda of the EU.

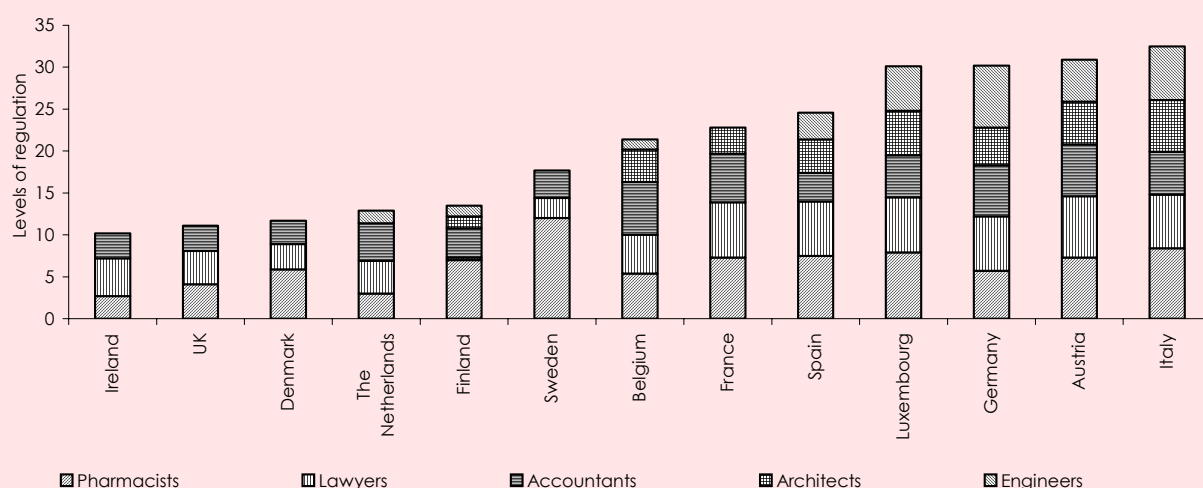
Liberal professions: High level of regulation in Austria is only exceeded in the EU 15 by Italy

In Austria the regulation of liberal professions is especially pronounced – within the EU 15 only Italy applies stricter regulations.

It is expected that greater variety concerning prices and quality of liberal professional services as well as more innovation might make a significant contribution to the improvement of corporate competitiveness (*European Commission, 2004, p. 9*). In countries with lower levels of regulation, employment as well as value added show a significantly better performance than in countries with tighter regulative frameworks (*Paterson – Fink – Ogus, 2003*). Thus the welfare enhancing effect of deregulation can be expected to be well above average in countries with high levels of regulation. On the basis of the deregulation initiative by the European Commission appropriate liberalisation and deregulation measures in the field of liberal profession are also at last in preparation in Austria.

A comparative study identified these kinds of anti-competitive regulations and practices as a more or less EU-wide phenomenon (*European Commission, 2004*). Nevertheless, compared to other EU member states, this problem seems to be especially severe in Austria, since Austria placed second in an EU ranking of the most highly regulated countries in liberal professions (Figure 6).

Figure 8: Regulation of liberal professions in the EU
2003



Source: *European Commission (2004)*. Greece and Portugal are not included because of a lack of data on certain professions.

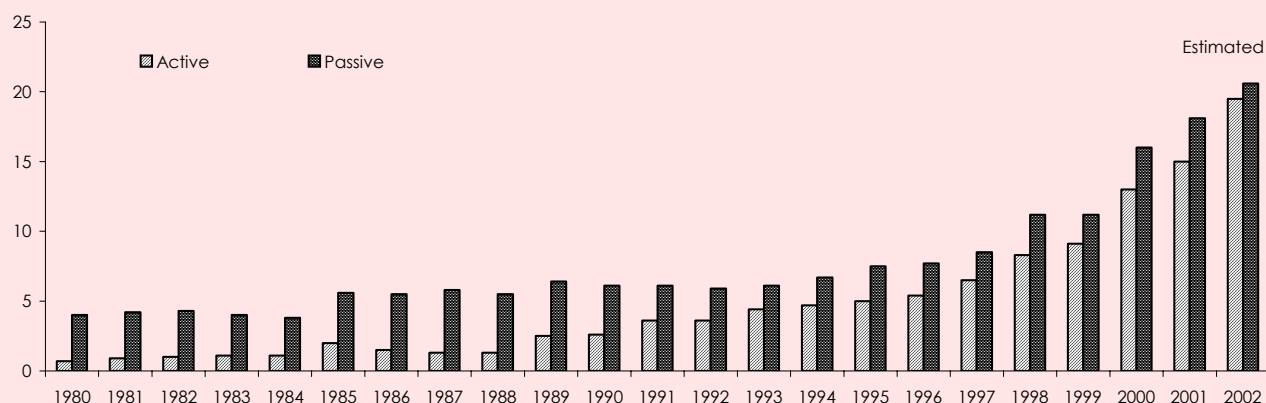
In summary, we can conclude that there is clear evidence for an invigoration of product market competition in Austria during the 1990s through closer international integration. The comparatively sharp rise in import penetration since the 1990s has probably been spurred by the preparation for the EEA (from 1993) and subsequent full EU membership (from 1995) as well as participation at the EMU (from 1999), which imposed comprehensive competition-oriented structural reforms.

Since the beginning of the 1990s the internationalisation of the Austrian economy has been progressing in line with the globalisation of the world economy through increasing active as well as passive foreign direct investments (FDI; *Federal Ministry of Economics and Labour, 2004*). Recently (2002), both active and passive FDI stocks reached an all-time-high of 20 percent of GDP. Since the year 1990 active FDI stocks have increased nearly sixfold, whereas passive FDI stocks have more than tripled (Figure 9).

**The Austrian economy
profits from the
stimulation of product
market competition**

Figure 9: Austrian FDI stocks

As a percentage of Austrian GDP



Source: Federal Ministry of Economics and Labour (2004).

Austrian consumers profit from internationalisation and the step-by-step realisation of the European single market in form of a reduction in the level of relative prices. While consumer prices in Austria (measured in PPP) in 1995 have been around 13 percent higher than the average of the EU 15, this gap has shrunk to just 2 percent in the year 2002 (Table 10).

Table 10: Relative price levels

	1995	1996	1997	1998	1999	2000	2001	2002 prov.	2002 1995 = 100
	Purchasing Power Parity (PPP)								
Portugal	71.7	72.3	71.3	71.4	71.2	70.6	72.0	73.5	102.5
Greece	79.9	83.0	84.3	81.5	83.4	80.8	81.6	79.7	99.7
Spain	84.1	85.9	83.6	83.1	81.3	81.8	82.1	82.4	98.0
Italy	82.4	91.0	91.9	91.0	90.7	90.4	92.2	94.6	114.8
Belgium	109.5	105.1	102.5	102.3	104.1	101.8	99.2	98.7	90.1
France	113.7	112.2	105.8	105.0	104.9	102.9	101.8	99.7	87.7
Luxembourg	110.7	106.0	103.0	102.5	98.1	97.1	99.4	99.7	90.1
EU 15	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Austria	112.8	108.4	104.0	103.5	100.4	98.2	99.0	101.6	90.1
The Netherlands	105.8	102.4	99.0	99.4	100.7	100.2	100.3	101.8	96.2
Germany	114.6	109.6	105.8	105.3	104.0	101.6	103.3	104.0	90.8
UK	85.3	86.1	100.2	104.0	107.3	112.8	110.3	107.5	126.0
USA ¹	84.2	85.5	95.1	96.2	100.1	114.6	118.9	113.4	134.7
Sweden	120.2	129.1	126.8	122.9	120.2	121.9	113.0	117.3	97.6
Ireland	94.8	98.1	101.7	100.2	103.6	107.4	112.0	118.4	124.9
Finland	129.4	123.5	119.6	118.3	119.1	118.3	118.5	122.7	94.8
Denmark	133.7	131.1	126.9	125.7	123.1	123.0	126.2	130.7	97.8

Source: Eurostat, WIFO calculations. – ¹ Estimated value.

Under this altered framework the Austrian economy has developed satisfactorily in the 1990s, but has recently shown signs of weakness. In order to preserve the favourable growth record of the 1990s – not to mention reaching again the extraordinary growth rates of the 1970s and 1980s – additional competition-enhancing policy measures seem to be advisable (OECD, 2003).

Reflections Concerning the Innovation and Growth Maximising Competition Intensity

The core value of competition policy is the protection of free market competition. Thus, competition policy must leave as little room for anti-competitive practices as possible. If anti-competitive behaviour is sanctioned and therefore unattractive, competition intensity is kept high and firms are forced to find other strategies to earn higher profits, i.e., firms have to innovate. By continuously forcing firms to innovate, competition is inducing a permanent "search and discovery process" (Hayek, 1968) resulting in better overall economic performance and growth.

Since empirical evidence on the relationship between competition and growth is not unambiguous, there is no simple general formula for competition policy makers to follow.

What, however, can be concluded from theoretical and empirical research of the last sixty years, is the existence of a "virtual" optimum of competition intensity (C^*) that maximises efficiency, innovation and growth. This "inverted U-shaped" relationship demands different policy measures depending on which side of the optimum a market lies. For markets with competition intensities below the optimum ($C < C^*$), more competition would induce positive effects on growth. For markets beyond the optimum ($C > C^*$), the exact opposite would be the case.

The competition intensity optimum C^* will vary by industries and over time. The identification of the competition intensity optimum C^* is a more or less difficult empirical problem, depending on the data available (Aghion *et al.*, 2002).

Empirical research, however, has found that the competition intensity optimum can be found at comparably high levels of competition intensity. According to Aghion *et al.* (2002), innovative activities measured as patents weighted by the number of citations reached their maximum in UK manufacturing industries with competition intensities (between $C = 0,90$ and $C = 0,95$) not far below perfect competition ($C = 1$). International comparisons in form of "competition intensity benchmarkings" might therefore serve as a valuable tool in assessing the competitive environment of markets thereby laying the foundations for a sound derivation of adequate competition policy measures.

This section concludes with some basic recommendations of particular relevance to Austria that can be drawn from theoretical research and empirical evidence (Böheim, 2002, Seong, 2002, Tichy, 2001).

First, competition policy should not be aimed at perfect competition per se. It should, however, be kept in mind that it is the rare exception that markets develop better if oligopolistic market structures are tolerated by referring to specific industry characteristics (technology, economies of scale and scope and entry barriers). Since "fine tuning" of oligopoly is a very difficult task – if not impossible at all – competition policy should generally steer away from it. If, however, oligopolistic market structures are indicated, both theoretical research and empirical evidence are clearly in favour of "wide oligopolies", i.e., markets with more than five independent competitors with relevant market share.

Second, competition policy has to take a dynamic approach, balancing both short-term and long-term effects. Thus, dealing with a situation when higher competition ex ante could lead to more concentration ex post is not a trivial problem of competition policy.

Third, competition policy should concentrate on cases where monopoly positions have been achieved and maintained through excluding (potential) competitors, restraining trade, or other anti-competitive measures. Market power that has been attained and is maintained through skill, foresight, and diligence without performing anti-competitive measures does not present an intervention scenario for competition policy.

Fourth, relatively dispersed markets are not the main target of competition policy enforcement. Competition policy tends to be applied to highly concentrated mar-

Many degrees of freedom for a growth-oriented competition policy in Austria

kets. Thus, the focus of competition policy should be on "quasi-monopoly" and "narrow oligopoly", i.e., markets with fewer than five independent competitors with relevant market share. Both game theory (*Selten*, 1973) and empirical research (*Bresnahan – Reiss*, 1991) proved that these market structures foster collusive and anti-competitive behaviour. Thus, in highly concentrated markets, the potential rewards from effective antitrust policy are not only expected to be substantial, but also receives strong theoretical and empirical support.

Fifth, empirical research showed that negative effects of competition on innovation and growth only materialise at very high competition intensity levels. Consequently, the field of activity for growth-supporting competition policy measures seems to be rather wide. This is especially true for small open economies like Austria with some very highly concentrated markets (quasi-monopolies, narrow oligopolies): in many cases market concentration and market power is not the economically justified outcome of outstanding corporate innovation activities but rather the result of misguided industrial and competition policy which neglected the effective control of mergers in the endeavour of promoting other policy goals (creating "Austrian national champions"⁵, safeguarding employment, etc.).

- Aghion, P., Bloom, N., Blundell, R., Griffith, R., Howitt, P., "Competition and Innovation: An Inverted U-Relationship", The Institute of Fiscal Studies, 2002, (WP02/04), <http://www.ifs.org.uk/workingpapers/wp0204.pdf>.
- Aghion, P., Harris, C., Howitt, P., Vickers, J., "Competition, Imitation and Growth with Step-by-Step Innovation", *Review of Economic Studies*, 2001, 68, pp. 467-492.
- Aghion, P., Howitt, P., "A Model of Growth through Creative Destruction", *Econometrica*, 1992, 60, pp. 323-351.
- Aghion, P., Howitt, P., "A Schumpeterian Perspective on Growth and Competition", in Kreps, D. (Ed.), *Advances in Economics and Econometrics*, Cambridge University Press, 1997, pp. 279-317.
- Ahn, S., Hemmings, P., "Policy Influences on Economic Growth in OECD Countries: An Evaluation of the Evidence", OECD Economics Department, Working Paper, 2000, (246), http://www.oecd.org/LangAbstract/0,2546,en_2649_37451_1884974_1_1_1_37451,00.html.
- Armstrong, M., Cowan, S., Vickers, J., *Regulatory Reform – Economic Analysis and British Experience*, M.I.T. Press, Cambridge, MA, 1995.
- Badinger, H., Breuss, F., "Has Austria's Accession to the EU Triggered an Increase in Competition? A Sectoral Markup Study", WIFO Working Papers, 2004, (220). http://publikationen.wifo.ac.at/pls/wifosite/wifosite.wifo_search.get_abstract_type?p_language=1&pubid=25007&pub_language=-1&p_type=1.
- Blundell, R., Griffith, R., Reenen, J.V., "Dynamic Count Data Model of Technological Innovations", *Economic Journal*, 1995, 105, pp. 333-344.
- Böheim, M., "Austrian Competition Policy: Quo Vadis?", *Austrian Economic Quarterly*, 2002, 7(4), pp. 176-190. http://publikationen.wifo.ac.at/pls/wifosite/wifosite.wifo_search.get_abstract_type?p_language=1&pubid=23399&pub_language=-1&p_type=1
- Böheim, M., "Wettbewerbspolitik in Österreich unter neuen Rahmenbedingungen. Zwischenbilanz und Ausblick", *WIFO-Monatsberichte*, 2003, 76(7), pp. 515-528, http://publikationen.wifo.ac.at/pls/wifosite/wifosite.wifo_search.get_abstract_type?p_language=1&pubid=24415.
- Borrmann, J., Finsinger, J., *Markt und Regulierung*, Munich, 1999.
- Bresnahan, T.F., Reiss, P.C., "Entry and Competition in Concentrated Markets", *Journal of Political Economy*, 1991, 99(5), pp. 977-1009.
- Caves, R.E., Barton, D.R., *Efficiency in US Manufacturing Industries*, M.I.T. Press, Cambridge, MA, 1990.
- Caves, R.E., et al., *Industrial Efficiency in Six Nations*, M.I.T. Press, Cambridge, MA, 1992.
- Cohen, W.M., Levin, R., "Empirical Studies of Innovation and Market Structure", in Schmalensee, R., Willig, R.D. (Eds.), *Handbook of Industrial Organization II*, Amsterdam, 1989, pp. 1059-1107.
- E-Control, *Liberalisierungsbericht*, Vienna, 2003.
- European Commission, *Report on Competition on Professional Services*, COM(2004) 83 final, Brussels, 2004.
- Federal Ministry of Economics and Labour, *Österreichs Außenwirtschaft. Jahrbuch 2003-04*, Vienna, 2004.
- Geroski, P.A., "Innovation, Technological Opportunity, and Market Structure", *Oxford Economic Papers*, 1990, 42, pp. 586-602.
- Geroski, P.A., *Market Structure, Corporate Performance and Innovative Activity*, Oxford University Press, Oxford, 1995.

References

⁵ The German Monopoly Commission has recently elaborated the problem of "national champions" for competition quite extensively (*Monopolkommission*, 2004).

- Green, A., Mayes, D.G., "Technological Inefficiency in Manufacturing Industries", *Economic Journal*, 1991, 101, pp. 523-538.
- Grossman, G.M., Helpman, E., *Innovation and Growth in the Global Economy*, M.I.T. Press, Cambridge, MA, 1991.
- Hayek, F.A., *Der Wettbewerb als Entdeckungsverfahren*, Tübingen, 1968.
- Hermalin, B.E., "The Effects of Competition on Executive Behavior", *Rand Journal of Economics*, 1992, 23, pp. 350-365.
- Kaufman, D., Kraay, A., Zoido-Lobaton, P. *Aggregating Governance Indicators*, Washington, D.C., 1999, <http://www.worldbank.org/wbi/governance/pubs/againdicators.html>.
- Kratena, K., *Makroökonomische Evaluierung der Liberalisierung im österreichischen Energiemarkt*, WIFO, Vienna, 2004, http://publikationen.wifo.ac.at/pls/wifosite/wifosite.wifo_search.get_abstract_type?p_language=1&pubid=25238.
- Leibenstein, H., "Allocative Efficiency Versus X-Inefficiency", *American Economic Review*, 1966, 56, pp. 392-415.
- Leo, H., "ICT Investment and Growth of Output and Productivity", *Austrian Economic Quarterly*, 2002, 7(2), pp. 86-97, http://publikationen.wifo.ac.at/pls/wifosite/wifosite.wifo_search.get_abstract_type?p_language=1&pubid=22031.
- Levin, R.C., Cohen, W.M., Mowery, D.C., "R&D Appropriability, Opportunity, and Market Structure: New Evidence on Some Schumpeterian Hypotheses", *American Economic Review, Papers and Proceedings*, 1985, 75, pp. 20-24.
- Monopolkommission, *Wettbewerbspolitik im Schatten "nationaler Champions"*, 15. Hauptgutachten, Bonn, 2004.
- Mookherjee, D., "Optimal Incentive Schemes with Many Agents", *Review of Economic Studies*, 1984, 51, pp. 433-446.
- Nickell, S.J., "Competition and Corporate Performance", *Journal of Political Economy*, 1996, 104, pp. 724-766.
- Nicoletti, G., Pryor, R., *Subjective and Objective Measures of the Extent of Governmental Regulations*, Paris, 2001.
- Nicoletti, G., Scarpetta, S., "Regulation, Productivity and Growth: OECD Evidence", *OECD Economics Department, Working Paper*, 2003, (347) http://www.oecd.org/LongAbstract/0,2546,en_2649_34325_2489467_1_1_1_1.00.html.
- Nicoletti, G., Scarpetta, S., Boylaud, O., "Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation", *OECD Economics Department, Working Paper*, 1999, (226), http://www.oecd.org/LongAbstract/0,2546,en_2649_34323_1880860_1_1_1_1.00.html.
- Nicoletti, G., Bassanini, A., Ernst, E., Jean, S., Santiago, P., Swaim, P., *Product and Labour Markets Interactions in OECD Countries*, *OECD Economics Department, Working Paper*, 2001, (312) [http://www.ois.oecd.org/olis/2001doc.nsf/linkto/eco-wkp\(2001\)38](http://www.ois.oecd.org/olis/2001doc.nsf/linkto/eco-wkp(2001)38).
- Nicoletti, G., Scarpetta, S., Boylaud, O., "Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation", *OECD Economics Department, Working Paper*, 2000, (226) http://www.oecd.org/LongAbstract/0,2546,en_2649_34323_1880860_1_1_1_1.00.html.
- OECD, *Economic Survey Austria 2003*, Paris, 2003.
- Paterson, I., Fink, M., Ogus, A., *Economic Impact of Regulation in the Field of Liberal Professions in Different EU Member States*, Study of the Institute for Advanced Studies, commissioned by the European Commission GD Competition, Vienna, 2003.
- Porter, M.E., "The Current Competitiveness Index: Measuring the Economic Foundations of Prosperity", in *World Economic Forum, The Global Competitiveness Report 2000*, Genoa, 2000.
- Pryor, F.L., "Quantitative Notes on the Extent of Governmental Regulations in Various OECD Nations", *International Journal of Industrial Organization*, 2002, 20(5), pp. 693-714.
- Romer, P.M., "Endogenous Technological Change", *Journal of Political Economy*, 1990, 98, pp. 71-102.
- Scarpetta, S., Hemmings, P., Tressel, T., Woo, J., "The Role of Policy and Institutions for Productivity and Firm Dynamics: Evidence from Micro and Industry Data", *OECD Economics Department, Working Paper*, 2002, (329) [http://www.ois.oecd.org/olis/2002doc.nsf/linkto/eco-wkp\(2002\)15](http://www.ois.oecd.org/olis/2002doc.nsf/linkto/eco-wkp(2002)15).
- Scherer, F.M., "Market Structure and the Employment of Scientists and Engineers", *American Economic Review*, 1967, 57, pp. 524-531.
- Schumpeter, J.A., *Theorie der wirtschaftlichen Entwicklung*, 4. Auflage., Duncker & Humblot, Berlin, 1911/1934.
- Schumpeter, J.A., *Capitalism, Socialism and Democracy*, Harper & Row, New York, 1942.
- Scott, J.T., "Firm versus Industry Variability in R&D Intensity", in Griliches, Z. (Ed.), *R&D, Patents, and Productivity*, University of Chicago Press for National Bureau of Economic Research, Chicago, 1984.
- Selten, R., "A Simple Model of Imperfect Competition Where Four are Few and Six are Many", *International Journal of Game Theory*, 1973, 2, pp. 141-201.
- Seong, S., "Competition, Competition Policy and Economic Growth", *Korea Development Institute, Working Paper*, 2002, (2002-05).
- Tichy, G., "What do we Know About Success and Failure of Mergers", *Journal of Industry, Competition and Trade*, 2001, 1(4), pp. 347-394.

Vickers, J., "Concepts of Competition", *Oxford Economic Papers*, 1995, (47), pp. 1-23.

Willig, R.D., "Corporate Governance and Market Structure", in Razin, A., Sadka, E. (Eds.), *Economic Policy in Theory and Practice*, Macmillan, London, 1987, pp. 481-494.

Competition, Competition Policy and Economic Growth

Theoretical Foundations and Empirical Evidence for Austria – Summary

Since the mid-1990s, product market competition in Austria has become markedly more vigorous, driven by "externally induced" competition-oriented structural reforms. In terms of product market regulation, Austria ranks in the middle range in international comparisons. As other smaller-scale economies, Austria shows an above-average market concentration.

Empirical evidence on liberalising network industries is rather mixed. While competition did have an impact on consumers in the telecom markets by way of substantial price reductions through the implementation of a regulatory regime that strengthens competition in services, the "liberalisation dividend" promised in the energy markets failed to reach the level suggested by the economic opportunities due to the growth of taxes and charges and high network fees that obstruct competition. Concentration processes in the form of mergers furthermore checked the emergence of functioning competition in the Austrian energy markets.

Faced with a changed framework, Austria enjoyed good progress in economic terms. However, in order to at least connect to the growth path of the 1990s – which has, however, recently shown clear signs of weakening – the implementation of more competition-oriented economic policy measures seems to be indicated. Given the highly concentrated market structures prevailing in Austria, there is – comparatively speaking – plenty of manoeuvring room for a growth-focused competition policy.

From the theoretical insights and empirical evidence available, some well-founded conclusions may be derived for competition policy in Austria:

First, competition policy should not be aimed at perfect competition per se. It should, however, be kept in mind that it is the rare exception that markets develop better if oligopolistic market structures are tolerated by referring to specific industry characteristics (technology, economies of scale and scope and entry barriers). Since "fine tuning" of oligopoly is a very difficult task – if not impossible at all – competition policy should generally steer away from it. If, however, oligopolistic market structures are indicated, both theoretical research and empirical evidence are clearly in favour of "wide oligopolies", i.e., markets with more than five independent competitors with relevant market share.

Second, competition policy has to take a dynamic approach, balancing both short-term and long-term effects. Thus, it is not a trivial problem of competition policy makers to cope with the situation when higher competition ex ante could lead to more concentration ex post.

Third, competition policy should concentrate on cases where monopoly positions have been achieved and maintained through excluding (potential) competitors restraining trade, or other anti-competitive measures. Market power that has been attained and is maintained through skill, foresight, and diligence without performing anti-competitive measures does not present an intervention scenario for competition policy.

Fourth, relatively dispersed markets are not the main target of competition policy enforcement. Competition policy tends to be applied to highly concentrated markets. Thus, the focus of competition policy should be on "quasi-monopoly" and "narrow oligopoly", i.e., markets with fewer than five independent competitors with relevant market share. Both game theory and empirical research proved that these market structures foster collusive and anti-competitive behaviour. Thus, in highly concentrated markets, the importance of antitrust policy does not only receive substantial socioeconomic favours, but also strong theoretical and empirical support.

And finally fifth, empirical research showed that negative effects of competition on innovation and growth only materialise at very high competition intensity levels. Consequently, the field of activity for growth-supporting competition policy measures seems to be rather wide. This is especially true for small open economies like Austria with some very high concentrated markets (quasi-monopolies, narrow oligopolies): in many cases market concentration and market power is not the economically justified outcome of outstanding corporate innovation activities but rather the result of misguided industrial and competition policy which neglected the effective control of mergers in the endeavour of promoting other policy goals (creating "Austrian national champions", safeguarding employment, etc.).