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The Regulation of Telecommunication in Europe

A Framework for the Evaluation of its Institutions and its Operations

By Brigitte Preißl

Summary

Most European countries have recently reformed their telecommunication systems and created regulatory institutions with the twofold purpose of monitoring and promoting the transition towards competitive structures, and of guaranteeing the supply of tele-communication services in sustainable markets in the long run. Once regulators have started to work, they develop specific patterns of action. In a process which is partly self-referential and partly politically and economically determined, regulators establish institutional structures and procedural rules which reflect the history of regulated markets as well as the economic and administrative dynamics in each country. Deregulated telecommunication markets have developed with varying speed and varying results in different countries, producing a whole set of market structures. It can be assumed that the dynamics of market liberalization is not independent from the performance of the regulatory authority. The configuration of suppliers, prices, efficiency of service provision as well as the division of benefits of deregulation among different groups in society is likely to depend on the actual operation of the regulator. The emergence of international markets for telecommunication services creates a strong need for a comparative analysis of efficiency, effectiveness and intensity of regulation.

1. Telecommunication markets and regulation

Efficient telecommunication markets are an essential component of modern economies. It has been generally accepted that the supply of telecommunication services is best achieved in competitive markets. Therefore, the deregulation and privatisation of state monopolies that existed in most countries in Europe was at the centre of attention in telecommunication policies. The procedures that were adopted to transform markets as well as the design of de-regulated and re-regulated markets have a decisive impact on the functioning of the resulting telecommunication markets. The supply of telecommunication services is characterised by a strong tendency towards internationalisation — most operators act in more than one national market — and the establishment of oligopolistic market structures. Therefore, newly emerging non-monopolistic markets show specific dynamics of competition, cooperation, and conflict between the former monopolies and the new domestic and foreign market entrants.

The transition from a monopolistic to a competitive market regime requires regulatory action in order to guarantee fair conditions for new suppliers. However, the specific nature of telecommunication networks — network externalities, high investment in infrastructures and the eminent importance of sufficient and affordable service

provision — extend the need for regulation beyond the transition period. Even after the realisation of competitive structures, telecommunication markets need regulatory rules for the interaction of competitors in shared networks. Experience shows that the deregulation of telecommunication markets has never led to “regulation-free” regimes, but — on the contrary — to re-regulation with often more complex rules than before.¹ Though some of the functions of regulators will become obsolete with the establishment of competitive markets and the end of the transition process, others will persist due to the above mentioned peculiarities of networked systems. Whether the remaining tasks should be assigned to a specific telecommunication regulator or to anti-trust offices or monopolies commission, is an open question.

Most European countries have recently reformed their telecommunication systems with the intention to establish competitive markets. These reforms have been accompanied by the creation of regulatory institutions, with the twofold purpose of monitoring and promoting the transition towards competitive structures, and of guaranteeing the supply of services in competitive markets in the long run. Each country has had to find frameworks for regulatory

¹ A prominent example is the US Telecommunications Act of 1996. The rules for the interconnection of competitors in telecommunication networks are documented in a volume of 700 pages.

authorities which define institutional settings and competencies as well as rules for their operation. The resulting regulatory systems differ from country to country with respect to the allocation of the regulatory authority, its relationship with the political system, its internal structures, its competencies, as well as its rights and obligations. The institutional design of regulatory agencies and their operational performance will have a decisive impact on the efficiency of the market.

Along with the internationalisation and Europeanisation of markets it will become increasingly important to harmonise regulatory action and thus market conditions beyond national boundaries. Observing regulatory performance from a comparative perspective thus becomes increasingly important. Furthermore, the relationship between national and European regulation will be a relevant and highly sensitive issue in academic and political debates.

2. Regulatory institutions in dynamic markets

Telecommunication markets are characterised by a dynamic evolution of both, market volumes and the quality and variety of commodities and services traded. Regulation is therefore constantly required to respond to new market constellations. Therefore regulatory institutions themselves will go through processes of change that reflect market developments, the evolution of national and supra-national political systems, as well as the internal dynamics of the institution. The convergence of telecommunication and broadcasting markets is no longer just a technical possibility, but becomes an economic reality. This requires a revision of regulatory frameworks in order to have clear, transparent, and efficient definitions of responsibilities and functions for the regulation of both spheres — telecommunications and broadcasting.

Before deregulation, institutional frameworks as well as competencies and operational rules for regulators were discussed intensively in national and international contexts. The resulting solutions provide a basis for regulatory solutions which leave scope for a variety of institutional and operational constellations. The actual shape and range of activities pursued by regulators will only emerge from concrete regulatory experience in the respective markets. The intensity and duration of debates about the “right” regulatory framework are not only a sign of a complex system of vested interests pursued by the participants in regulated markets and of the diversity of aims being followed by regulation, but also of the fact that there is no obvious “best-practice” solution for the design and operation of utility regulators.

It seems to be a logical extension of the earlier debates on how to organise regulation, to evaluate the performance of the newly created regulatory institutions after some years of operation. The adequacy of regulatory institutions and regulatory action should be judged against the perform-

ance of the regulated markets, and also against the aims proclaimed with the institutionalisation of regulatory systems.

In the following, a research scheme will be proposed for the evaluation of telecommunications regulation. This scheme will be based on three questions: (1) How do regulatory institutions change over time and in response to market developments? (2) How do regulators operate? (3) What is the impact of their activity on the regulated market?

The emergence of international markets for telecommunication services creates a strong need for comparative analysis of efficiency, effectiveness, and intensity of regulation.² Differences in regulatory performance between countries could become important variables in decisions concerning the location of internationally operating telecommunication service providers.

Therefore, the proposed research will follow two lines: Firstly, regulatory practice will be analysed in an institutional and an operational perspective for different countries in order to create a set of patterns of regulatory dynamics. Secondly, the development of regulation will be analyzed against the background of market evolution with the aim to identify elements of „best-practice” regulation.

3. Regulation and the development of competitive markets

The need for regulation is usually justified by market failure.³ A distinction should be made between transitory regulatory purposes and permanent regulatory requirements. The first set of tasks derives from the fact that the legal or political act of abolishing a monopoly does not immediately lead to a competitively functioning market. The second set is based on the peculiarities of markets — especially markets in which the trade of goods and services is based on network technology. These peculiarities prevent mechanisms of competition from working satisfactorily. In both phases, regulatory intervention is needed to guarantee fair conditions for market entrants and markets which are able to generate the welfare gains that are attributed to competitive markets.⁴

Regulatory functions that affect the transition from monopoly to competition are expected to become superfluous in the long run, when a competitive system has been created by market entries, and rules have been established that make the market mechanism work. During this transitory phase, the regulator is likely to concentrate on the management of market entries and on the relationship between the incumbent and new operators. Former monopolists usually have advantages over newcomers, because they have direct access to all telephone users. Even if there

² See Bauer (1994), pp. 315-331.

³ See, for example, Stigler (1971), pp. 3-21.

⁴ See Beesley (1992), pp. 25-39; see also Müller and Vogelsang (1979), pp. 31-35.

is no network monopoly, new service providers will not be able to establish a second network infrastructure which would put them at the same level with the incumbent operator (this would also be economically inefficient). The conditions under which access to the customer is "shared" between old network operators and new service suppliers are a subject of intensive debate in telecommunications regulation.⁵ The complexity of the relationship between the former network monopoly and its competitors has recently become apparent in the debates over the prices at which Deutsche Telekom, the incumbent operator, was supposed to grant rival firms access to the telephone network. Regulatory intervention was needed to settle the conflict and to set a price which is significantly higher than the competitors had hoped, but also less than half of what Deutsche Telekom thought was appropriate.⁶

Apart from the activities related to the transformation of the market, regulation will be needed to administer scarce resources and bottlenecks, and to monitor the provision of sufficient supplies. The regulator's competencies might also be expanded to include audiovisual markets, in cases, in which the regulation of telecommunications and broadcasting is pursued in one regulatory institution. Since both markets are converging into one (mass- and individual-) communications sector, the telecommunications regulator will have to take over functions of broadcasting regulation which are likely to be of a long-term, non-transitory nature. On the technical side, this might include, for example, the administration of scarce radio-frequencies which have to be allocated to TV and radio stations.

Regulatory institutions start from a given institutional setting and a given set of operational rules. However, in the course of their operation they develop specific patterns of action and reaction. In a process which is partly self-referential and partly politically and socially determined, regulators establish institutional structures and rules for procedural routines, which reflect the history of regulated markets as well as the political and administrative dynamics in each country. These individual features then evolve according to rules of self-reproduction and in response to changes in external settings (new laws, unexpected market developments, etc.). Another factor that has a strong influence on the shape of regulators and provides guidelines for action, is the principle of efficient management of regulatory issues, derived from economic theory.

Thus, the evolution of regulatory institutions follows a complex pattern of interaction with the political system and market developments on the one hand, and the dynamics of its internal development on the other. As a result, there will be characteristic regulators in each national market which reflect historical settings and socio-political frameworks as well as market dynamics.

Deregulated telecommunications markets have developed with varying speed and varying results in different countries, producing a whole range of market configurations and conditions of supply. It can be assumed that the

intensity of competition in the new markets, and the degree to which this competition has resulted in price adjustments and in welfare gains, is not independent of the performance of the regulatory authority. The configuration of suppliers, the structure of prices for services, efficiency, and productivity in service provision, as well as the division of the benefits of deregulation among different groups in society, is likely to depend on the actual operation of the regulator.

An evaluation of regulators will have to follow criteria which are to be derived from the aims of regulation. In most cases, these aims have been explicitly or implicitly stated in the process of deregulation and in documents concerning the establishment of a regulatory authority. This includes the performance of telecommunication markets as an evaluation criterion, as far as certain market outcomes are supposed to be achieved through regulatory action. Confining the frame of reference to aims of regulation limits the complexity of market development as a benchmark for regulation and thus helps to focus on a manageable set of criteria in the analysis.

4. State-of-the-art and open questions

There is no shortage of static institutional descriptions and comparisons of regulatory institutions in Europe, the USA, and other countries, such as New Zealand or Japan.⁷ The effects of regulation have been studied with respect to individual features, for example, price-cap regulation or symmetric and asymmetric approaches. However, little attention has been paid to the development of regulatory institutions and their operation. The effects of different institutional constellations and internal procedures of regulatory authorities has not yet been systematically analysed. This refers specifically to the following topics:

- (1) Little is known about *why* certain solutions were chosen in the process of defining regulatory authorities in different countries. Some features are determined at the EU level. Thus there are no margins for country-specific designs; others, however, reflect historical, political, and economic constellations in the countries concerned.
- (2) The composition of regulatory institutions with respect to departmental structures, qualifications, and the recruitment of personnel, as well as the division of labour within the authority, can have considerable impact on the regulatory outcome.
- (3) Institutions are not static, they develop over time, and an initial setting can be revised and changed deliberately, or it can slowly and unintendedly turn into something quite different; these processes of change need to be monitored and reviewed for their impact on the regulatory process.

⁵ See Vogelsang (1996); Schankerman (1996), pp. 3-24.

⁶ See also Neu (1997), pp. 1-2.

⁷ A recent up-date was presented by Michela Cimattoribus at the Regional ITS conference in Leuven, August 1997. See Cimattoribus (1997). See also Melody (1997).

- (4) Day-to-day operations are, to a certain extent, dictated by the regulatory task, and driven by progress in legislation and by market developments; however, regulators can define priorities, deal with cases and projects in a certain order, and with varying emphasis. They can intervene actively in market processes, or react only if requested.
- (5) After some years of operation, the telecommunications regulators' activities should have had a decisive effect on market configurations and market performance. At this point it has to be asked, how effective regulation has been in achieving the desired competitive market structures.

5. Elements of theory

The evaluation of telecommunications regulation can be guided by various elements of economic and sociological theory. *Economic theories of market regulation*⁸ can provide a basis to understand the rationale behind regulatory designs: Justification of market intervention, the scope of intervention, and the rules for regulatory action can be discussed using this theoretical background. Arguments for specific regulatory policies can be found here, for example, for certain price setting or licensing rules, and for symmetric or asymmetric intervention. Furthermore, the economics of regulation literature gives guidelines for the economic valuation of mechanisms and institutions of regulation.

Institutional economics focus on the role of institutions for the functioning of markets. They play an important role in the legitimisation of regulatory institutions in market economies, and provide a framework for the analysis of legal, administrative and financial constraints in regulation.⁹ The relationship between the regulator and the political system and with market participants has been elaborated theoretically in this type of literature.

The *sociology of institutions* has dealt with internal patterns of evolution of administrative, business, and political entities. The development of tasks and competencies as well as the establishment and the dynamics of operational rules can be interpreted by referring to this research tradition. System theory might provide insights into the evolution of regulatory institutions and their interaction with the political and the economic system.¹⁰

6. The aims of regulation

The aims of regulation are generally determined by our understanding of how the regulated market should operate. The concepts and target scenarios for telecommunication markets may differ between countries. Aims of regulation are either explicitly stated in documents that define the framework for the regulatory institution, or they are given implicitly in legal texts or political statements published in the course of deregulation processes. Despite national

peculiarities, a standard set of aims can be identified — at a general level — which includes the following:

- the establishment of competitive markets (with respect to market configurations and/or market performance);
- the long term stabilisation of competitive regimes;
- the administration of scarce resources; and
- the consideration of more general economic and social factors, such as employment or guaranteed supply of services at affordable prices.

In some cases these general aims are complemented by more detailed specifications, regarding, for example, features of supply, price setting rules, etc. The aims of regulation can change over time, when market developments make certain features irrelevant, or when the political system decides to base regulation on a different understanding of the telecommunication markets.

7. Themes of evaluation

7.1 Development of the regulatory institution

The deregulation process starts from a historically given constellation of network operators, telecommunication service providers, political institutions, and anti-trust agencies. New regulatory institutions are, to a certain extent, determined by these already existing sets of institutions. For example, often regulators emerge as an “outsourced” department of the incumbent operator and former monopolist. If there is a well established anti-trust agency, the new regulator has to define its position with reference to this agency's competencies and policies.

Regulatory institutions have to be consistent with the political and the economic system of a country as well as with supranational political and regulatory entities. It should therefore be asked how they fit into the national landscapes of political, legal, and economic entities with respect to legal status, the division of competencies, independence from other players, and the authority given to their decisions.

To a certain extent, the institutional framework is determined by the aims and purposes of regulation. Strict neutrality with respect to market participants, and, possibly, also with respect to the political system requires an independent institution. The principles of limiting intervention to a minimum and of guaranteeing efficient procedures will influence size, budgets and internal organisational structures.

If the regulatory authority emerges from other administrative or political institutions, it is likely to take over the

⁸ See, for example, Kahn (1993); Laffont and Tirole (1993); Laffont (1994), pp. 507–538; Tirole (1989); Baron (1988).

⁹ See, for example, North (1991).

¹⁰ See Luhmann (1981); see also Willke (1996).

organisational structure of these original entities. If they are entirely new organisations, they have to give themselves an internal structure. This structure already reflects the regulator's interpretation of his role and of the way in which regulation should be put into practice. Therefore, investigating the regulators' internal organisation goes beyond a mere interest in historical documentation; it provides important material to understand regulatory action. Evaluation concepts should include an analysis of the delimitation and naming of departments, the total number of employees and the number of persons in each department (or assigned to specific tasks), the structure of hierarchical relationships, as well as the horizontal and vertical distribution of competencies.

In addition, qualifications and the professional background of employees, as well as previous employment, should be analysed. A regulation authority dominated by economists will have a different perspective on regulation than one in which the majority of people in charge are, for example, lawyers.

Another crucial question concerns the moneys at the disposal of the regulators. This includes the size of the budget, the procedures for determining it, and the competencies of the regulator in the handling and managing of funds. The allocation of funds to regulatory bodies and the rules regarding the use of these funds are important indicators of the regulator's independence, and provide insights into the ability to use competencies effectively. The relative importance of the different sources of finance (public funds, fees, contributions) as well as the constraints perceived as a consequence of a lack of resources can have a considerable impact on regulatory activities. Their analysis thus contributes to reaching a better understanding of regulatory practice.

However, regulation and regulators are not static institutions, but develop over time. Therefore, an evaluation programme should focus on the dynamics of change in regulation. Particular attention should be given to the following questions:

- did the regulatory institution assume new functions or loose others?
- did it grow with respect to the number of employees and/or with respect to office space?
- did budgets grow or shrink?
- did qualifications of employees change?
- did the institution change affiliation (for example, from the Ministry of Economics to the anti-trust authority)?

From these questions conclusions can be drawn about the forces that drive the institutional development of regulators.

An interesting analysis of regulatory institutions is provided by a research project conducted in connection with the future Austrian regulatory authority.¹¹ The research that has been conducted by the Austrian Academy of Sciences points in the direction of an evaluation procedure

similar to the one proposed in this paper. The study analyses institutional characteristics of regulators as well as the division of labour between ministries, regulators, and other institutions in six European countries.¹²

7.2 What are the regulator's competencies?

The competencies of regulators are of crucial importance for the effectiveness of their operation. They do not only express the balance between the principle of limiting regulation to an absolute minimum and the purpose of guaranteeing functioning markets, but are also an indicator for the degree of independence from political institutions and from market participants. A regulator's competencies reflect the "philosophy" of telecommunications regulation: They determine, for example, whether regulators are supposed to engage in an ex-ante shaping of market configurations or whether their responsibility is limited to an ex-post control of market outcomes. The first constellation might lead to conflicts of competencies with political institutions, while the second might involve overlapping competencies with anti-trust authorities.

The definition of tasks and competencies of regulators proved to be a highly sensitive issue. On the one hand, the aims of market liberalisation and deregulation can only be achieved, if regulators tend to make themselves superfluous. On the other hand, incumbent operators and their competitors are both interested in certain regulatory "services" (e.g., standardisation, licensing), but not in others (price control). Furthermore, incumbent operators are likely to succeed in defending some of their market power after deregulation,¹³ and thus competition tends to be distorted. The regulator's competencies to make decisions and to draw final conclusions have to reflect these issues. However, they also have to be delimited against those of political and judicial institutions. There is likely to be a zone where competencies of the political system (definition of frameworks) and those of the legal system (guaranteeing respect of laws) overlap with those of regulation. Rights to intervene in the operations of market participants have to be clearly defined. Problems have arisen in the past, for example, when regulators needed to get access to the incumbent operator's accounting systems in order to design price regulation schemes. Often the laws did not specify the form in which access had to be granted, and how far-reaching the rights of control were. Thus, since there has been little experience in how to endow regulators with sufficient, but

¹¹ Latzer and Leo (1997).

¹² The following institutional characteristics have been distinguished: Integrated or outsourced regulatory institution, number of employees, appointment of director, director subject to dismissal, duration of appointment, financing, conflict resolution, separation of media, postal and telecommunications regulation, and privatisation of dominant operator. See Latzer and Leo (1997), p. 16.

¹³ See, for example, Beesley (1992), p. 27.

not too generous competencies, pragmatic solutions have been adopted, and the results were not always unambiguous (for example, in Germany, where the assignment of radio frequencies is supposed to be a duty of the regulator, but is also a sovereign right of State governments).

7.3 What do regulators do?

A regulator's daily operations can be documented qualitatively and quantitatively. Qualitative analysis should start with a simple list of regulatory functions to be taken from telecommunication laws and documents that accompanied deregulation. An analysis of annual reports of regulators provides information concerning the relative weight that has been given to the individual tasks in a certain period of time. This mapping exercise provides first insights into the interpretation of the range of tasks by the regulator.

A quantitative analysis of activities should cover the number of "cases" dealt with per field or task, and classify activities as *interventions, decisions, monitoring, conflict resolution, or the enhancement of regulatory instruments*. Time and resources spent on each activity might be used as weighting factors.

A first attempt to produce a systematic list of "regulatory decisions", has been presented in an article by Cave and Crowther.¹⁴ The authors aimed at a classification of regulatory activities and grouped their list according to "types of decision", such as structural regulation, competition issues, social objectives, and technical aspects. However, decisions often mark only the start of a regulatory process. Once a decision has been made, observation and monitoring of the implementation of this decision, as well as arbitration in the case of conflict are on the regulator's agenda. Another classification could be based on whether tasks are of a permanent nature or occurring only once, and on how often the regulator has to intervene.

In the daily operations, it will be of interest to find the criteria used to attribute tasks to employees, and whether work is organised according to a project/team structure or according to a departmental division of labour.

7.4 Interaction with other players

The functions of regulators are being pursued in interaction with the competitors in telecommunication markets, politicians, other regulators, and anti-trust authorities. Increasingly cooperation with institutions at the European and at an international level is required to coordinate regulation between national and supra-national entities. The efficiency of regulation depends on the rules governing interaction, on patterns of communication, and the establishment of a culture of cooperation. The regulatory institution has to be accessible to all competitors and consumers. Rules guiding access, such as telephone answering routines or the internal handling of requests from the outside, are indicators of accessibility.

A particularly delicate field is the interaction with anti-trust authorities, since often regulatory frameworks have not clearly defined the division of competencies between specific telecommunication regulators and more general competition regulation.

Market regulation involves cooperation with the regulated parties, but also monitoring and control of their behaviour. Regulators have to negotiate with these groups in routine operations as well as in cases of conflict. The same holds true for licensees and potential market entrants. More or less open lobbying by industry representatives who may try to influence regulatory action requires procedures and routines that establish clear boundaries between "normal" business contacts and undue lobbying.

The aims of regulation often include special concern for the interests of (private) customers. Thus, regulators may have to deal with suggestions or complaints of consumer associations. Contacts with other regulators may serve the purpose of exchanging experiences or preparing coordinated regulatory steps. Finally, regulators may choose to cooperate with experts and advisers from different backgrounds.

An analytical framework has to be developed to analyse patterns of interaction between regulators and these different groups. Such a framework could, for example, contain the following variables:

- *frequency of contact;*
- *initiator of contact;*
- *typical issues dealt with;*
- *conflict potential;*
- *degree of standardisation/individualisation of interaction;*
- *channels of access to regulator/person in charge.*

Patterns of communication are also characterised by the means of communication used by the parties. Different regulatory tasks imply different communication routines. Licensing procedures, for example, require a specific set of interactions, which differ from that of individual complaints of tariff structures.

An important feature with respect to the efficiency of regulation are mechanisms of conflict resolution. Referring to the law can prove to be a costly and time-consuming option. Thus, developing other more informal instruments may lead to better regulatory performance.

8. Regulation and the development of markets

8.1 A set of market performance indicators

It seems to be obvious that the performance of regulatory institutions has to be proven against the performance of telecommunication markets. However, a series of problems is connected with such a research programme:

¹⁴ Cave and Crowther (1996), pp. 725–738.

- (1) Effects of regulation cannot easily be separated from other determining factors of market development.
 - (2) It might be difficult to choose an appropriate reference scenario; for example, actual market outcomes could be compared with a scenario "without regulation" or with one with "better regulation".
 - (3) The relevant indicators to describe *market performance* are necessarily limited and subject to assumptions. The selection will unavoidably influence the outcome.
- The underlying assumption is that the institutional and operational features of the regulator can be related to the market outcome. These features — taken together — determine "regulatory performance", for example, in terms of the time it takes to issue licenses or to produce regulatory solutions, which in turn shape telecommunication markets.
- In order to be able to connect the practice and quality of regulation to market configurations and market dynamics, a set of indicators has to be developed to describe market performance. Variables used to construct these indicators should refer to market morphology in a static and in a dynamic perspective, to mechanisms of competition, and to the relation of quality and price and its dynamics. In order to find a set of indicators, it might be useful to refer to the aims of regulation against which the achievements in terms of market performance can be interpreted. For an empirical analysis, it seems to be inevitable to select indicators according to the availability of data and the viability of the analysis, rather than according to theoretically desirable and systematically derived criteria.
- Markets for telecommunication services should be described by indicators that reflect the particular situation of transition between monopoly regimes and competitive markets. Thus emphasis should be laid on new market entrants and the factors that stand for the functioning of market mechanisms. Such a factor could, for example, be the transformation of productivity gains into price reductions. In the following a list of variables is presented that represents the areas which are relevant in this sense:
1. Competitors and the incumbent operator
 - number of competitors
 - one, two, and three years after deregulation
 - according to fields of competition: Networks, transmission services (basic services), value added services, licensed/non licensed services
 - number and significance of services provided by competitors
 - new services
 - waiting lists
 - new connections/main lines
 2. Licences
 - number of licences granted
 - one, two, three years after deregulation
 - time span between advertisement of licensing procedures and assignment of licences
 - licence fees
 3. Market shares of new entrants
 - differentiated for specific markets
 4. Background of new entrants
 - industry
 - conglomerates
 - foreign/domestic
 5. Tariffs
 - local/long distance/international
 - levels
 - changes over time
 - access charges
 - administered and market prices
 - interconnection tariffs
 6. Investment and Technical progress
 - investment in R&D
 - investment in infrastructures
 - new technologies
 - degree of digitalisation
 7. Productivity of operators
 - methods of calculation
 - up-dating procedures and rhythms
 8. Conflicts with respect to
 - interconnection/access
 - licensing
 - tariffs
 - consumer rights
 9. Employment
 - incumbent operator's personnel policy
 - employment in new companies/new services
 - qualification and recruitment of personnel
 10. Social factors
 - who benefits from deregulation?
 - does consumer protection work?
 - development of customer service
 - quality of service

This list provides a framework for a comparative evaluation of market performance and regulation. When assessing the overall results, market size as well as the historical phase in the deregulation process have to be taken into account. Furthermore, market developments have to be interpreted in the context of the overall dynamics of the economy.

8.2 Market influences in regulation

An analysis of market developments is a necessary step to understand the dynamics of regulation. To a certain extent, markets determine regulatory requirements. Demand for services, for example, will define the number of competitors that will want to enter the market and thus are potential candidates for licences. The speed and intensity of technical progress will put price adjustments on the regulator's agenda. Internationalisation of markets leads to a need for international cooperation of regulatory institu-

tions or to a shift of competencies to the European level. Activities that stimulate a dynamic development of markets may thus create additional demand for regulation and drive change in the definition of regulatory tasks.

8.3 Linking regulation to market performance

A central task in the evaluation of regulatory institutions is to relate the observed structures and operational routines of regulators to the development of the regulated markets. Two central questions can guide the search for hypotheses:

- Have the regulatory aims been reached?
- Is there any systematic relationship between organisational/structural arrangements for regulators and their operations on one side, and the development of markets on the other?

These questions lead to qualitative and quantitative hypotheses that can be tested against empirical evidence.

One of the main problems will be to identify impacts of regulation and to separate them from other (cyclical, political, technical) impacts. Interviews with market participants can provide important evidence on the relationship between regulatory measures and the behaviour of competitors; though of a subjective nature, these statements can be used to weigh the relative importance of different influences. Furthermore, subjective perceptions by market participants can have a significant impact on behaviour and can thus directly influence market performance. Thus, objective and subjective variables can be combined to comprehend the mechanisms that link regulation to market results.

The research programme that results from a confrontation of a regulatory authority, its institutional configuration, and its operational performance, with a market documented in a complex set of variables, risks to drown in an

inconceivable web of possible dependencies. This, however, should not prevent researchers to start with a smaller, less ambitious set of questions. For example, the number of competitors in licensed markets and thus the speed of the licensing process can be related to the organisational structure of the regulation authority and to the number of employees assigned to specific tasks. The number of competitors can be related to tariff regulation and to interconnection arrangements.

9. Conclusions

The description of regulatory institutions and their operations in a dynamic scheme can provide interesting insights into the different patterns of implementation of regulatory rules that have been harmonised for all EU countries in different Member States. This might be a useful and important contribution to research on the regulation of telecommunication markets. The performance of regulation, however, can only be judged against what is achieved in terms of creating sustainable competitive markets.

An analysis of the performance of national telecommunication regulators contributes to the debate on the harmonisation of European regulation schemes and on the necessity of a European regulator.¹⁵ It should also provide new material to promote discussions on “who regulates the regulator”. Conclusions with respect to an optimal delimitation of competencies, for example, with respect to the merging of telecommunications and broadcasting regulation, can be based on systematically documented experience.

If it is possible to trace market performance back to the institutional and operational performance of regulators, a framework for “best-practice” in telecommunications regulation might emerge.

¹⁵ See Costa, Pontarollo and Preißl (1995), pp. 183-208.

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Zusammenfassung

Die Regulierung der Telekommunikationsmärkte in Europa

Vorschlag für ein Evaluierungskonzept

Die meisten europäischen Länder haben in den letzten Jahren ihre Telekommunikationssysteme dereguliert. Im Zuge dieses Prozesses entstanden Regulierungsinstitutionen, die einmal den Übergang zu Wettbewerbsmärkten fördern und überwachen sollen, zum andern die Versorgung mit Telekommunikationsdienstleistungen in langfristig stabilen Märkten sichern. Im Laufe ihrer Arbeit entwickeln diese Institutionen spezifische Aktionsmuster. In einem teils selbst-referentiellen, teils politisch und ökonomisch bestimmten Prozeß bilden sich organisatorische Strukturen und Verfahrensregeln heraus, die sowohl die Geschichte der regulierten Märkte widerspiegeln als auch die Dynamik administrativer und ökonomischer Prozesse im jeweiligen Land. Die deregulierten Telekommunikationsmärkte entwickelten sich mit unterschiedlicher Geschwindigkeit und unterschiedlichem Erfolg, so daß eine ganze Reihe verschiedener Marktconstellations entstanden. Es kann angenommen werden, daß diese Entwicklung nicht unabhängig von der Funktionsfähigkeit der Regulierungsbehörde ist. Anbieterstrukturen, Preise und Effizienz der Leistungserstellung sowie die Verteilung der Wohlfahrtsgewinne von Liberalisierung und technischem Fortschritt unter den verschiedenen gesellschaftlichen Gruppen hängt unter anderem auch von der Arbeitsweise der Regulierer ab. Die Entstehung internationaler Märkte für Telekommunikationsdienstleistungen unterstreicht die Notwendigkeit, Effizienz, Effektivität und Intensität der Regulierung international zu vergleichen.