

Knieps, Günter; Zenhäusern, Patrick

Working Paper

The reform of the European regulatory framework for electronic communications: The unexploited phasing-out potentials

Diskussionsbeitrag, No. 128

Provided in Cooperation with:

Institute for Transport Economics and Regional Policy, University of Freiburg

Suggested Citation: Knieps, Günter; Zenhäusern, Patrick (2009) : The reform of the European regulatory framework for electronic communications: The unexploited phasing-out potentials, Diskussionsbeitrag, No. 128, Albert-Ludwigs-Universität Freiburg, Institut für Verkehrswissenschaft und Regionalpolitik, Freiburg i. Br.

This Version is available at:

<https://hdl.handle.net/10419/43128>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

The reform of the European regulatory framework for electronic communications: The unexploited phasing-out potentials

by **Günter Knieps***, **Patrick Zenhäusern****

Discussion Paper

Institut für Verkehrswissenschaft und Regionalpolitik

No. 128 –December 2009

Abstract:

The European Commission Recommendation 2007/879/EC has become known as an important innovation towards phasing-out sector-specific regulation of electronic communications. Eleven of the eighteen markets are no longer regarded as needing to be subject to sector-specific ex ante regulation. Although the important role of active and potential competition in telecommunications markets has been mentioned, the economically founded implications of the “three-criteria-test” in the Commission Recommendation 2003/311/EC have not yet been implemented. As a consequence, the relevance of regulation in the remaining seven markets remains vague. To provide a superior alternative, the analytical concept of a disaggregated regulatory approach is applied. Sector-specific regulatory interventions are to be limited to network-specific market power. As a consequence, only two of the seven remaining markets in the European Commission Recommendation 2007/879/EC are possible candidates for regulation.

* Prof. Dr. Günter Knieps, Institute for Transport Economics and Regional Policy, Albert-Ludwigs-University, Platz der Alten Synagoge, 79085 Freiburg i. Br., Germany. Tel.: +49 (0)761 203 2370; fax: +49 (0)761 203 2372; e-mail: guenter.knieps@vwl.uni-freiburg.de

** Patrick Zenhäusern, Polynomics, Baslerstr. 44, 4600 Olten, Switzerland, e-mail: patrick.zenhaeusern@polynomics.ch

1. INTRODUCTION

The 1999 EU review started with the objective of achieving maximisation of the application of general European competition law, minimisation of sector-specific regulation, rigorous phasing-out of unnecessary regulation and introduction of ‘sunset’ clauses (European Commission, 1998). Beyond that, the Commission also stated: “When there is effective facilities-based competition, the new framework will require ex ante regulatory obligations to be lifted. Investment in new and competing infrastructures will bring forward the day when such obligations can be relaxed” (see European Commission, 2003a, 6). Nevertheless, the unspecific regulatory obligations based on the EU directives in the 1999 review package – in particular the Framework Directive¹ and the Access Directive² – resulted in increasingly complex and contradictory decisions and statements. In the meantime there have been numerous Commission decisions revealing that the evaluation of significant market power is still strongly based on market share estimations (Knieps, 2005, 78-81).

The long list of criteria stated in the Commission’s Guidelines (European Commission, 2002), like relative market share, financial strength and access to input as well as service markets can only serve as a starting point to localise network-specific market power. The purpose of this paper therefore is to localise the phasing-out potential of market power regulation. It is necessary to identify those areas in which active and/or potential competition can work. Regulatory interventions into competitive subparts should be abolished, whereas areas with network-specific market power should be disciplined by adequate regulatory instruments.

¹ Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive), *OJ* 2002 L 108/33.

² Directive 2002/19/EC of the European Parliament and of the Council on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive), *OJ* 2002 L 108/7.

The paper is structured as follows: In section 2 the institutional process of phasing-out telecommunications regulation in Europe since liberalisation in 1998 is shown. The focus is on the progress according to the Commission Recommendations 2003/311/EC and 2007/879/EC as well as the Draft Commission Recommendation on regulated access to Next Generation Access Networks (NGA) 2009 (European Commission, 2009). In section 3 a network economic analysis of the institutional phasing-out process is provided based on the theory of monopolistic bottlenecks. In section 4 lessons for future telecommunications regulation in Europe are drawn. Section 5 concludes.

2. THE INSTITUTIONAL PROCESS OF PHASING-OUT TELECOMMUNICATIONS REGULATION IN EUROPE

2.1 COMMISSION RECOMMENDATION 2003/311/EC

In 2003 the European Commission recommended the so-called ‘three-criteria-test’. This test seems to substantiate the requirements for regulatory intervention. The Commission summarises the three criteria as follows (European Commission, 2003b, recital 9):

“The first criterion is the presence of high and non-transitory entry barriers whether of structural, legal or regulatory nature. ... [T]he second criterion admits only those markets the structure of which does not tend towards effective competition within the relevant time horizon. ... The third criterion is that application of competition law alone would not adequately address the market failure(s) concerned.”

In the Annex of this Recommendation the Commission recommended that national regulators look at eighteen predefined markets in closer detail to decide whether or not to regulate (see table 1).

Table 1: The eighteen markets defined for possible ex ante regulation in 2003

No	Markets	Further explanations
1	Access to the fixed telephone network for residential customers	Making and / or receiving telephone calls and related services over fixed telephone lines for residential customers
2	Access to the fixed telephone network for non-residential customers	Making and / or receiving telephone calls and related services over fixed telephone lines for business customers
3	National / local residential telephone services from a landline	Publicly available telephone services for residential and business customers are provided over fixed telephone networks.
4	International residential telephone services from a landline	
5	National / local business telephone services from a landline	
6	International business telephone services from a landline	
7	The minimum set of leased lines	A leased line is a permanently connected link between two premises used for exclusive communications
8	Call origination on the fixed telephone network	Wholesale call origination enables alternative operators to offer retail users fixed telephone services and dial-up internet connections
9	Call termination on individual fixed telephone networks	The wholesale service offered by one operator to another that allows calls between customers of different operators
10	Transit services in the fixed telephone network	Conveying calls over long distances on the fixed public telephone network
11	Wholesale access to the local loop for broadband and voice services	Wholesale access to the „last mile“ of the public fixed telecommunications network connecting the subscriber to the local exchange and to the main network
12	Wholesale broadband access	Enables new market entrants to offer broadband access services using their own network and the access parts of the telecommunications network.
13	Wholesale terminating segments of leased lines	Operators mainly use leased lines to complete their own network infrastructure. The lines are made up of terminating and trunk segments
14	Wholesale trunk segments of leased lines	
15	Access and call origination on mobile networks	Allows new entrants to make use of the infrastructure of a mobile network operator to provide mobile telephone services to customers
16	Voice call termination on individual mobile networks	The wholesale service offered by one operator to another that allows consumers to call users on different networks
17	International roaming on mobile networks	The current EU Roaming Regulation now covers this market ³
18	Broadcasting content	Broadcasting radio and television signals mainly concern content

Source: Based on European Commission (2003b), Annex, and explanations of the authors.

³ Regulation (EC) No 717/2007 of the European Parliament and of the Council of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC. L 176, of 29.06.2007.

This list of markets provided a large scope of regulatory discretion to intervene in those markets which are competitive (e.g. markets for telephone services, leased lines). The markets considered for possible regulation may also include new markets, such as interactive cable television. An economically founded application of the three-criteria-test was not guaranteed.

2.2 COMMISSION RECOMMENDATION 2007/879/EC

The European Commission Recommendation (2007/879/EC) has become known as an important step forward towards phasing-out sector-specific regulation of electronic communications. The reform proposes to remove eleven markets from the list of relevant markets in the Recommendation. Two of the remaining markets are merged, so that the list of markets regulators have to analyse shrinks from eighteen to seven (see table 2). This simplifies the regulatory environment and reduces the burden on regulators and the industry. Some retail markets have been deregulated. Normal competition law is applied to these markets. Eleven markets are no longer regarded as needing to be subject to sector-specific ex ante regulation. Thus, the order of the markets in possible need of regulation changed accordingly. For example, the previous market 11 “wholesale unbundled access (including shared access) to metallic loops and sub-loops for the purpose of providing broadband and voice services” was redefined into the new market 4 “Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location”, while the previous market 12 “Wholesale broadband access“ still remains as market 5 on the list of markets in possible need of sector-specific ex ante regulatory measures.

Table 2: The seven remaining markets for possible ex ante regulation in 2007

Number		Market	Regulation	Number		Market	Regulation
03	07			03	07		
1		Access to the fixed telephone network for residential customers	Ex ante regulation	10		Transit services in the fixed telephone network	No regulation
2	1	Access to the fixed telephone network for non-residential customers		11	4	Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location	Ex ante regulation
3		National / local residential telephone services from a landline	No regulation	12	5	Wholesale broadband access (non-physical or virtual network access including 'bit-stream' access)	
4		International residential telephone services from a landline		13	6	Wholesale terminating segments of leased lines	
5		National / local business telephone services from a landline		14		Wholesale trunk segments of leased lines	No regulation
6		International business telephone services from a landline		15		Access and call origination on mobile networks	
7		The minimum set of leased lines	Ex post regulation	16	7	Voice call termination on individual mobile networks	Ex ante regulation
8	2	Call origination on the fixed telephone network	Ex ante regulation	17		International roaming on mobile networks	European Regulation on roaming
9	3	Call termination on individual fixed telephone networks		18		Broadcasting content	Ex post regulation

Source: Based on European Commission (2007), Annex, and explanations of the authors.

In this respect the regulatory development within the European Union has made some progress in the last years. After all, the Commission Recommendation

(2007/679/EC) cancelled eleven of these markets. But with this step, the phasing-out potential is not yet fully exploited. This implicates that sector-specific regulatory measures are still in place, where they should be abolished.

2.3 DRAFT COMMISSION RECOMMENDATION ON REGULATED ACCESS TO NEXT GENERATION ACCESS NETWORKS (NGA) 2009

The Draft European Commission Recommendation on regulated access to NGA (European Commission, 2009, 10) defines NGAs as “wired access networks which consist wholly or in part of optical elements and which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over already existing copper networks. In most cases NGAs are the result of an upgrade of an already existing copper or coaxial access network”.

On this note, the European Commission follows an additive approach. The Draft Recommendation considers “On Market 4, it is thus important that in principle the whole range of different physical access products, including backhaul, is available as remedies” (European Commission, 2009, recital 21). Therefore sector-specific regulation not only focuses on access to wholesale physical network infrastructures where – as we will show in section 3 – network-specific market power can indeed still exist. In addition, market 5 is also considered as a possible candidate for regulation. “Unless there is effective competition on the downstream market, notably as a result of remedies imposed on Market 4, NRA’s should therefore mandate the provision of wholesale broadband access” (European Commission, 2009, recital 38). Or: “To foster retail product competition it is important that such different service characteristics are reflected in various regulated NGA-based products” (European Commission, 2009, recital 40).

Therefore, it can be concluded that the EU telecommunications regulatory framework aims to avoid over-regulation with respect to new markets. However, considering the remaining need for sector-specific regulation a network eco-

conomic approach is still lacking. For that, a two-stage procedure is necessary. First, the basis for ex ante regulation has to be localised. Then, for those markets where network-specific market power is identified, appropriate regulatory instruments should be enforced. The criteria on which these measures are based need to be general in the sense that they can be applied to all network industries.

3. NETWORK ECONOMIC ANALYSIS OF THE INSTITUTIONAL PHASING-OUT PROCESS

3.1 LOCALISING NETWORK-SPECIFIC MARKET POWER

Regulatory activity should be limited to areas with network-specific market power characterised as monopolistic bottlenecks (Knieps, 1997, 328-331; Knieps, 2006, 53-55). The characteristics of a monopolistic bottleneck are:

- (1) A facility is necessary for reaching customers, i.e. no other facility exists as an active substitute. This is the case when a natural monopoly exists and a single provider is able to provide the facility more cheaply than several providers;
- (2) A facility cannot reasonably be duplicated in order to control the active provider; and there is no potential substitute. This is the case when the costs of the facility are irreversible.

Network-specific market power is only to be expected in those parts of networks which are characterised by a natural monopoly and irreversible costs. Although irreversible costs are no longer relevant for the decision-making of the active network carriers, for potential competitors irreversible costs are a crucial factor because they must decide whether to invest such costs in the market or not. Established firms therefore have lower decision-relevant costs than their potential rivals. This means there is room for strategic behaviour, with the result that inefficient production or profits no longer necessarily enable newcomers to enter the market. The market power of the firm that owns such a monopolistic bottleneck is therefore stable, even if all market players are fully informed, all users are

prepared to switch to another provider, and small price adjustments have an effect on demand.

3.2 THE MANY FACES OF COMPETITION IN NETWORK INDUSTRIES

In the absence of irreversible costs, however, and as a result of the controlling effect of potential competition, even a natural monopoly does not possess stable market power, regardless of the size of the relevant network operator's market share, because inefficient providers of non market-oriented services will be replaced by new entrants, owing to the pressure of competition. In this case there is no need for regulation to limit the active operator's control over the market.

The monopolistic bottleneck theory does not deny the information problems encountered to varying degrees on real markets. Ex ante stable market power cannot be deduced from the existence of information problems, however, because markets tend to be efficient at (endogenously) developing institutions to overcome their information problems. Switching costs, which occur in many areas of the economy, are no explanation for monopolistic bottleneck situations either. Examples of switching costs include monthly or annual season tickets for concerts that cannot be transferred if the holder moves house, or the costs incurred by firms when employees leave as soon as they have learnt the ropes, etc. They are no justification for regulatory measures and can be left to the market's own problem-solving ability (cf., for example, von Weizsäcker, 1984; Tirole, 1989, Chapter 8). The existence of network externalities is no justification for sector-specific regulation either. The essential feature of such externalities is that for an individual the advantage of being part of a network depends not only on its technical specifications – its standard – but also on how many others are involved in it. Where there are positive network externalities, the benefit for the individual increases with the number of other network members, in other words the number of those using the same standard. In the absence of network-specific market power, negotiations between network operators can prove effective because both sides stand to benefit from the agreements (Blankart, Knieps, 1995, 288 f.).

One of the essential features of the ability of competition to operate on the free markets for network services is that corporate strategies such as product and price differentiation, the build-up of goodwill, the development of an efficient distribution network, etc. can also be used for strategic purposes. Information problems (search costs, asymmetric information, etc.) can also play a role. However, this should not lead to the opposite conclusion, namely that competition would not work on markets for network services. Of course, general competition law should also be applied on these markets. Such competition policy should always be carried out only on a case-by-case and ex post basis.

4. LESSONS FOR FUTURE TELECOMMUNICATIONS REGULATION IN EUROPE

4.1 NETWORK ECONOMIC FOUNDATION OF THE THREE-CRITERIA-TEST

The three-criteria-test in the Commission Recommendation (2003/311/EC) – presence of high and non-transitory entry barriers (1), markets that do not tend towards effective competition within the relevant time horizon (2), and the fact that the application of competition law alone would not adequately address the market failure(s) concerned (3) – is consistent with the disaggregated regulatory framework. Criterion one describes a natural monopoly in combination with sunk costs (monopolistic bottleneck). Criterion two states that the situation of a monopoly in combination with sunk costs is stable over a foreseeable future. According to criterion three, consideration is required of the question whether ex ante or ex post intervention is more efficient. Indeed, the theory of monopolistic bottlenecks requires ex ante regulation of network-specific market power consisting of mandatory access instead of negotiated third-party access. Non-discriminatory access should not be implemented by ex post case law but by ex ante regulation avoiding monopolistic access charges by incentive regulation.

Only through a specific disaggregated access regulation can potentials of service and infrastructure competition be exhausted. Under these conditions, there will

be no technology policy induced bias of innovation. Irrespective of market proportions, no network-specific market power exists on new service markets. What may be necessary, however, is that the new service markets are subjected to a wider unbundling of the local loop.

4.2 REMAINING MONOPOLISTIC BOTTLENECKS

Regarding the emergence of new markets, the question arises whether new markets create new bottlenecks or extend the borderlines of existing bottlenecks. Since long-distance networks are competitive infrastructures, the focus is on network access to local infrastructures. As long as a monopolistic bottleneck exists in the local infrastructure network due to the absence of alternative network infrastructures, the question arises what the remaining bottleneck components are for these different markets. The crucial question is whether there are input markets to which an operator needs to have access in order to deliver services to (end) customers and which are characterised as monopolistic bottlenecks.

For narrowband services like PSTN/ISDN, the components which may be identified to be monopolistic bottlenecks are local switch facilities, copper loops, ductworks and ducts. Concerning the supply of DSL services, local switch facilities are no longer necessary, because unbundled access to copper cable in the copper loops is sufficient. Apart from that, competing providers can also implement alternative network upgrading strategies, for example, upgraded copper cable by DSLAMs. Modems and the like are definitely not assets that can be characterised as sunk costs. A parallel investment in modems cannot be regarded as socially inefficient cost duplication, because this is the only way to achieve the potentials for a large scope of innovative network services. There is a multiplicity of upgrading strategies based on copper-wired loops as well as on ductwork and so forth.

The provision of VDSL requires investments in fibre-to-the-curb or fibre-to-the-home. In order to be able to apply upgrading strategies by means of fibre cable,

access to ductworks and ducts is necessary. A roll-out of fibre optic networks does not require a duplication of ductworks. Rather, fibre cables can be laid between relevant points in existing ductworks. Fibre cables, cabinets and optical modems are components of upgrading infrastructure in order to provide VDSL services. Similar to the situation of competing upgrading strategies by DSLAM on the basis of copper, competing upgrading strategies by means of fibre cables and other upgrading components are possible on the basis of ducts and ductworks. Thus, fibre cables similar to DSLAM are part of upgrading infrastructure and do not belong to the still existing monopolistic bottleneck. As an alternative to local telecommunications network infrastructures, ducts and ductworks from electricity or water companies may also be available (Blankart, Knieps, Zenhäusern, 2007, 425 ff.).

Thus, ex ante regulation of access to ducts and ductworks is required, if alternative infrastructures for end customers (e.g., interactive broadband cable) are not in place, and alternative duct networks, which can be upgraded for VDSL purposes at reasonable cost, are not available. A clear implication is that with the exception of markets 1 and 4 (see table 3), all of the remaining markets which are, according to the opinion of the commission, in need of regulation cannot be identified as such, as long as regulatory economics based on network-specific market power are applied (see section 4.3).

Table 3: Markets where remaining stable market power may exist

No	Markets	Further explanations
1	Access to the fixed telephone network for residential customers	The market may be a monopolistic bottleneck component for PSTN / ISDN services
4	Access to the unbundled local copper loop	The market may be a monopolistic bottleneck component for DSL-services
	Wholesale access to ducts of the last mile	The market may be a monopolistic bottleneck component for VDSL- and FTTx-services

Source: Authors.

What may be called the “bit-stream regulation fallacy” is the claim that “new remedies may need to be imposed, and a new combination of active and passive access remedies on markets 4 and 5 may be necessary” (European Commission, 2009, recital 7). To maintain market 5 in addition to market 4 in the list of markets in need of sector-specific regulation implicates double regulation and therefore overregulation. Rather, access to the unbundled local copper loop, respectively a wholesale access to ducts of the last mile would be sufficient. According to regulatory economics, even market 4, defined as the “whole range of different physical access products, including backhaul” (European Commission, 2009, recital 21), unfortunately encompasses more than only the monopolistic bottleneck facilities.

4.3 COMPETITIVE MARKETS

As we have seen in section 3.2 the markets for telecommunications services, irrespective of whether they are wholesale or retail, do not possess the characteristics of monopolistic bottlenecks. Both active and potential competition operates on telecommunications service markets. There is no danger of preventing competitors from entering the market because the decision-relevant costs with respect to telecommunications services are similar for established undertakings and for potential rivals. Often a newcomer enters the market with no intention of duplicating the established undertaking. Beside potential competition, active competition achieved by means of technological and product differentiation and the introduction of new products and processes are important (Knieps, 2005). According to table 2 ex ante regulation has been phased-out in some of the services markets (markets number 3, 4, 5, 6, 7, 10, 14, 15 and 18). This regulatory reform, however, did not go far enough.

An economically founded application of the three-criteria-test leads to the conclusion that the following markets should also be excluded from the list of possibly regulated markets:

- Market 2 – “Call origination on the fixed telephone network”
- Market 3 – “Call termination on individual fixed telephone networks”

- Market 5 – “Wholesale broadband access”
- Market 6 – “Wholesale terminating segments of leased lines”
- Market 7 – “Voice call termination on individual mobile networks”

What may be called the “termination regulation fallacy” is the claim that wholesale termination is a monopoly in need of regulation. This obviously is in conflict with criterion 1 of the three-criteria-test (Commission Recommendation 2003/311/EC). High and non-transitory entry barriers do not exist on service markets. Alternative service providers have a market-disciplining effect.

Thus, sector-specific regulation of services lacks any economic basis. Neither old nor new services are a case for sector-specific market power regulation. The question is always whether upstream markets create monopolistic bottlenecks for competitors. In particular, there are no monopoly-pricing problems for termination services, because markets are competitive.

5. CONCLUSIONS

The “European Commission Recommendation 2007/879/EC” has become known as an important innovation towards phasing-out sector-specific regulation of electronic communications. Eleven of the eighteen markets are no longer regarded as needing to be subject to sector-specific ex ante regulation. Although the important role of active and potential competition in telecommunications markets has been mentioned, the full consequences of the three-criteria-test have not yet been implemented. On the basis of the disaggregated regulatory approach, it can be shown that instead of seven markets, only market 1 and market 4 should be left for possible sector-specific regulation. In particular, ex ante regulation of access to ducts of the last mile is only required, if alternative inter-active broadband infrastructures are not available. The transition towards NGA provides opportunities for the many faces of competition and subsequent phasing-out potentials of sector-specific regulation.

REFERENCES

- BLANKART, C. B., KNEIPS, G. (1995), Market-oriented Open Network Provision, *Information Economics and Policy*, 7, 283-296
- BLANKART, C. B., KNEIPS, G., ZENHÄUSERN, P. (2007), Regulation of New Markets in Telecommunications? Market dynamics and shrinking monopolistic bottlenecks, *European Business Organization Law Review (EBOR)*, 8, 413-428
- EUROPEAN COMMISSION (1998), Directorate General XIII, ONP Committee, Subject: The 1999 Review of the Telecommunications Regulatory Framework, ONPCOM 98-42, Brussels, 11.9.1998, Brussels
- EUROPEAN COMMISSION (2002), Commission Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications network and services, *Official Journal of the European Communities*, C 165/6-31, 11.7.2002
- EUROPEAN COMMISSION (2003a), Electronic Communications: The Road to the Knowledge Economy, COM (2003) 65 final, Brussels
- EUROPEAN COMMISSION (2003b), Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services (2003/311/EC), *Official Journal of the European Union*, 8.5.2003, L 114/45-49, Brussels
- EUROPEAN COMMISSION (2007), Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (2007/879/EC), Brussels
- EUROPEAN COMMISSION (2009), Draft Commission Recommendation of [...] on regulated access to Next Generation Access Networks (NGA) Brussels, [Draft 12 June 2009 for 2nd public consultation], Brussels

- KNIEPS, G. (1997), Phasing out Sector-Specific Regulation in Competitive Telecommunications, *Kyklos*, 50/3, 325-339
- KNIEPS, G. (2005), Telecommunications markets in the stranglehold of EU regulation: On the need for a disaggregated regulatory contract, *Journal of Network Industries / Competition and Regulation in Network Industries*, 6, 75-93
- KNIEPS, G. (2006), Sector-specific market power regulation versus general competition law: Criteria for judging competitive versus regulated markets, in: F. P. Sioshansi, W. Pfaffenberger (eds.), *Electricity Market Reform: An International Perspective* (Amsterdam/Boston, Elsevier, 49-74
- TIROLE, J. (1989), *The Theory of Industrial Organization*, 2nd Printing, Cambridge et al.
- WEIZSÄCKER, C. C. von (1984), The Costs of Substitution, *Econometrica*, 52/5, 1085-1116

**Als Diskussionsbeiträge des
Instituts für Verkehrswissenschaft und Regionalpolitik
Albert-Ludwigs-Universität Freiburg i. Br.
sind zuletzt erschienen:**

- 104. G. Knieps:** The Different Role of Mandatory Access in German Regulation of Railroads and Telecommunications, erschienen in: Journal of Competition Law and Economics, Vol. 2/1, 2006, S. 149-158
- 105. G. Knieps:** Aktuelle Vorschläge zur Preisregulierung natürlicher Monopole, erschienen in: K.-H. Hartwig, A. Knorr (Hrsg.), Neuere Entwicklungen in der Infrastrukturpolitik, Beiträge aus dem Institut für Verkehrswissenschaft an der Universität Münster, Heft 157, Vandenhoeck & Ruprecht, Göttingen, 2005, S. 305-320
- 106. G. Aberle:** Zukünftige Entwicklung des Güterverkehrs: Sind Sättigungsgrenzen erkennbar? Februar 2005
- 107. G. Knieps:** Versorgungssicherheit und Universaldienste in Netzen: Wettbewerb mit Nebenbedingungen? erschienen in: Schriftenreihe der Deutschen Verkehrswissenschaftlichen Gesellschaft: Versorgungssicherheit und Grundversorgung in offenen Netzen, Reihe B, B 285, 2005, S. 11-25
- 108. H.-J. Weiß:** Die Potenziale des Deprival Value-Konzepts zur entscheidungsorientierten Bewertung von Kapital in liberalisierten Netzindustrien, Juni 2005
- 109. G. Knieps:** Telecommunications markets in the stranglehold of EU regulation: On the need for a disaggregated regulatory contract, erschienen in: Journal of Network Industries, Vol. 6, 2005, S. 75-93
- 110. H.-J. Weiß:** Die Probleme des ÖPNV aus netzökonomischer Sicht, erschienen in: Lasch, Rainer/Lemke, Arne (Hrsg.), Wege zu einem zukunftssträchtigen ÖPNV: Rahmenbedingungen und Strategien im Spannungsfeld von Markt und Politik, Erich Schmidt Verlag, Berlin, 2006, S. 119-147
- 111. G. Knieps:** Die LKW-Maut und die drei Grundprobleme der Verkehrsinfrastrukturpolitik, erschienen in: Schriftenreihe der Deutschen Verkehrswissenschaftlichen Gesellschaft: Die LKW-Maut als erster Schritt in eine neue Verkehrsinfrastrukturpolitik, Reihe B, B 292, 2006, S. 56-72
- 112. C.B. Blankart, G. Knieps, P. Zenhäusern:** Regulation of New Markets in Telecommunications? Market dynamics and shrinking monopolistic bottlenecks, erschienen in: European Business Organization Law Review (EBOR), Vol. 8, 2007, S. 413-428
- 113. G. Knieps:** Wettbewerbspotenziale im Nahverkehr: Perspektiven und institutionelle Barrieren, erschienen in: Schriftenreihe der Deutschen Verkehrswissenschaftlichen Gesellschaft: Warten auf Wettbewerb: ÖPNV in Deutschland, Reihe B, 2007, S. 11-23
- 114. F. Birke:** Universaldienstregulierung in der Telekommunikation heute: Herausforderungen, Chancen und Risiken – Ein historischer Ansatz, Mai 2007
- 115. G. Knieps, P. Zenhäusern:** The fallacies of network neutrality regulation, erschienen in: Competition and Regulation in Network Industries, Vol 9/2, 2008, S. 119-134

116. **G. Knieps:** Disaggregierte Regulierung in Netzsektoren: Normative und positive Theorie, erschienen in: Zeitschrift für Energiewirtschaft, 31/3, 2007, S. 229-236
117. **G. Knieps, H.-J. Weiß:** Reduction of Regulatory Risk: A Network Economic Approach, erschienen in: in: U. Blum (Hrsg.), Regulatorische Risiken – Das Ergebnis staatlicher Anmaßung oder ökonomisch notwendiger Interventionen?, Schriften des Instituts für Wirtschaftsforschung Halle, Bd. 29, Nomos Verlag, Baden-Baden, 2009, S. 99-109
118. **G. Knieps, H.-J. Weiß:** Regulatory Agencies and Regulatory Risk, Revised Version: January 2008
119. **G. Knieps:** Regulatorische Entbündelung in Netzindustrien, erschienen in: Tagungsbände der Gesellschaft für Verkehrswissenschaft und Regionalpolitik an der Universität Freiburg e.V., 40. Freiburger Verkehrsseminar 2007, Entbündelung in Netzindustrien: Chancen und Risiken, Freiburg, S. 11-25
120. **G. Knieps:** The Net Neutrality Debate and the German Communications and Competition Law, erscheint in: Proceedings of the 3rd Annual International Conference on „Net Neutrality“, Center for Law and Public Utilities, Seoul National University, 17 October 2008
121. **G. Knieps:** Verkehrsinfrastrukturen zwischen Wettbewerb und Regulierung, erschienen in: Wirtschaftspolitische Blätter, 56/1, 2009, S. 11-21
122. **G. Knieps:** Wettbewerb und Netzevolutorik, erscheint in: Beiträge zum Hoppmann-Band, Schriftenreihe des Walter Eucken Instituts, Mohr (Siebeck), Tübingen, 2009
123. **G. Knieps, P. Zenhäusern:** ‘Stepping stones’ and ‘access holidays’: The fallacies of regulatory micro-management, erschienen in: P. Baake, R. Borck (eds.), Public Economics and Public Choice: Contributions in Honour of Charles B. Blankart, Springer Verlag, Berlin u.a., 2007, S. 257-277
124. **G. Knieps:** Qualitäts- und Preisdifferenzierung im Internet, erschienen in: Jörn Kruse, Ralf Dewenter, Hrsg., Wettbewerbsprobleme im Internet, Nomos Verlag, Baden-Baden, 2009, S. 103-113
125. **G. Knieps:** Wettbewerb im transeuropäischen Eisenbahnverkehr, erscheint in: Zeitschrift für Verkehrswissenschaft, 2009
126. **G. Knieps:** Sektorsymmetrische Regulierung in Netzsektoren: Ein Vergleich zwischen Gas und Elektrizität, erschienen in: Netzwirtschaften & Recht (N&R), 6. Jg., Nr. 3, 2009, S. 138-143
127. **G. Knieps:** Theorie und Praxis der Price-Cap-Regulierung, Vortrag auf dem 42. Freiburger Verkehrsseminar 2009 „Anreizregulierung in Netzwirtschaften: Theorie und Praxis“
128. **G. Knieps, P. Zenhäusern:** The reform of the European regulatory framework for electronic communications: The unexploited phasing-out potentials, Paper presented at the 2nd Annual Conference of Competition and Regulation in Network Industries, Brussels, Belgium, November 20, 2009