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Regulation of Europe's Network Industries: The Perspective of the New Economic Theory of Federalism

by

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Abstract:
The paper starts with a description of major reforms of EU policy in the network industries. Based on the normative economics of regulation, it then points out generic information and transaction cost problems of regulatory policy making. An appropriate allocation of regulatory competencies may help mitigate these problems. Focusing on the 'federal' allocation of competencies it is argued that traditional economic theories of federalism should be complemented by contract-theoretic and transaction-cost-political approaches. There has been some progress in recent years in developing such a 'new economic theory of federalism'. Basic ideas and some insights of this theory are discussed with regard to the appropriate 'federal' allocation of competencies for the regulation of the European network industries.

Keywords: Network industries, regulation, asymmetric information, incomplete contracts, economic models of federalism

JEL classification: D7, D82, H11, H77, L43, L51

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Contents

I. Introduction

The promotion of competition and the establishment of a single market in Europe's network industries (transport, energy, telecommunications) have emerged as a key issue of economic policy in Europe in recent years. There have been important changes in substantive policies (liberalization and re-regulation), as well as in the institutional setting and the allocation of competencies for regulatory policy making. The process of change is likely to continue; the development within the different network industries and the experiences to be made with the new regulatory systems will provoke further substantive and institutional reforms of European policy. As in the past most future changes will be highly disputed. Thus, a normative economic analysis of past and possible future changes seems to be warranted.

Given the extremely rapid changes in some of the network industries and the lack of robust results on 'optimal' regulatory rules (in normative regulatory economics) tying regulation to strict rules seems hardly sensible. There are, thus, important efficiency arguments for granting considerable discretion to regulatory agents with respect to the choice of appropriate regulatory instruments and the details of regulatory rules. The downside of discretion, however, is an increased danger of regulatory opportunism, it aggravates problems of policy credibility and of regulatory capture.

The design of appropriate institutions of regulatory policy making and the vertical (federal) and horizontal allocation of regulatory competencies may help mitigate these problems. A normative economic analysis aimed at 'getting the institutions right' has to deal with rather complex issues, however, for which there are no ready-to-use analytical models in economic theory. Focusing on the federal dimension of the allocation of regulatory competencies for the European network industries this paper argues that traditional economic theories of federalism should be complemented by an approach that explicitly takes into account transaction cost and information problems between different political actors, and between political and private actors. There has been substantial progress in recent years in developing such a 'new economic theory of federalism' that, although still in an early stage of development, seems to be of strong relevance for the regulation of Europe's network industries.

The paper is structured as follows: Chapter II briefly describes the specificities of the network industries and sketches the major lines of reform in the European policy towards the network industries, including both changes in substantive policies and changes in the allocation of competencies. Based on the normative

theory of regulation, Chapter III discusses alternative substantive policies and rules for the regulation of network industries, and points out the generic information and transaction cost problems of regulatory policy making. Chapter IV criticizes the traditional economic approach to federalism and describes basic models and insights of a new economic theory of federalism. Chapter V is an attempt to narrow the still large gap between formal models and practical issues with regard to the appropriate federal allocation of competencies for the regulation of the European network industries.

II. Liberalization and Re-regulation in the European Network Industries

II.1. Characteristics and traditional organization of the network industries

The defining characteristic of the network industries is the delivery of products and services under necessary use of a 'network infrastructure' connecting suppliers with a large number of users. Within the network industries one may thus distinguish (at least) two vertical levels: network or infrastructure provision (and operation) and service provision. Many of the outputs of the network industries are essential inputs into production elsewhere in the economy, and in many cases they are vital inputs into consumption activities. Network industries, thus, have significant influence on economic growth, competitiveness and cohesion.

The network industries share a number of features which influence questions about whether and how they should be regulated:

The construction of the networks requires large (upfront) investments in highly specific assets with extraordinary longevity. As a consequence of the high degree of (indivisible) upfront investments and the relatively low operational costs associated with the provision of services over the network, network industries are usually subject to considerable economies of scale in production, at least up to a critical capacity level. Moreover, many network industries are subject to important economies of scope. As they generally involve the provision of many different services sharing a common network, there are, generally, comparatively low incremental costs of adding a new service.

There are (potentially) important network externalities of various kinds, both between different suppliers and between consumers. On the supply side there are

complex complementarities between operating and investment decisions within and between different vertical levels of the industry. Often there are also particularly complex coordination problems in network operation and service provision, which require extremely timely solutions to avoid costly coordination failures. And there are direct 'user externalities' between different consumers in the sense that the utility a network user receives from having access to a particular network (service) directly depends on the size and extent of the network.

Network industries' services can only be provided if access to the physical network (including network control systems) is guaranteed. In consequence, if there is only one physical network, several service providers can compete only if they have access to that network. If there are several network providers, an efficient provision of services generally requires the interconnection of networks or network subsystems. Thus, competition in network industries typically requires some degree of cooperation between rival firms. Guaranteeing interoperability (of networks and services) may also require common (technical) standards.

Traditionally, most network industries have been considered integrated systems for which competition and the market are no suitable coordination structures. For most of Europe's network industries, natural monopoly arguments and public service and equity objectives have long been taken to legitimize the operation of vertically and horizontally integrated national monopolies. The corollary of this industry structure has been a comprehensive regulation of the monopolies. Regulation typically did comprise the investment and pricing behavior of the monopolist and a supply obligation (in the respective franchise area). Frequently there was – at least partial – public ownership of the monopolies. Even in those industries where network and service provision have not been vertically integrated (e.g. in road and air transport) competition has been restricted; supply was comprehensively regulated not only in the provision of infrastructure, which was usually publicly owned, but also in service provision.

II.2. Changes in Europe's network industries

Changes in substantive policies. Until the mid-1980s the impact of the European Community on the organization of network industries was almost negligible. The first major initiatives of the European Commission to affect the network industries gathered momentum with the 1987 Single European Act and the single

market program. Since then the EC, in particular the European Commission, has become an engine of liberalization and re-regulation (harmonization) in the network industries.[1] Community policy for the network industries takes as reference a "system of open and competitive markets" (Art. 154(2) TEC-A (Art. 129b(2) TEC-M)).[2] It aims at the liberalization of national markets and the establishment of a (harmonized) regulatory framework for effective competition.

Within the different network industries, Community policy has been characterized by a progressive abolition of special and exclusive rights, an opening of national networks and service markets, and the promotion of the interconnection and interoperability of national networks and services.[3] The scope of reforms varies substantially between the different network industries, however.[4] A comprehensive liberalization of service provision has been achieved in road and air transport where infrastructure and services have not been vertically integrated traditionally. But even in vertically integrated industries (telecommunications, electricity, railways) there have been important steps towards a liberalization of national service markets. Here, the Commission combined liberalization with re-regulation measures, since a withdrawal of exclusive rights and ex-ante quantity and price regulations alone was supposed to be not sufficient to guarantee effective competition in the service markets. Re-regulation aimed at the opening of networks and at providing a harmonized basic regulatory framework for access to the networks of incumbents. In addition, and parallel to its liberalization and re-regulation (harmonization) efforts, the EC began to promote the establishment and development of trans-European

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1 Deregulation initiated at an EU level has in some cases been preceded by measures taken within individual Member States. In particular, the United Kingdom, but also Sweden and Finland, have generally been ahead of Commission initiatives towards the network industries. Still today the network industries in the United Kingdom are much more deregulated than in Europe as a whole. Other countries are lacking behind; some are granted longer transition periods for liberalization measures. For an overview of the degree of liberalization in the major network industries in the United Kingdom and other selected European countries see Bergman et al. (1998: 78-86).

2 TEC-A (A = Amsterdam) refers to the numbering in the 'Treaty Establishing the European Community' after the consolidation by the Treaty of Amsterdam; TEC-M (M = Maastricht) refers to the numbering before that consolidation.

3 Since according to Art. 295 TEC-A (Art. 222 TEC-M) the Community is formally neutral with regard to ownership structures no direct initiatives to privatization of traditionally publicly owned companies have been proposed by the Commission. However, EC legislation requires to draw the boundaries between the state as owner and the state as regulator more clearly (see below).

4 For a more comprehensive overview of EC policies in the network industries see Bickenbach (1998).

networks (TENs), the interconnection and interoperability of national (transport, energy and telecoms) networks, as well as the access to these networks. It has identified priority projects, and has participated in the planning and financing of trans-national infrastructure networks.

Among the traditionally vertically integrated network industries liberalization and re-regulation has made the most significant progress in the telecoms sector. Here, the Community initiatives have not been restricted to service markets but have extended to the provision of networks. The Commission has initiated, in several steps, both the liberalization of markets and the harmonization of regulatory conditions. *Liberalization* began with the Commission issuing the 'Terminal Directive' 88/301/EEC (OJ 1988), which withdrew special and exclusive rights in the market for telecommunications terminal equipment. The Commission's 'Services Directive' 90/388/EEC (OJ 1990b) abolished special and exclusive rights of telecommunication operators (TOs) for some value added services (not yet including voice telephony and a number of other important services). The Member States were required to take the necessary measures to enable other operators to provide telecommunications services, and to separate the operating and regulatory functions of their TOs. The full liberalization including the remaining services (e.g. public voice telephony) and the provision of telecommunications network infrastructure was enacted by the 'Full Competition Directive' 96/19/EC (OJ 1996) as of January 1, 1998 (with transition periods for certain Member States).

To ensure liberalization to be effective and to secure the delivery of universal service, a harmonized regulatory framework for network access and network interconnection has been defined by the Open Network Provision (ONP) Directives. By harmonizing technical interfaces as well as usage and tariff conditions, the 'ONP Framework Directive' 90/387/EEC (OJ 1990a) of the Council aimed at fostering open and efficient access and interconnection to public networks and services. The Directive requires that the conditions of access to the networks of the monopolistic network provider shall adhere to the basic ONP-principles of objectivity (cost orientation), transparency and non-discrimination. In light of the further liberalization of telecommunications services and of the provision of network infrastructure, further specific ONP Directives have been issued, and the 'ONP Framework Directive' has been adjusted to a competitive, multi-network/multi-operator environment. In the 'Interconnection Directive' 97/33/EC (OJ 1997b) the concept of the 'monopoly network provider' has been replaced by the concept of the 'public telecommunications network operator', and a number of general principles for

network access and interconnection have been defined.[5] Although prices and conditions of interconnection should be fixed as far as possible by commercial negotiations, national regulatory authorities (NRAs) have an important role in supervising those negotiations. They may intervene with negotiations and have limited rights to set down in advance certain general conditions for interconnection agreements. Specific obligations to supply access are imposed on public network operators with Significant Market Power (SMPs). SMPs shall meet all 'reasonable' requests for access to the network and are required to adhere to the principles of non-discrimination, 'cost orientation' and transparency in pricing and transparency in accounting practices (accounting separation).[6]

Although ex-ante sector specific (ONP) regulation allows going substantially further than general Competition Law does in regulating access, the EU Commission has stressed in its 'Access Notice' (European Commission 1998) the option of directly applying EC Competition Law, in particular Art. 82 TEC-A (Art. 86 TEC-M). In ensuring efficient access to telecommunications networks and services the Commission, thus, follows a dual approach of sector specific legislation and the application of general competition law. To avoid undue duplication of procedures, the 'Access Notice' generally gives sector specific regulation precedence over action under Competition Law if such sector specific action is pro-competitive and efficient. The Commission may nevertheless intervene directly with reference to Competition Law if the issue is of sufficient political, economic or legal significance for the Community to justify immediate action. Indeed, as competition is taking off, the number of Commission investigations and, to a minor extent, decisions in individual competition cases is increasing substantially.[7]

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5 Organizations authorized to provide telecommunications networks and/or publicly available services have a right and an obligation to negotiate interconnection with competitors (of the same category).

6 Although, the principles laid down in the ONP-Directives are quite general (e.g. non-discrimination and cost orientation in pricing), the European Commission has gained more specific influence, e.g., on interconnection pricing, via Recommendations. The 'Interconnection Recommendations' (OJ 1998a, 1998b, 1998c) establish price ranges for interconnection rates across the EU based on 'best practice' of the three Member States with the lowest interconnect rates. These ranges have substantial influence on the NRAs' policy as to the approval of interconnection offerings of dominant network providers.

7 EC Competition Law is characterized by an exceptionally high degree of centralization in its implementation and by exceptionally wide powers of the Commission. Thus, the direct application of EC Competition Law (in particular of Art. 82 TEC-A (Art. 86 TEC-M) allows the Commission to take considerable direct influence on the development of the network industries in general and the telecoms industry in particular.

Another important element of the liberalization process is the harmonization of licensing conditions. The 'Licensing Directive' 97/13/EC (OJ 1997a) aims to establish a "common framework for general authorizations and individual licenses in the field of telecommunications services". The right of granting authorizations for providing telecommunications services and the operation of telecommunications networks – on the basis of general authorizations or individual licenses – remains with the Member States, however.[8] There are, thus, no single European licenses but national licenses only, and there is no mandatory mutual recognition of national licenses. The Directive calls, however, for a harmonization of the conditions for granting national authorizations, and for the introduction of a one-stop-shopping procedure.[9]

In the other traditionally vertically integrated network industries (railways and energy), liberalization and re-regulation initiatives by the EC have as yet been much less far reaching. Nevertheless, EC policies in the railways and energy industries follow similar principles as in telecoms: (partial) liberalization of service supply, a general priority given to commercial access agreements between the parties involved, combined with a regulatory guarantee of non-discriminatory access rights to the network infrastructure, and of the transparency of cost accounting (including the vertical separation of infrastructure from service provision at least at an accounting level).

Regulatory institutions and the allocation of regulatory competencies. The changes in substantive policies have been accompanied by important changes in the allocation of legislative and executive competencies, vertically between the Community and the Member States, and horizontally between different Community institutions and Member States institutions, respectively.

Legislation. The most visible transfer of primary legislative competencies has been the introduction, by the Treaty on the European Union, of Art. 3(o) and Title XV TEC-A (Title XII TEC-M) "Trans-European Networks" into the EC Treaty. This title (Art. 154-156 TEC-A (Art. 129b-d TEC-M)) contains the Treaty basis for the Community's initiatives to the establishment and development of TENs. For the first time the Community was given competencies with respect to

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8 This right is subject to a number of rules, inter alia, restricting the use of individual licenses (instead of general authorizations), demanding open, non-discriminatory and transparent procedures, and avoiding undue limitations of the number of or conditions attached to individual licenses.

9 One-stop-shopping procedure means a procedural arrangement facilitating the obtaining of individual licenses from – or, in the case of general authorizations and if required, the notification to – more than one national regulatory authority, in a coordinated procedure and at a single location.

the planning and financing of trans-European infrastructure networks (in transport, telecoms and energy). Besides this ‘formal’ transfer of competencies in infrastructure policy (by Treaty amendment), there has also been a significant extension of the exercise of implicitly existing, but contested competencies of the Community, and in particular of the Commission.

A potential basis for a direct enforcement of competition and the creation of a common market in the network industries can be found already in the original EEC Treaty of 1957: The competition rules of the Treaty (Art. 85-90 EEC (Art. 81-86 TEC-A)) and the rules on the abolition of obstacles to the free movement of goods and services (in particular the provisions of Articles 30 and 59 EEC (Art. 28 and 49 TEC-A)) are directly applicable European law and generally apply to the network industries.[10] A potentially important restriction to the application of the general contract provisions to the network industries is given by Art. 86(2) TEC-A (Art. 90(2) TEC-M), however. This article gives a limited derogation from the application of the Treaty rules to services of general economic interest, and to revenue-producing monopolies in so far as the application of these rules would obstruct the performance, in law or in fact, of the particular tasks assigned to such enterprises, and to the extent that this would not be contrary to the interests of the Community.

Given the traditional organisation of the network industries and the importance of ‘services of general economic interest’ in that field this provision is of obvious importance to the network industries. Thus, an active application of the general Treaty provisions to liberalize the network industries and in particular, a direct proceeding of the Commission against national monopolies in the network industries and an opening of national networks by direct application of the competition rules of the EC Treaty was not obvious. Art. 86(2) TEC-A (Art. 90(2) TEC-M) seemed to imply that the Member States were acting within their rights when excluding the network industries from the common market. In liberalizing telecommunications markets the Commission nevertheless used its competence under Art. 86(3) TEC-A (Art. 90(3) TEC-M) to issue the ‘Terminal Directive’ and the ‘Services Directive’. “This meant a significant extension of the exercise of its (implicit, but contested) powers under this Article” (Sauter 1997: 186).

More generally, when the Commission began in the late 1980 to initiate a number of directives, regulations and decisions to liberalize national markets, to harmonize the rules of access to the networks and to advance TENs, different

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[10] For the transport sector there are, in addition, the sector specific provisions of Art. 3 and 74-84 EEC (Art. 3 and 70-80 TEC-A).

pieces of secondary (specific) legislation have been based on quite different Treaty provisions. In the telecommunications sector, for example, the implementation of EC policy has relied on the parallel application of the competition rules of the Treaty by the Commission (Art. 86(3) TEC-A (Art. 90(3) TEC-M)), and harmonization legislation by the Council (Art. 95 TEC-A (Art. 100a TEC-M)).[11] The EEC Treaty did not (and still the EC Treaty does not) include any Article that could serve as a uniform and indisputable Treaty basis for empowering the Community to issue these directives or regulations. The diversity of Treaty provisions on which the liberalization and harmonization legislation could (possibly) be based is all the more noteworthy as the different provisions imply different decision-making procedures and different powers of the European institutions and thus of the Member States.[12]

Frequently, the more active role of the Community met resistance from Member States. The applicability and scope of the different Treaty provisions have frequently been the subject of political and judicial dispute between different Community institutions. With regard to the liberalization of telecommunication markets both Art. 86(3) TEC-A (Art. 90(3) TEC-M) Directives were immediately challenged by Member States.[13] The European Court of Justice largely confirmed their legality (for details see Sauter 1997: 188); the scope of Art. 86 (3) TEC-A (Art. 90 (3) TEC-M) has still not been settled decisively, however. Yet it could potentially be used to attack special and exclusive rights in other sectors dominated by (public) monopolies, notably energy and transport. The Commission has not done so, however.[14] Even in

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11 Art. 95 TEC-A (Art. 100a TEC-M) is also the (central) basis for the liberalization directives in the energy sector. Directives and regulations for the liberalization in the transport industries are generally based on the transport specific Art. 71 TEC-A (Art. 75 TEC-M); in air-transport they are based Art. 80(2) TEC-A (Art. 84(2) TEC-M). Decisions on guidelines on TEN projects of common interest are based on Art. 156 TEC-A (Art. 129d TEC-M).

12 Directives based on Art. 86(3) TEC-A (Art. 90(3) TEC-M) are issued by the Commission and do not require the participation of the Council or the European Parliament (EP). Directives or regulations based on Art. 95 TEC-A (Art. 100a TEC-M) are issued by the Council and the European Parliament; they require a qualified majority in the Council and must be accepted by the EP (under the Co-decision procedure). As to the decisions concerning TENs Member States have retained particular powers. Guidelines and projects of common interest which relate to the territory of a Member State require the approval of the Member State concerned (Art. 156 TEC-A (Art. 129d TEC-M)).

13 France in the case of the 'Terminal Directive' 88/301 and Spain, Belgium and Italy in the case of the 'Service Directive' 90/388.

14 While the Commission initially threatened their use to liberalise the gas and electricity sectors, so far these threats have remained just that (see Kumkar and Neu 1997).

telecoms the Commission has exercised restraint in its use of Art. 86 (3) TEC-A (Art. 90 (3) TEC-M) has emphasised the benefits of a consensual approach and gradual liberalisation instead.

One likely reason for the Commission's restraint is that securing effective competition requires harmonisation measures that in turn require (at least) a qualified majority in the Council.[15] Indeed, where issuing directives required a qualified majority in the Council, Member States have frequently used their influence to induce the Commission to substantially modify their original proposals. As a consequence, several important Directives could be issued only after time-consuming negotiations and considerable delays. As to their substantive content, they often reflect an economically unsatisfactory political compromise between the positions of the different Members States and the Commission. Frequently the scope and speed of liberalization, or the extent of harmonization and centralization of regulatory rules and procedures have been curtailed considerably.

Implementation and Application. Not only in issuing liberalization and harmonization legislation in the network industries but also in applying and enforcing legislative provisions the Institutions of both the Community and the Member States have an important role to play. Beyond the general principles and procedures for applying and enforcing directives, and for dispute settlement, additional sector-specific procedures and institutions have been established both at the *level of the Member States* (national level) and at the *EC level* (supranational level). In addition, sector-specific institutions have been created at an *international level* in order to realize potentials for international coordination and harmonization. The most significant changes have taken place in the telecoms sector, which will be taken as example in the following.

Level of the Member States: Following the general principle of a separation of regulatory and operational functions, Community law requires the Member States to establish independent regulatory authorities (NRAs) and dispute settlement procedures. European legislation required Member States to separate the regulation of the telecoms sector from the operation of the national TOs. The independence of the NRAs aims at increasing transparency of regulation in the Member States and guaranteeing a non-discriminatory exercise of the regulatory tasks assigned to the Member States.

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15 Another reason for the Commission's restraint is that Member States must still be relied on to implement Art. 86 (3) TEC-A (Art. 90 (3) TEC-M) directives. Frequently (some) Member States have failed to (completely) implement directives that are crucial for the liberalisation of network industries or have done so only years late.

In accordance with the principle of subsidiarity the NRAs are to play the main role in the implementation of the regulatory principles laid down in the European Directives. Different ONP Directives attribute to the NRAs inter alia (i) the supervision of the pricing behavior and accounting procedures of dominant network providers, (ii) the guarantee of the provision of specific facilities (e.g. leased lines), (iii) the gathering of certain types of information to be made available to "interested parties" and the Commission, and (iv) the settlement of disputes between telecommunications companies.

EC level: On the EC level the Commission has an important role to play both in controlling the implementation of the community provisions by Members States, and in directly applying some provisions of community regulations. To prevent the Commission from becoming too powerful through unrestricted discretion at the implementation stage, the delegation of implementing power from the Council to the Commission is being made conditional upon the use of specific decision making procedures, the so-called comitology procedures. For the telecoms sector, the 'ONP framework directive' provides for the creation of a committee (ONP Committee) comprising representatives of the Member States (in practice drawn from the NRAs), and chaired by a Commission representative. In implementing the different ONP Directives the ONP Committee has three basic functions: (i) it shall advise the Commission in decisions lying in its jurisdiction (advisory function), (ii) it shall adopt certain uniform rules mainly concerning technical issues (regulatory function), and (iii) it shall settle disputes between users and NRAs that cannot be resolved at the national level, or involve operators in more than one Member States (dispute settlement function).[16]

In addition to its formal role as an advisory and a regulatory committee in the sense of the comitology rules the ONP Committee constitutes a regulatory forum which has an important role in fostering the exchange of information between the Member States and between the Member States and the Commission, and in achieving a common understanding of the Directives among Member States. Given the limited scope of its tasks, its loose organizational structure and its changing membership ONP Committee should not be considered a European Regulator in the true sense, however. In 1994, the 'Bangemann Group' Report has proposed the establishment of a European Telecommunications Agency as an alternative to the comitology arrangements (The High Level Group on the Information Society 1994). It recommended to establish an authority at the European level to regulate those operations which, because of their Community-

16 As to function (i) the ONP Committee functions as an advisory committee, as function (ii), however the procedures are those of a regulatory committee type 'a'. See the 'Comitology Decision' 87/373/EEC (OJ 1987).

wide nature, need to be addressed at the European level, and to advise to Member States authorities on general issues. The European Commission, however, "is not persuaded that a regulatory body at Community level would currently add sufficient value to justify the likely costs" and "therefore does not propose to establish a European Regulatory Authority for communications services at this stage" (European Commission 1999: ix). The issue is, nevertheless, likely to remain on the agenda.[17]

International level: An example of a telecom-specific institution established on an international level is the European Committee for Telecommunications Regulatory Affairs (ECTRA) with its permanent office, the European Telecommunication Office (ETO).[18] ECTRA, which has by now more than 40 members, offers a forum for regulators and administrators in Europe to discuss issues of interest, and to undertake projects or studies which may lead to technical or administrative harmonization. Although ECTRA powers to propagate 'decisions' are rather limited, it is a serious competitor to the Commission as to the international coordination and harmonization of regulation. A case in point is the Commission's proposal for a dual system of mutual recognition and Single European Telecommunications Licenses: After being rejected by the Council, the Member States assigned ETO the task to undertake studies and to make suggestions on the harmonization of licensing and declaration procedures, including an administrative framework of a one-stop-shopping procedure. As yet, however, despite a clear mandate and the obvious importance for establishing a single market for telecommunications the mutual recognition of licenses and the coordination of national authorization procedures made only limited progress (cf European Commission 1999: 20f).

Summing up. In the last two decades the network industries have moved to the center of the Community agenda. There has been a marked shift of competence from national governments towards the EC level. The Commission has established itself as the primary actor in changing the regulatory framework of the network industries in the EU. It defines the guidelines of liberalization and re-

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17 The increasing demands on European competition policy (in liberalized network industries) have also led to a revival of demands for an independent European Competition Agency (a European Cartel Office). See, e.g., Nicolaides (1997).

18 ECTRA (or CEPT/ECTRA) which was created in 1991 is a committee of CEPT, the European Conference of Postal and Telecommunications Services. CEPT was established in 1959. Original members were the incumbent monopoly-holding postal and telecommunications administrations/organizations. In conjunction with the EC policy of separating telecommunications operation form policy-making and regulatory functions the telecoms operators created their own organization in 1992, and CEPT became a body of policy-makers and regulators.

regulation, issues detailed recommendations on the implementation of directives, and directly applies the competition rules of the EC Treaty. The implementation of sector-specific Community legislation still lies mainly with the Member States. To implement harmonized rules in national markets, European law requires independent regulatory authorities, however. This has further reduced the scope of political control of the Member States governments. The need for international coordination in the implementation of regulation has led to the development of a 'network of regulators' at the international (e.g., ECTRA) and supranational (ONP Committee) level.

The current policy discussion as well as the complexity of the evolving allocation of competencies clearly suggest that, firstly, the pure alternatives of a complete centralization of regulatory competencies on the European level or a complete decentralization to the Member States – on which academic economic discussion frequently focuses – are neither the only possible nor, for any practical matter, the most relevant alternatives. Secondly, it has also become obvious that the horizontal allocation of competencies for the making and implementation of regulatory legislation – including the question of whether or not to delegate specific enforcement powers to independent (European) agencies – is both important and disputed. This is true not the least because the horizontal allocation of competencies has considerable consequences for the possibility of the Member States to influence European policy and vice versa. Finally, a delegation of competencies to a supranational level is by no means the only conceivable or practiced way to exploit the possible benefits of harmonization and coordination of national policies. As ETO/ECTRA shows, international agreements between EC Member States (and between these and non-Member States) are a relevant alternative. A normative analysis of the question of how the vertical and horizontal allocation of (regulatory) competencies in the Community should be developed, thus, has to deal with rather complex issues for which there are no ready-to-use analytical models in economic theory.

III. Normative Considerations on Regulating the Network Industries

The aim of this chapter is to elaborate on those characteristics of regulatory policy in the network industries that are particularly relevant for an efficient institutional design for the governance of regulatory policy in general and the appropriate federal allocation of economic policy competencies in particular.

Based on the (normative) theory of regulation, alternative substantive policies and rules for the regulation of network industries are discussed. General restrictions on regulatory policy that result from information asymmetries and transaction costs of regulatory decision making and the related (self)commitment and incentive (agency) problems are pointed out.

III.1. Are there 'optimal' regulatory rules ?

Competition is now widely recognized to be a more powerful means of achieving both efficiency and equity objectives than monopoly also in the network industries. Because of particularly acute hazards of opportunism on the supply side of the network industries that result from complex coordination problems (see Ch. II.1), establishing and guaranteeing effective competition will generally require more than a mere deregulation and liberalization of market access, however. While most economists agree that some regulation is needed as a precondition for effective competition at least in a transition period, there is much less consensus when it comes to the question of the appropriate objectives, scope and rules of regulation within the different network industries. By now, an enormous multitude and diversity of regulatory measures has been proposed and discussed both in politics and within normative regulatory economics. Contributions to the (regulatory economics) literature suggest quite different, irreconcilable or even contradictory partial answers to the question of optimal regulation.[19] Substantial differences in opinion remain, with respect to the relative weights of partial objectives of regulation, and to the details of the relevant technological and informational environment. These differences translate into differences in opinion as to (i) the appropriate scope of competition (monopolistic or competitive network provision) and industry structure (vertical integration or disintegration of network providers), and (ii) the 'optimality' of specific regulatory rules for a given industry structure.

Ad (i). Where it is thought that natural monopoly elements are still significant, it is often argued that competition is best accommodated via service providers being granted access to a (regulated) monopoly network infrastructure. In other industries, notably telecoms, it may increasingly be feasible and desirable, for infrastructure (or facilities-based) competition to take place. Which type of

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19 This is true even though most normative regulatory economics is analyzing the regulatory problem as a purely 'technical' problem of finding welfare maximizing regulatory rules and is abstracting from the (additional) problems stemming from the 'political' process of policy making and implementation (cf Dixit 1996: 8f).

competition will actually be superior depends on a number of factors. It depends, e.g., on whether natural monopoly elements are expected to remain characteristic for the particular network, or are expected to disappear over time, as technology develops, and demand for services increases under a regime of liberalization. It also depends on the relative importance given to productive and allocative inefficiencies.[20] Opinions also differ as to the relative importance of the benefits and costs of a mandatory separation of the ownership of bottleneck facilities and the provision of competitive services. On the one hand, a disintegrated network monopolist will generally have less incentives to discriminate between competing service providers and access regulation may be facilitated by the greater symmetry of competitors on the service market, and a reduction of information asymmetries between the regulator and the network monopolist (see Bickenbach 1999). On the other hand, however, significant economies of scope may be forgone because of disintegration. There is a plethora of relevant factors and causalities that renders extraordinarily complex the question of which institutional arrangement constitutes an optimal solution to the trade-offs between productive and allocative efficiency, and between an improved coordination of different vertical levels and a more effective competition on the service level. What seems evident, nevertheless, is that liberalization and separation are no panacea to the problems of regulation in the network industries.

Ad (ii). One of the most important but also one of the most controversial questions with respect to the 'optimality' of regulatory rules is the 'access pricing problem', i.e., the problem of regulating prices of access to the bottleneck facilities of vertically integrated providers. Although the economic literature has developed significantly in recent years it has, as yet, let to no clear-cut and ready-to-use results that – together with empirical information – could help define optimal access rules (or prices).[21] The complexity of the problem largely stems from the fact that, in practice, access regulation has to serve multiple goals and constraints. Optimal access regulation, however, is highly sensitive to the regulatory objectives and the details of the (technological and informational)

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[20] Competition in both infrastructure and services provision may be preferred if the expected losses of productive efficiency, resulting from a duplication of assets, are expected to be overcompensated by gains in allocative efficiency, resulting from competitive (non-monopolistic) price setting. Furthermore, one may well doubt whether a monopolistic network provider will have sufficient incentives to actually exploit all or at least most of the – theoretically possible – economies of scale and scope, and to minimize production costs, both statically and dynamically.

[21] For an overview see Valetti and Estache (1999), also see Bickenbach (1999) and Laffont and Tirole (1994, 2000).

regulatory environment. It crucially depends on the weighting of different (partial) objectives of regulation, on the instruments available to the regulator and, in particular, on the nature of competition and regulation on the final product/service markets. Thus, the 'access problem' can be discussed only with reference to all of the regulatory environment.[22]

Additional problems arise in determining optimal regulation if one considers explicitly the fact that the regulator is generally less well informed about technological and market conditions than the regulated firm itself (asymmetric information). These problems are at the core of the so-called 'New Economics of Regulation' (NER).[23] In studying optimal regulation NER focuses on the restrictions and trade-offs that result from information asymmetries and the diverging interests between regulator(s) and regulated firm(s). The analysis starts from the presumption that the regulated firm's managers will generally have more precise information about relevant cost and demand condition than the regulator and that at least some relevant actions of the firm (for example measures to reduce costs) can be observed by the regulator only imperfectly at best. In combination with the diverging objectives of the regulated firm and the regulator, the information asymmetries lead to incentive problems (problems of adverse selection and moral hazard), that are analyzed (mainly) within the principal-agent paradigm of complete contracts.[24]

Under asymmetric information, the optimal regulatory rule is the solution to a complex trade-off between productive efficiency (the firm should produce at minimal costs both in a static and in a dynamic sense), allocative efficiency (prices should reflect realized marginal costs), and the restriction of socially costly information rents of the regulated firm (see Chapter III.2. below). The

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22 If, for example, the regulator regulates both access prices and retail prices, there are generally important interdependencies between the two markets and optimal access prices depend on detailed information on individual firms' cost and demand conditions. Frequently in practice, different objectives are pursued by a single instrument, access price regulation. If there are – for whatever reasons – no other instruments employed to pursue different objectives (such as control of market power on the final good market, setting appropriate incentives for investments in network facilities), access prices will have to find the best possible (if necessarily imperfect) balance between the different objectives. A comprehensive discussion on optimal access prices for different sets of objectives can be found in Laffont and Tirole (1994, 1996).

23 For a detailed description of the NER approach and a large number of model variations for the analyses of different regulatory problems within this approach see Laffont and Tirole (1993). For an excellent survey of important results see Laffont (1994).

24 Within that paradigm, it is assumed that parties are able to write and enforce complete (or rather comprehensive) contracts, i.e., contracts that can describe all future contingencies and variables that can be observed in the future by both (at least two) parties to the contract.

optimal solution to this trade-off depends in a rather complex and sensitive way on the specific assumptions made about regulatory objectives (e.g. the regulator's weighting of productive and allocative efficiency), about the instruments available to the regulator (and the firm), and about the technological and informational environment.

By now NER has studied 'optimal' regulation within a large number of specific models describing different regulatory problems and environments.[25] Even for the specific set of strict formal assumptions of a particular model the optimal regulatory rule depends on all kinds of information (or subjective expectations) the regulator has, e.g., about demand conditions, monetary and non-monetary costs of efficiency enhancing measures of the firm and the probability of different values of the cost parameters. Thus, even for the traditional problem of regulating the conduct of a monopolistic firm, NER has not been able to derive implementable rules that are optimal under a broad class of circumstances.

Summing up. The general conclusion of this selective discussion is that there is no such thing as an 'optimal regulatory rule'. Despite strong assumptions the normative theory of regulation does not provide a "neat set of cookbook rules"[26], which in combination with empirical observations (available information) could be used to derive robust results on the form of universally 'optimal' or at least 'good' regulatory policies or rules. Appropriate regulation is highly sensitive to the weighting of different (partial) objectives of regulation, the information and instruments available to firms and regulators, and the particular circumstances of the industry considered. Given the extremely rapid changes in some of the network industries and the lack of robust results on 'optimal' regulation tying regulation to strict rules seems hardly sensible. Technical progress and the evolving liberalization in these industries will trigger further, largely unforseeable, changes in the technological and market conditions to which regulatory policy will have to react. There are, thus, important efficiency arguments for granting considerable discretion to the regulatory agents with respect to the choice of appropriate regulatory instruments and the details of regulatory rules. Of course, the downside of discretion is an increased and important danger of regulatory opportunism, to which we will turn now.

III.2. Asymmetric information and the transaction costs of

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25 The analysis is extended to multi-product firms, endogenous product qualities, long-term specific investments, etc..

26 Joskow and Schmalensee (1986: 24 f.).

regulation

Although NER is – as the normative theory of regulation more generally – unable to derive specific and robust conclusions on adequate regulatory policies or rules, it has nevertheless helped sharpen economists' intuitions on the issue and derive important insights on the role played by asymmetric information. In particular, NER has helped identify and understand three types of generic efficiency problems of economic regulation which are closely related to information asymmetries (and transaction costs) of regulatory policy making: (i) low powered incentives (ii) time-inconsistency problems because of limited commitment abilities of the regulator, and (iii) the hazards of self interested behavior of the regulator and of regulatory capture.

Ad (i) Low powered incentives. The literature on regulation in the presence of asymmetric information points at a fundamental trade-off between the restriction of socially costly information rents obtained by the firm (rent extraction) and the power of incentives to produce efficiently (productive efficiency). Under fairly general assumptions, the optimal solution to this trade off requires a reduction in the power of incentives relative to the full information first best situation.[27] In the parlance of economic theory, optimal regulation will be characterized by 'low powered incentives'.[28]

Under asymmetric information a regulated firm always has the option of claiming to be less efficient than it actually is (i.e., to have higher costs or less cost reducing possibilities) and of making this claim credible by mimicking the (production or pricing) behavior of a less efficient firm. By doing so, it may induce the regulator to treat it more leniently. The firm will therefore be able to obtain a rent on its private information.[29] In order to reduce the socially costly information rent that can be obtained by efficient firms a (welfare maximizing) regulator will distort cost and production targets towards less efficient values. That makes it less attractive for an efficient firm to claim to be (or to mimic) a less efficient one. As long as the regulator is benevolent and has at his disposal sufficient (self)commitment capabilities the trade-off between rent extraction and incentive provision may ease – but generally not be dissolved – as the information or the instruments available to the regulator increase.

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27 See Laffont and Tirole (1993: Chapter 2) and Armstrong, Cowan and Vickers (1994: Chapter 2).

28 Generally, there will in addition be allocative inefficiency because allowing the firm to increase prices above marginal costs usually helps reduce productive inefficiencies.

29 Thus, the informational problem imposes constraints ('incentive compatibility constraints') on the regulatory rules that can be implemented by the regulator.

Ad (ii) Commitment problems and time-inconsistencies. In a multiple-period setting additional regulatory inefficiencies may result if the regulator does not have perfect commitment abilities. A benevolent regulator may then face important time-inconsistency problems. An ex post modification of the regulatory rules may be short-term (or ex post) efficient, but long-term (or ex ante) inefficient.

Generally, regulation is extended over a considerable period of time. Future contingencies may not all be foreseen at the time the (original) regulatory rules are determined; and during the course of the regulatory relationship new information will become available to the regulator. Therefore, ex post renegotiations or (unilateral) adjustments of the originally agreed upon terms of regulation may improve ex post efficiency. Allocative efficiency may, e.g., be increased by adjusting prices to better reflect changing costs or the regulator's improved cost information. However, ex post efficient unilateral adjustments or renegotiations of regulatory terms may have incentive effects on the regulated firm that are generally negative from an ex ante point of view. Anticipating ex post adjustments of regulatory terms the regulated firm behaves suboptimally in the earlier periods of the relationship.

If the firm possesses private information about its costs, a (benevolent) regulator generally has an incentive to use past observations of the firm's behavior (e.g., pricing) or realized costs to update beliefs about the firm's efficiency and adjust the terms of regulation accordingly. If the firm's cost as expected by the regulator decrease, it will generally be ex post efficient to tighten regulation (e.g., to force the firm to reduce prices), thereby reducing the firm's information rent. Anticipating this the firm will try to hide some of its private information early on so as to earn high rents subsequently. In order not to reveal too much information, the firm will change its behavior in inefficient ways. This is the so-called 'ratchet effect'. In an adverse selection (hidden information) framework the firm has an extra incentive to pretend to have higher costs than it actually has in order to obtain more favorable terms of regulation in the second period.[30] In consequence, the possibility of ex-post adjustments of regulatory terms further reduces the power of optimal incentives.[31]

Time-inconsistency problems may also lead to suboptimally low incentives to invest in specific assets. A firm considering major investments in long-lived

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30 In a moral hazard (hidden action) framework the firm will generally make less efforts to reduce costs in early stages of the regulatory relationship.

31 Formally, the problem is that incentive compatibility constraints are hardened by the mere possibility of renegotiation. For a detailed analysis see, e.g., Laffont and Tirole 1993, Chapter 9.

specific assets (e.g., infrastructure networks), will decide to do so only if it expects that the regulatory regime will allow to recover the cost of these investments. Once specific investments are made (sunk), even a benevolent regulator may have an incentive, however, to appropriate the quasi-rents associated with these investments, i.e. to 'hold-up' the firm. It may be ex post efficient to adjust regulatory provisions to the disadvantage of the regulated firm; it may, in particular, increase allocative efficiency ex post to require the firm to set prices that are sufficient to (just) cover operating costs but not long-run replacement costs. If the firm anticipates such an opportunistic behavior of the regulator investment decisions will be distorted; the firm will generally make less or less specific investments.

These examples highlight that regulatory commitment (credibility) has its value. In light of substantial technical change and related uncertainties about cost reduction potentials and of the importance of specific investments in the network industries, credibility of regulation is of particular importance for the efficient operation of these industries. Increasing the regulators commitment possibilities – either directly by restricting the regulators possibilities to adjust regulatory terms or indirectly by excluding the use of certain regulatory instruments (that would make an ex-post adjustment of regulatory terms easier and more tempting) – may, if credible, reduce time-inconsistency problems and increase regulatory efficiency. Commitment, however, comes at the expense of flexibility. And as network industries are operating in a climate of change, there may be substantial inefficiencies associated with too much inflexibility. Thus, there is generally a trade-off between the inflexibility of (long-term) binding provisions and the inefficiencies caused by problems of time-inconsistency. Within the network industries the trade-off between flexibility and credibility is a key concern in regulatory design.

Ad (iii) Self interested behavior of the regulator and capture. Additional problems of opportunistic behavior arise if one gives up the assumption of the benevolence of the regulator. In practice, any public agency is run by individuals with aims and purposes of their own. These aims and purposes may be used by different interest groups to influence or capture regulatory decision makers to act according to their (the interest groups') own ends. Thus, there are generally various influences on regulators to represent specific interests rather than some idealized conception of the 'common good'.[32]

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[32] The regulator may be influenced or captured by the regulated firm(s) itself ('regulatory capture'), or by the short term political interests of political decision makers ('government capture'), or by other specific interest groups (e.g. consumer safety or environmental lobbying groups). The different forms of capture have their origin in the more fundamental

If non-benevolence of the regulator is to be expected, additional, socially costly constraints have to be considered in the determination of optimal regulatory policy.[33] The constraints needed to avoid collusion, e.g. between the regulator and the regulated firm, will affect the trade-off between rent-extraction and efficiency. Generally, within the models of the NER, the danger of collusion calls for a further reduction in the power of incentives.[34]

In order to control the hazards related to a (potential) opportunistic misuse of regulation, it may, in particular, be helpful to restrict the regulator's self-commitment possibilities and the regulatory instruments available to him. Obviously, a non-benevolent regulator may do more damage to welfare if he is able to commit himself and his successor to inefficient decisions, made to increase specific interests at the expense of regulatory efficiency. It may, thus, be welfare enhancing to restrict the regulator's self-commitment possibilities in order to avoid such misuse.[35] For the same reason of potential misuse, it may be welfare enhancing to restrict the regulatory instruments or rules available to the regulator. If regulatory instruments differ with respect to the possibilities or the incentives of the regulator to misuse them or of the consumers/voters to detect and control such misuse, it may be efficient, if credible, to exclude the use of instruments that are particularly vulnerable to misuse or capture.

Take, for example, direct transfer payments between the regulator and the regulated firms. Within the standard models of the NER direct transfers play an important role in optimal regulation (see, e.g., Laffont and Tirole 1993: 53f). In practice, however, regulators are rarely given the competence to make discretionary transfers to (or to levy specific taxes on) the regulated firm. A reason for prohibiting such transfers, may be that direct transfers are particularly vulnerable to be (mis)used for increasing the profits of the regulated firms at the expense of the general public. If discretionary transfers were allowed, the stakes and power of regulated firms in influencing regulation would be high, and it would be quite difficult for the public to control the regulator's disrectionary behavior. This may make it reasonable to prohibit direct transfers even though

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notion of 'bureaucratic capture': It is when the aims of a regulatory agency come to reflect the individual aims of its staff that interest groups can capture the regulatory process by working to influence these aims (Neven at al. 1993: 165).

33 Formally, implementable policies must satisfy a set of 'collusion proofness constraints' on top of the usual incentive compatibility constraints.

34 These distortions have to be greater when collusion is relatively easy, i.e. when the transaction costs of 'side contracting' are low. For more on this see Chapter IV.4. below.

35 This is true, at least, if the (potential) costs of being committed to inefficient decisions are expected to be higher than the costs of time-inconsistency problems associated with limited self-commitment possibilities.

prices have to be increased above marginal costs to cover the firm's fixed and common costs, thereby creating allocative inefficiencies that could at least in theory be avoided or reduced by the use of direct transfers.[36]

Again there is a trade-off between the potential efficiency and flexibility of regulation and the prospects of regulatory opportunism – now in the form of capture. Allowing agencies complete discretion in their activities leaves them free to share rents with various interest groups; imposing a more restrictive framework of rules may mitigate this kind of capture at the cost of making regulatory policies less efficient, more rigid and less sensitive to circumstances of the particular case. And again, this trade-off seems to be particularly important for the network industries, where the danger of (government and regulatory) capture seems to be particularly acute. The consumers of network industry services are many and thus politically influential. Accordingly, politicians have traditionally taken keen interest in the network industries. At the same time, there is a particular proximity of politicians and regulators to, and thus a particularly acute danger of being captured by, the incumbent 'national' network operators, which frequently are (or until quite recently have been) at least partially publicly owned. There is thus a substantial danger of the regulator taking too favorable a view towards the firms being regulated.

Summing up. It has been argued that there are important efficiency arguments for granting considerable discretion to the regulators of the network industries. Discretion allows to fine tune regulation, to improve the trade-off between rent extraction and incentives and to flexibly respond to a changing technical and economic environment. The downside of discretion, however, is an increased and important danger of regulatory opportunism, both between regulators and regulated firms (time-inconsistencies) and between regulators and their political principals, ultimately the public at large (regulatory capture). Thus, there is generally a trade-off between the (potential) efficiency effects of regulatory discretion on one side and the costs of regulatory discretion in the form of an important and increased danger of opportunistic behavior of the regulator on the other. Within the network industries, flexibility is necessary, but at the same time the danger of regulatory opportunism (time-inconsistent behavior or capture)

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36 True, profits of the firm may also be increased at the expense of consumers by allowing the firm to charge excessive prices. The danger of misuse seems to be more limited in this case, however. Higher prices have to be directly paid by consumers and may thus be more visible to them than direct transfers financed by general taxes. In addition the volume of the financial consequences of a potential misuse is limited by the (actual) consumers willingness to pay (or rather the monopoly profits of the firm).

seems to be particularly acute. Thus, the treatment of this trade-off is crucial for the efficiency of the (regulated) network industries.

Tight legal restrictions on the instruments available to and the regulatory rules to be implemented by the regulator are but one possibility to influence this trade-off. There are other potentially superior ways of influencing this trade-off, namely the appropriate design of regulatory processes and structures. Regulatory decision making may be controlled by procedural rules and the implementation of 'checks and balances' by an appropriate vertical and horizontal allocation of regulatory competencies. It is the vertical (federal) allocation of regulatory competencies that will be the subject of the rest of this paper.

IV. Towards a New Economic Theory of Federalism

IV.1. Traditional economic approaches to federalism

Traditionally, the economic discussion of the appropriate allocation of economic policy competencies in federal polities is based on the Theory of Fiscal Federalism in the tradition of Musgrave, Breton, Olson and Oates, and its extensions by polit-economic arguments. The theory postulates a trade-off between an improved coordination of political decision making under centralization (e.g., in case of border-crossing spillovers) on the one hand and an improved differentiation and alignment of political decisions towards citizens' preferences and local conditions under a system of decentralized competencies on the other. This trade-off is of obvious importance in determining the appropriate vertical allocation of competencies for the regulation of the European network industries.

On the one hand, consumer preferences and technological and market conditions have an important influence on appropriate regulatory decisions. Optimal access prices, for example, depend on detailed information of local cost and demand conditions. This is taken as an argument in favor of a *decentralization* of competencies. On the other hand, however, the inter-connection of local and national networks may induce important direct and indirect interjurisdictional spillover effects of regulatory decisions. Price regulation in one country may have direct effects on the prices to be paid by users from other countries (e.g., in international telephony or transport). In addition, decisions of infrastructure and service providers in one country may have important effects on providers in other countries. In consequence

regulatory decisions affecting the behavior of a provider in one country will have indirect spillover effects on consumers, firms and regulators in other countries. On the basis of these arguments, fiscal federalism would suggest a *centralization* of regulatory competencies.[37] Moreover, there may be important economies of scale and harmonization benefits (in the sense of a reduction of transaction costs) for both public and private actors in the design, implementation and enforcement of regulatory policies. There may be, for example, important cost savings for a firm that wants to provide services in different Member States, if it is necessary to acquire only one centrally issued license (one-stop shopping procedure). This may speak in favor of a *centralization* of competencies as well.[38]

As these examples show, the suggestions of traditional fiscal federalism on the appropriate federal allocation of regulatory competencies for the European network industries tend to be ambiguous. There are potentially important arguments both in favor of a centralization of regulation on the supranational (European) level and in favor of a decentralization of regulation to the Member States. The task of weighing and trading-off the opposing effects is complicated by two important methodological shortcomings of traditional fiscal federalism: (i) The advantages and disadvantages of (completely) centralized and decentralized allocations of competencies are merely postulated rather than theoretically explained; and (ii) the comparative (dis)advantages of alternative systems of parallel or concurrent competencies are not analyzed; actually, they cannot readily be analyzed within the traditional models of fiscal federalism. The basic reason for these shortcomings can be traced to the lack of an explicit analysis of transaction costs and information asymmetries and the role they play for the coordination, incentive and commitment problems of (regulatory) policy making.

Ad (i). Well in line with practical intuition, traditional economic theories of federalism acknowledge that some kinds of information problems are the basic reason for the postulated trade-off between centralization and decentralization. What is generally missing though, is a systematic analysis of the capabilities and

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37 This is true, in particular if a decentralization of regulatory competencies is expected to lead not only to a neglect of spillover effects but to a strategic use of spillover effects, e.g., to give ‘national’ providers an advantage in competition via ‘foreign’ competitors.

38 On the basis of similar reasoning there are arguments both in favor of a horizontal concentration of regulatory competencies and in favor of a separation of competencies on a specific vertical level. For example, externality effects between different regulatory objectives (e.g., productive and allocative efficiency) or regulatory instruments (e.g., measures of structural regulation and of conduct regulation) may speak in favor of a concentration of regulatory competencies, since it may be easier to coordinate the different regulatory policies or instruments by only one agency.

incentives that political or administrative decision makers at the different federal layers have (or may be given) for acquiring, processing and using the information that is necessary for an efficient decision making. Indeed, the mechanism design literature[39] has shown, that information asymmetries alone cannot account for this trade-off (see Crémer et al. 1996): If it were possible to write complete (comprehensive) contracts, then by appropriately shaping decision making procedures and transfer mechanisms the federal government would be able to entice the electorate, firms and consumers to truthfully 'reveal' the decentralized information that is necessary for an informationally constrained efficient policy making. Thus, any allocation that can be reached under a decentralized decision making structure, could theoretically be reproduced in a completely centralized setting.[40] The opposite is also true: If complete contracts can be written (and some other rather innocuous assumptions are met), the efficient coordinated policy can be achieved under a decentralized system of decision making with a convenient set of transfers at the local level (Baron and Besanko 1992).[41] Thus, if complete contracts were actually possible, the vertical allocation of competencies would be irrelevant for efficiency.[42]

Ad (ii). Traditional fiscal federalism is almost mute on the issue of *concurrent competencies*, i.e. on federal systems, where competencies concerning a particular function are allocated to different federal levels (such as systems of decentralized decision making with centrally imposed guidelines). Generally only the respective (dis)advantages of a complete centralization and a complete decentralization of competencies are discussed. A system of concurrent competencies is frequently considered a necessarily inferior solution to the problem of allocating competencies. Indeed that presumption can hardly be derived within traditional models of fiscal federalism, however. Traditional fiscal federalism is not well suited to address the question of why it should not be

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39 The theory of mechanism design deals with the consequences and restrictions of asymmetrically distributed information for the design and efficiency of collective decision making. For a description of the formal approach and important results of the mechanism design literature see Mas-Collel et al. (1995: Chapter 23).

40 This is the famous 'revelation principle', see Myerson (1979), Mas-Collel et al. (1995).

41 Similarly, as already stressed by Coase (1960), in a zero transaction cost world decentral governments could, negotiate and enforce contracts that allow for the internalization of externalities and the realization of coordination benefits without any centralization of competencies.

42 Granted: This reasoning is based on rather strict assumptions and may be of academic value rather than of practical relevance. It suggests, however, that theoretically satisfying answers to the question of the (dis)advantages of centralized (decentralized) allocations of competencies cannot be derived without looking into the reasons for the discrepancy between theoretical and practical intuition (Crémer et al. 1996: 46).

possible to husband the advantages of centralized and decentralized systems (i.e. taking local information into account and, at the same time, benefiting from efficient policy coordination) without incurring their respective disadvantages. Without an explicit analysis of the role information asymmetries and transaction costs play in attempts of reaching and enforcing political agreements it is hardly possible to analyze how central and decentral political decision-making interact, what role central guidelines may play for securing the efficiency of decentralized decision making, and, more fundamentally, when decentralized negotiations will entail equivalent or even better results than a hierarchical centralization of decision-making competencies.

Hence, traditional economic theories of federalism have hardly anything to say about the extent to which an effective policy coordination or an internalization of interjurisdictional externalities could be achieved with less than a complete centralization of competencies (on the highest federal or supranational level). In particular, it cannot be discussed within the analytical framework of fiscal federalism as to whether or not "administered contracts" (Goldberg 1976) between jurisdictions that delegate some rather limited competencies with regard to the interpretation, adjustment and enforcement of these contracts to higher international or supranational bodies (or the central level of an existing federation suffice to achieve this coordination or internalization. This innate restriction is all the more unsatisfactory for the discussion of the allocation of competencies within the EU, as the EU is by now much more than a mere international agreement between sovereign states but still not a fully fledged federal state.

Traditional Public Choice (Political Economy) extensions of fiscal federalism do not solve these problems. Giving up the assumption of benevolent, welfare maximizing political actors, and investigating into the real motives of political decision makers is not enough to solve the puzzle of the perceived (theoretical) irrelevance of a (de)centralization of political competencies or to analyze how self-interested behavior of public actors could possibly be affected or contained by alternative allocations of competencies. In addition, the institutional restrictions to the political actors' behavior (stemming, e.g., from the vertical and horizontal separation of competencies in a systems of concurrent competencies) have to be integrated into the analysis. This requires to address the transaction costs of political decision making. This is left undone in most traditional public choice theories, however.[43] The "Public Choice literature has probably failed in giving a clear account of why different organizations of the government affect its efficiency because it never clearly took a transaction cost perspective" (Laffont

[43] For an elaboration of this argument with respect to the Chicago school economic theory of capture (or interest group influence) see Bickenbach (1999: 82f).

and Martimort 1998: 674).

A systematic and theoretically more satisfying analysis of the allocation of competencies and its the effects on the efficiency of decision making and on the containment of (political) opportunism has to take explicitly into account transaction costs and the ensuing contractual problems between private and public agents. In a zero transaction cost world 'Coasean bargaining' and the signing and enforcement of complete contracts (or constitutions and laws) between political actors would render irrelevant, at least for efficiency purposes, the allocation of political decision making competencies. Only when transaction costs are taken into account is it that (political) 'institutions matter'. When different political institutions are associated with different values of these transaction costs, there is scope for their comparison and for an, albeit somewhat rough, optimization over regulatory structures (Estache and Martimort 1999: 1).

IV.2. Contract theoretic foundations of a New Economic Theory of Federalism

Traditional fiscal federalism and public choice models assume a certain 'behavior' of the state or of government. But neither do they explain that behavior nor do they analyze to what extent that behavior can be influenced by institutional structures and processes. There are, thus, important parallels to the neo-classical theory of the firm, that models the firm as a profit maximizing 'black box', without deriving that profit maximizing behavior from more basic assumptions about incentives and constraints of individual decision makers within the firm.

Within the so-called 'New Economic Theory of the Firm' transaction cost economic and contract-theoretic reasoning has been successfully employed to open the black box of the neo-classical firm (see, e.g., Milgrom and Roberts 1992). The formal analysis is based on different contract theoretic paradigms. The main part of the literature is based on the complete contracting paradigm of traditional principal agent theory. This theory allows important insights, e.g., into the determinants of optimal (internal) incentive contracts or pay systems.[44] However, this approach "is not suitable ... for analyzing the allocation of responsibilities or authorities among different levels of management or among different stakeholders" (Laffont and Martimort 1997: 205). As long as it is assumed that complete contracts can be written and enforced at no cost between

44 For a recent overview see Gibbons (1998).

all relevant parties, the boundaries of the firm and the allocation of competencies in private or public organizations are difficult, if at all, to explain. To perform this task requires to introduce transaction costs into the analysis and to ”enter into the world of incomplete contracts“ (ibid.).

Different approaches to a theory of incomplete contracts have been developed within the New Economic Theory of the Firm. They have helped gain important insights into the internal organization, the ownership structure and the ‘boundaries’ of the firm (Hart 1995). Basically, there are two complementary paradigms of incomplete contracts: (i) the formal *theory of incomplete contracts* (in a narrow sense), and (ii) the *multiprincipal incentive theory* (and closely related the ‘theory of side contracts’).

Ad (i). The formal *theory of incomplete contracts* of the ‘new property rights theory’ (Grossman and Hart 1986; Hart and Moore 1990) takes as its basic assumption that, because of insurmountable transaction costs, the contracting parties cannot directly contract ex ante on all the information they may share in the future about changes in the environment or about their appropriate future action (incomplete contracts in a narrow sense). The writing and communicating of some relevant contingencies between contracting parties may be prohibitively costly or contracts may be plagued with enforcement problems, e.g. because courts are unable to verify relevant variables.[45] Hence, only incomplete contracts can be written; contracts that determine the rights and obligations of the contracting parties only partially, and/or only for some contingencies. The basic idea of the theory is equally simple and important: if (and only if) it is impossible (or too costly) to lay down a detailed specification of the terms of the contract it becomes important to determine ex ante who should have the right to decide ex post what to do in situations where the original contract is ‘silent’ or vague, and/or which rules will have to be followed in decision making. The theory allows to analyze how different allocations of decision-making and control rights affect the incentives of the different agents and, thus, the efficiency of the contractual relation under different circumstances. The allocation of control rights may affect, for example, the incentives to invest in specific assets, or the incentives to acquire information as a basis for making or controlling decisions.

Ad (ii). *Multiprincipal incentive theory* and the theory of side contracts assume that, even though it is possible to write and enforce complete contracts between some (pairs of) actors (principals and agents), it is impossible to write an

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45 For a discussion of the methodological foundations and problems of this incomplete contracts approach see Tirole (1999), Maskin and Tirole (1999a, 1999b), and Hart and Moore (1999).

encompassing complete contract between *all* relevant actors (incomplete contracts in a wider sense).[46] Multiprincipal incentive theory allows to describe and formally analyze situations where an agent is influenced by several (competing) principals with diverging objectives, or where one principal needs several agents or two- or multilayer chains of delegation (hierarchies) to perform some task. It is possible to study the distortions implied by incomplete contractual links and their consequences for the efficiency of the agents' decisions under alternative allocations of decision-making competencies and institutional set-ups. It can be shown that the introduction of additional actors (principals or agents) may enhance overall efficiency, even though it creates additional distortions resulting from the inability to write complete contracts with or between them. The reason is that these additional distortions may offset other already existing distortions stemming from unavoidable contractual imperfections, such as limited commitment.

Most economic models employing the incomplete contracts paradigms deal with private sector organizations. In doing so, however, they deal with issues that are also important for a positive analysis of political institutions – namely questions concerning the comparative efficiency of different allocations of competencies in situations characterized by transaction costs, information asymmetries and diverging interests, and the resulting control problems. Indeed, in the last few years, the theories have increasingly been applied to the analysis of public sector or political organizations as well. Building on the contract theoretic developments of the New Economic Theory of the Firm, there is a new theory of 'Transaction Cost Politics' (Dixit 1996) or 'Transaction Cost Political Economy' (Estache and Martimort 1999) emerging, which paves the way for a new "second generation economic theory of federalism" (Qian and Weingast 1997). This 'New Economic Theory of Federalism' attempts to mitigate the deficiencies of the traditional economic theories of federalism by taking explicit recourse to the incomplete contracts paradigm.

IV.3. Incentive and commitment effects of (de)centralization

With the help of the *theory of incomplete contracts* the comparative advantages of centralized and decentralized allocations of competencies postulated by traditional fiscal federalism can be traced back to unavoidable contractual imperfections and the corresponding commitment and incentive problems of

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46 For a more detailed description of this approach and applications within the theory of the firm see Laffont and Martimort (1997).

public policy.

Centralization and the credibility of coordination. It has been argued by traditional fiscal federalism that the advantages of a centralization of political decision making competencies stem from a more effective policy coordination and an internalization of interregional or international spillovers. The theory does not explain, however, why the necessary coordination could not possibly be achieved by bi- or multilateral contracting or even by informal agreements backed through self-enforcement mechanisms.

From a contract theoretic perspective it seems natural to trace back problems of coordination by interjurisdictional agreements to a lack of credibility of their enforcement. Credibility problems of policy coordination under different, centralized and decentralized, allocations of competencies can be systematically discussed using methods and arguments of incomplete contract theory (see e.g. Begg et al. 1993). In doing so, the incomplete contracts approach emphasizes that the advantages of centralization do not depend upon the size of potential coordination and the spillover effects alone (which has been the main focus of traditional economic theories of federalism). In addition they depend upon a number of information and transaction cost aspects that determine the extent to which coordination advantages could as well be realized on the basis of (credible) interjurisdictional agreements.

Incomplete or asymmetric information of the parties to an agreement may be an important source of self-enforcement problems of international agreements and, thus, of disadvantages of a decentralized system of competencies. If interjurisdictional agreements have to be rather complex it may hardly be possible (or take a lot of time) to detect whether any contracting party is cheating on the wording or the ‘spirit’ of the agreement. In such a situation the enforcement of voluntary agreements to coordinate contracting parties’ policies may hardly be possible. A centralization of competencies may then be necessary to achieve a credible coordination. If, however, relevant future contingencies are limited in number and easy to anticipate, and if these contingencies and the policies to be followed by the contracting parties can be clearly described ex ante and verified ex post, coordination potentials may credibly be realized without a substantial centralization of competencies.

Decentralization and the credibility of differentiation. Information problems may also be an important source of the costs of centralized systems of competencies. The costs of a centralized allocation of competencies postulated by traditional economic theories of federalism are related to a better information of decentral political actors and a greater responsiveness of decentrally determined policies to local conditions. However, in traditional economic models of fiscal

federalism there is, generally, no explanation apart from plausibility of these advantages. There is no theoretically satisfying explanation of *why* local (decentral) politicians should have better information on local conditions or *why* decentral political agents should use this information more efficiently. It is not obvious at all, however, why decentral decision makers should have better options for acquiring information about local conditions and preferences. On the one hand, local representatives of central governments should have the same (formal) instruments to gather information as local governments (opinion polls, hearings, etc.). One may even argue that, because of a larger number of similar decisions, central decision makers should be able to benefit from learning effects and economies of scale in hiring experts (Crémer et al. 1996: 47f). On the other hand, central governments may design decision (and transfer) systems that induce local actors to truthfully reveal their information (revelation principle). In so far as there really are information and differentiation advantages at the local level, they must be related to the low incentives of local actors in the case of a centralization (i) to provide this information or (ii) to acquire it in the first place and/or (iii) to low incentives for actors at the center to use this information to efficiently differentiate their policies. Again, by stressing the importance of commitment and incentive problems the theory of incomplete contracts may explain when and why this may actually be the case:

Ad (i). An essential impediment for central politicians in the process of information acquisition is that they cannot generally commit themselves credibly to use that information only in an ex ante agreed upon way and not to use it (now or in the future) to implement policies that are against the interests of local information providers. It is the lack of respective promises of central decision makers that may make local actors reluctant to provide the required information.[47] A decentralization of competencies may enhance the credibility of the commitment not to use the information to the disadvantage of the local providers and thus enhance their readiness to inform (Begg et al. 1993).

Ad (ii). Generally, acquiring information is costly. Local politicians or local agents of a central governments will be reluctant to incur these costs if not they themselves but central politicians will actually have to take the decisions. And they will be even more reluctant if they expect that the information they provide is not likely to be decisive for the central politicians' decision (e.g., because they rely on other sources of information as well). A decentralization of competencies may increase the credibility of using local information appropriately and it may

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47 This is a variant of the ratchet effect discussed in the preceding chapter and is closely related to Williamson's argument of the impossibility of "selective intervention", see Williamson (1985: 135f).

thereby also increase the incentives to acquire such information in the first place. In order to achieve this incentive effect it may actually not be necessary to decentralize formal authority (formal competencies), however. It may be enough to strengthen the real authority of local agents, in the sense of increasing the likelihood that their information or recommendations are decisive for the actual decision. Such an increase in the real authority of decentral actors may be achieved without a formal transfer of authority, e.g., by increasing the workload of central decision makers, forcing them to 'rubber stamp' the decisions (suggestions) of decentral actors (Aghion and Tirole 1997).

Ad (iii). The incentives for central and lower level governments to use available information about local conditions or preferences for an appropriate differentiation of policy has also been analyzed within the incomplete contracts framework. Given the extraordinary incompleteness of the 'contract' between the electorate and politicians, probably the most effective way to provide politicians with the appropriate incentives is to make policy subject to electoral review, i.e., to give voters the power to eject politicians if they are dissatisfied. In this case a centralization of competencies clearly reduces the accountability of the politicians in the sense that voters of any one region lose their ability to eject the responsible politicians irrespective of the voting in other regions. A model of incomplete contracts built on this simple idea allows to come up with some conclusions with respect to the incentives for and the credibility of differentiating policy and aligning policy with regional preferences under centralized and decentralized allocations of decision making competencies (Seabright 1996). An interesting result of the model is that the costs of centralization (in the sense of a diminished accountability of politicians and a poorly differentiated policy) do not depend on the regional heterogeneity of the preferred policy as such or on the distribution of observable region-specific shocks, but (mainly) on the interregional correlation of shocks that cannot be observed by voters.[48] This is because the correlation of unobserved shocks determines the correlation of the levels of satisfaction of voters in different regions with a uniform policy, and, thus, the reelection prospects of politicians and their incentives to differentiate policy.

These examples indicate that models based on the theory of incomplete contracts can rationalize the, in traditional economic theories of federalism merely postulated, (dis)advantages of alternative allocations of competencies on the basis of rather simple arguments. In addition, the modeling strategy allows

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[48] It is assumed that the satisfaction with politicians of a region's population depends on the population's welfare, which is a function of the policies chosen for their region (as well as possibly for other regions, because of externalities) and of unobserved locality-specific shocks in the region.

new insights with respect to the relevant variables and their interaction such as the relative importance of formal and real competence or authority for the incentives to acquire and transfer information, and the possibility to strengthen real authority even without transferring formal competencies.

IV.4. Incentive and commitment effects of concurrent competencies

With the help of multiprincipal incentive theory it is possible to analyze the incentive and commitment effects of alternative systems of concurrent competencies and of the potential benefits of centrally imposed constraints on decentralized (regulatory) policy making. It can be shown that a separation of regulatory powers in the sense of establishing two (or more) regulators – which in itself implies an *increase* in the transaction costs of regulatory decision making – may, under specific circumstances, help mitigate the three important efficiency problems of economic regulation identified in the preceding chapter: (i) low powered incentives induced by information asymmetries between regulator and regulated firm (ii) time-inconsistency problems because of limited commitment abilities of the regulator, and (iii) the hazards of regulatory capture.

Regulatory externalities and incentive intensity. Multiprincipal incentive theory allows for a systematic analysis of the strategic effects that evolve out of the interaction of several national or national and supranational regulatory authorities with regulatory competencies for the same firm or industry. In order to do so the relations between different regulators (principals) and a regulated firm (agent) are modeled as competing regulatory contracts or incentive mechanisms. In simple models of incentive regulation – under conditions of adverse selection (see e.g. Martimort 1996) or moral hazard (Dixit 1996) – the (in)efficiency effects can be analyzed that follow from a firm being subjected to regulation by two (or more) benevolent regulators with asymmetric information.

Take, for example, a firm that is performing two activities (effort variables in a moral hazard model) and that is regulated by two benevolent regulators, one for each activity.[49] Consider the case where the marginal cost of making one type of effort decreases with the level of the other type of effort. In this case any inducement by one regulator (principal) to increase one activity leads to an

[49] The two activities may be, e.g., investments in network facilities (possibly in different countries), or efforts to reduce costs of domestic telephone calls and to increase the quality (or again reduce the costs) of international calls, respectively.

increase in the other activity, as well. Thus the regulators inflict *positive* externalities on each other. In consequence, they will try to free ride with respect to the costs of incentive regulation and, in sum, therefore, only comparatively weak incentives will be provided for the regulated firm. This adds to the inefficiencies (low powered incentives) that generally arise even in the case of only one regulator.[50]

Now consider the case where the marginal cost of making one type of effort increases with the level of the other type of effort. Here, the inducement by one principal to increase one type of effort causes a substitution away from the other activity. Thus the principals have to compete for the initiative of the firm and inflict *negative* externalities upon each other. Compared to the situation with just one regulator the firm is provided with stronger incentives to increase effort. The externalities that result from the separation of regulatory competencies (at least partially) countervail the inherent efficiency problems that result from asymmetric information between the regulators and the firm.

Thus, whether competition between regulators increases or decreases incentive problems (relative to the case of a single regulator) crucially depends, within the models, on whether there are positive or negative externalities between regulators.[51] However, even in the case where (unrestricted) competition between regulators leads to additional inefficiencies of regulation (a further weakening of the power of incentives) the efficiency of regulation may be increased, even relative to the situation of only one regulator, by establishing a two-tier system of regulatory competencies. It may be optimal to allocate regulatory competencies to several competing regulators but to impose central restrictions on the regulatory contracts (rules) that can be used by the principals (Dixit 1996). Under such an arrangement the efficiency of the firm's decisions may be higher than both under a complete centralization or a complete decentralization of regulatory competencies. Thus, at least as a theoretical possibility, the efficiency of a regulated firm or industry may be maximized under a system of concurrent (European and national) competencies.

The possibility that a system of concurrent regulatory competencies may increase overall regulatory efficiency is an example of the phenomenon, well known in the Theory of Second Best, that in situations where distortions already exist (here low powered incentives of regulation under asymmetric information)

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50 This result is consistent with many economists' concerns and reservations about parallel or concurrent competencies.

51 With respect to the regulation of European network industries both cases may be of some relevance, see Ch. V. below.

the introduction of an additional distortion (here the externalities between different regulators) may actually enhance efficiency. Although the establishment of more than one regulator will entail externalities (and thus partial inefficiencies) between the actors, overall efficiency may be enhanced because the newly introduced inefficiencies (partially) offset other unavoidable inefficencies. There will be even more scope for positive welfare effects of additional 'distortions' or constraints on the regulator if it is no longer assumed that regulators have perfect self-commitment possibilities and are benevolent. A separation of competencies may then help (i) reduce time-inconsistency problems, and (ii) reduce the hazards of regulatory capture.

Time-inconsistencies. The structural separation or duplication of decision making competencies increases the transaction costs of political decision making. It may, in particular, increase the transaction costs of (otherwise) ex post efficient unilateral adjustments (Olsen and Torsvik 1995) or renegotiations (Martimort 1995) of regulatory policies. Martimort (1995) shows that the separation of powers leads to a free-rider problem among (non-cooperating) regulatory agencies at the time of renegotiating the contract. This makes the possible improvement of ex-post efficiency of regulation harder to achieve. The separation of powers, thus, improves the commitment ability of the regulatory policy (makers). It may, e.g., help mitigate the ratchet effect by increasing the credibility of commitments to ignore information that becomes available during the course of regulation.

As usual, for second-best arguments, the results of these models are quite sensitive to the underlying assumptions, e.g., about the timing of regulatory changes. The very same institutional arrangements (e.g., a system of competing regulatory competencies) that make it more credible not to opportunistically renegotiate or unilaterally adjust ex ante efficient regulatory rules can also make the ex ante efficient design of regulation extremely difficult. Martimort (1995) shows that intertemporal welfare may increase with separation only when the latter takes place at the renegotiation stage. Separation may do worse than integration of regulatory competencies, however, when it takes place also in the first period of the relationship. An optimal regulatory charter would thus require a cooperative offer of the regulatory contract when regulation of a firm starts and the splitting up of the regulatory rights among various agencies at the renegotiation stage. Generally such an optimal solution will, of course, be unfeasible in dynamic industries. Thus, in sum, the case for a separation of regulatory competencies as a way to improve commitment is an ambiguous one. As in the case of a restriction of instruments (see III.2.), the price of commitment is inflexibility, and these inflexibilities can be very costly, e.g., in times of a very dynamic evolution of the regulated industries.

Regulatory Capture. The potential role that a separation of competencies between several regulators could play in containing the influence of organized interest groups on regulatory decision has by now also been the subject of contract theoretic analysis (see e.g. Martimort 1996: Laffont and Martimort 1998, 1999). The upshot of the analysis is that the separation of regulatory competencies may, under certain conditions, increase the efficiency of regulation by increasing the 'transaction costs of capture'. By introducing additional information asymmetries (and conflicts of interest) between agencies a separation of regulatory competencies may make it more difficult for the regulated firm or for other interest groups to capture the regulatory process. A separation of competencies can be used as an imperfect substitute for insufficient direct incentives of the regulator(s), and it can reduce the moral hazard problem that exists between the public and the regulators due to the basic fact of asymmetric information and incomplete contracting.

If the regulated firm is the only relevant interest group, it may be efficient to have different activities (or output variables) of the firm regulated by different structurally separated regulators. If separation 'divides' the information that the regulators have at their disposal, such that each regulator has an informational advantage (vis-à-vis the other regulator) as to the specific variable he regulates, the separation increases the transaction costs of cooperation (side contracting) between the regulators and the regulated firm (Laffont and Martimort 1999). If there are several active interest groups it may be efficient to have separate regulators each of them specializing on regulating variables that are of particular interest for a specific interest group. This increases the transaction cost of coordinating the influence of different interest groups, and the effectiveness and intensity of influence may be reduced. While a single unified regulator could use its position to help different interest groups to coordinate their influences on the regulatory process, the introduction of specialized regulators, each identified with some specific interest group, breaks this coordination power. The separation of regulators may help identify and control influence activities and improve the regulatory outcome. The effects of a separation of regulatory powers on the extent of capture are not unambiguous, however. The efficiency effects of a separation of regulators may become negative, if, as a consequence of specialization, the transaction costs involved in side-contracting between a specialized regulator and 'its' interest group are reduced by too much (e.g., because of a more frequent relationship between a regulator and the interest group), or if the information advantage of the regulator vis-à-vis the public and the corresponding control problems are increased by too much (Laffont and Martimort 1998).

Despite the ambiguity of their results the models just described demonstrate

that what may look like a disadvantage of a separation or duplication of regulatory competencies, namely the increased problems of adjusting and coordinating regulatory policy may actually be beneficial if regulators have problems to credibly commit to regulatory policies or are likely to be captured by specific interests.

V. Narrowing the Gap: Some Tentative Conclusions for the Regulatory Governance of Europe's Network Industries

The contract theoretic approach to federalism, sketched in the preceding section is still in its infancy. Many of the papers are based on straightforward transfers of intuitions and techniques of the contract theoretic approach to the 'New Economic Theory of the Firm'. Nevertheless, it has already been demonstrated in the literature that contract theory can fruitfully be applied to a theoretical analysis of federal systems and political governance structures more generally. Methods and intuitions are provided by this approach that, compared to more traditional economic approaches, allow for an improved theoretical analysis of the central role that information asymmetries and transaction costs between different public agents and between public and private agents play for an appropriate design of (economic) policy institutions. This allows to address and cope with the two basic problems of traditional fiscal federalism, namely (i) the lack of a theoretical explanation for the postulated (dis-)advantages of purely centralized or decentralized allocations of competencies and (ii) its inability to analyze the comparative (dis)advantages of alternative systems of concurrent competencies.

There are important difficulties, however, in transforming the methodological achievements and theoretical insights into concrete answers to the question of an optimal allocation of competencies for the regulation of Europe's network industries. There is still a very large gap between the insights gained within these kind of models and the knowledge needed to give practical policy advice. Existing contract-theoretic work on regulatory institutions largely consists of isolated, quite abstract models that study a narrow window of the general problem. The models do not, in general, incorporate any of the particularities of the institutional environment within the EU.[52] The application of theoretical

[52] Most existing 'applied' work deals with the specific political and administrative institutions and procedures of the US system. As yet, there is rather little research done on the consequences of the specific political and administrative institutions of other countries or of the EU, however.

results is further complicated by their second-best nature and the corresponding sensitivity of the results. Thus, policy recommendations that may be derived within a particular model have to be taken with considerable caution.

We, nevertheless, maintain that the models are of considerable relevance for a normative assessment of the allocation of regulatory competencies. We, therefore, summarize the broad arguments of the preceding chapters with a view at illustrating the potential (future) use of the contract theoretic approach for the regulation of Europe's network industries. Acknowledging that it may well be too early to derive any conclusions for the appropriate allocation of competencies in the real world, the zeal is just to stimulate a discussion on some insights of these models.

The commitment to establish a system of open and competitive markets in the European network industries requires at least some centralization of competencies. An effective liberalization and opening of national markets (networks) does not only require the withdrawal of specific and exclusive rights of incumbent ('national') providers; it also requires harmonization and re-regulation measures to guarantee 'non-discriminatory' access to, or inter-connection with, existing networks. Regulatory rules have to be flexible enough to cope with important national differences in industry structures and market conditions, and to adjust to the rapidly changing political, technological, and economic environment. Given the importance of 'national interests' in the network industries, it seems hardly possible to credibly self-enforce international agreements on such rules.[53] The credibility of liberalization requires to delegate at least some competencies with respect to the interpretation, adjustment, and enforcement of general regulatory principles to a supranational institution.

Efficient day-to-day regulatory decision making in the network industries, e.g. with respect to access and interconnection, requires detailed knowledge about local conditions. The theories described in the preceding chapter alert us to the important incentive problems, that exist with respect to information acquisition and revelation. In order to ensure that local information will be used in decision making it is probably not sufficient to rely exclusively on European decision makers and have them informed by market participants and local civil servants (e.g., from NRAs) via some kind of advisory process or committee (such as the ONP Committee). With credible delegation of at least some real competence to national regulators, the information problems may be eased. If endowed with

53 The limited progress in harmonization of procedures and, in particular, in the establishment of a one-stop-shopping procedure for telecoms licenses (see Ch. II.2) may be considered as support of this argument.

(real) competencies, national regulators may be better informed about the specifics of regulatory problems – both because they have stronger incentives to gather information, and because regulated firms may have a stronger incentive to reveal information to local regulators which are better placed to commit to not using this information against the firms' interests.[54] Thus much of the explicit design of regulatory rules and their application should be taken care of at the level of the Member States.

However, an increasing number of regulatory problems in the network industries will have an important international dimension, and, increasingly, network and service providers will be active – and thus possibly be subject to regulation – in more than one Member State. The international dimension of regulatory problems increases competition between national regulators. Such competition may be far from perfect, and may well lead to (additional) regulatory inefficiencies, e.g. in the terms of the power of regulatory incentives (see IV.4.).[55] At least as a theoretical possibility, a system of concurrent European and national competencies may lead to higher efficiency of regulation than complete decentralization (or complete centralization). Also, there are a number of areas in day-to-day regulation where there are potentially significant gains from coordinating regulatory decisions. Such a coordination may be more likely to occur if respective regulatory decisions would be made by a European regulator. Thus there are important efficiency arguments in favor of giving a European regulator the competence to directly implement regulatory principles in cases with an important international dimension and/or to supervise national implementation in cross-border cases.[56]

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54 Whether this always brings about desirable outcomes is debatable, however. Committing not to use information against the interests of incumbent firms may come close to regulatory capture.

55 Multiprincipal incentive theory has been employed to show that having several regulators compete in regulating one firm may both decrease or improve its incentives relative to the case of a single regulator (see IV.4.). Whether competition between regulators increases or decreases incentive problems crucially depends, within the models, on whether there are positive or negative externalities between regulators. With respect to the regulation of European network industries both cases seem to be of some relevance. There is, e.g., a considerable amount of common costs for providing various infrastructure services (e.g. domestic calls and international calls). This common cost element entails the possibility for the respective providers to react to cost reduction incentives provided by one regulator either by mainly reducing common costs (costs of both activities), a case of positive externalities between regulators, or by mainly shifting the costs attributed to services that fall within the jurisdiction of different (national) regulators, a case of negative externalities.

56 It will not be discussed here (i) whether the tasks of the European regulator should be assigned to a newly created sector-specific agency or to the Commission, and (ii) to what

Of course, it is a difficult task to find the right balance between centralized and decentralized regulatory competencies and to ex ante draw a clear-cut boundary between the tasks of the national and the European regulators. In fact, given the large number of potential externalities, almost every regulatory decision may be claimed to have a European dimension. Thus, there is a real danger of a creeping (over)centralization of regulatory decision making. It may therefore be reasonable to give the European decision makers considerable formal authority to decide which cases to investigate but, at the same time, to keep the resource endowment for this surveillance activity rather limited, i.e. to restrict real authority. This may help keeping the European actors from interfering with too many national decisions.[57]

A federal division of competencies between national and European regulators may also help reduce the opportunism problems of regulation discussed earlier in this paper, namely the problems of regulatory capture and time inconsistent behavior (lack of commitment).[58] Opportunism problems are arguably of particular importance in the regulation of the network industries. And it seems likely that both, national and European regulators are prone to opportunistic behavior. On the one hand, NRAs – even if they are formally independent – may be prone to capture by domestic firms and, particularly, by national incumbents. At the same time they may have particular problems of committing not to behave opportunistically (ratcheting or hold up) vis-à-vis foreign based network or service providers. A European regulator, on the other hand, may be biased in favor of firms from other Member States willing to enter a national market, or may favor short term competitive interests, such as low access prices favoring entry and competition, even at the expense of long-term efficiency (incentives to invest).[59]

The theoretic models alluded to in the preceding chapter stress that potential

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extent such a dual system already exists in the telecoms sector where competition has already taken off, and where the Commission is increasingly relying on a direct application of primary European competition law.

57 The Commission White Paper on the modernization of the rules implementing European competition law (European Commission 1999a) may be interpreted as signaling the strength of such restrictions. The workload of the European Commission and the resulting delays have been an important motive for the Commission's initiative to decentralize the implementation of European competition law.

58 Alternatively or in addition, a *horizontal* separation of competencies at the national and/or EU level (e.g., between the Commission and a newly created independent European regulatory or competition authority) may help reduce regulatory opportunism.

59 This may be true, in particular, if the European regulator is also in charge of implementing European competition law.

efficiency-enhancing effects of the separation of regulatory competencies do not require any regulator to be immune to opportunistic behavior. Indeed, a separation may help reduce the negative effects of regulatory opportunism even if both agencies are equally prone to behave opportunistically.[60] It is the transaction costs of coordination between regulators that helps control opportunistic behavior, provided that the regulators have different interests and information. In the case of European and national regulators this condition clearly seems to be fulfilled, as information, and interests (and the relative influence of different interest groups) differ quite substantially between the European and the national level.

Of course, the benefits of increased transaction costs of adjusting regulatory policy (reduction of time-inconsistency problems, increased credibility of regulation) do not come without costs. The problems the European Commission had to face – the delays and unsatisfactory compromises it had to accept – when initiating liberalization and harmonization legislation for the network industries (see II.2.) may be considered an illustration of the disadvantages of complicating the adjustment of regulatory policy by a separation of competencies.

These tentative arguments can be only suggestive. They find some support from a few rather abstract models that do not, in general, incorporate any of the particularities of the institutional environment within the EU. The contract theoretic analysis of the allocation of regulatory competencies has only just begun and, as yet, economic analysis has barely scratched the surface of the interaction between the general political, administrative and federal institutions and the institutions of regulation. Still political-economic modeling generally employs “sophisticated economics but simple politics” (Persson and Tabellini 1998). Much more work has to be done to better understand the particularities of political transaction costs and their determinants in specific political environments. This paper tried to argue that it is work worth while doing.

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60 Remember, however, that Laffont and Martimort 1998) also suggests that a separation of regulatory competencies may help reduce the hazards of regulatory capture (e.g., vis-à-vis a single European regulator) only if it can be ensured that side contracting between any single regulator and ‘its’ specific interest group are not reduced by too much. Requirements on the independence of the NRAs may help fulfill this requirement.

References

Aghion, P., J. Tirole (1997). Formal and Real Authority in Organizations. *Journal of Political Economy* 105 (1), 1–29.

Armstrong, M., S. Cowan, J. Vickers (1994). *Regulatory Reform: Economic Analysis and British Experience*. Cambridge MA.

Baron, D., D. Besanko (1992). Information, Control and Organizational Structure. *Journal of Economics and Management Strategy* 1: 237–276.

Begg, D. et al. (1993). *Making Sense of Subsidiarity: How Much Centralization for Europe? Monitoring European Integration*. London: CEPR 1993.

Bergman, L. et al. (1998). *Europe's Network Industries: Conflicting Priorities*. London: CEPR 1998.

Bickenbach, F. (1998). Auf dem Weg zu einer europäischen Wirtschaftsverfassung für Netzinfrastrukturen: Ausgangssituation, Veränderungen und offene Fragen. Kieler Arbeitspapiere Nr. 896. Institut für Weltwirtschaft, Kiel.

Bickenbach, F. (1999). Regulierung und Wettbewerb im Bereich der Netzinfrastrukturen: Begründung, Regeln und Institutionen. Kieler Arbeitspapiere Nr. 910. Institut für Weltwirtschaft, Kiel.

Coase, R.H. (1960). The Problem of Social Cost. *The Journal of Law and Economics* 3, 1–44.

Crémer, J., A. Estache, B. Seabright (1996). Decentralizing Public Services: What can we learn from the Theory of the Firm? *Revue d'Economie Politique* 106 (1), 37–60.

Dixit, A.K. (1996). *The Making of Economic Policy: A Transaction-Cost Politics Perspective.* Cambridge, MA.

Estache, A., D. Martimort (1999). Politics, Transaction Costs, and the Design of Regulatory Institutions. World Bank, Discussion Paper 2073.

European Commission (1998). Notice on application of the competition rules to access agreements in the telecommunications sector. OJ C 265/2 (22.8.1998).

European Commission (1999a). White Paper on Modernization of the Rules for Implementing Articles 85 and 86 of the EC Treaty. OJ C 132 (12.5.1999).

European Commission (1999b). Towards a new framework for Electronic Communications infrastructure and associated services. The 1999 Communications Review. Communication from the Commission to the European

Parliament, the Council, the Economic and Social Committee and the Committee of the Regions. COM (1999) 539 (unofficial version). http://europa.eu.int/comm/information_society/publications/docs/index_en.htm

Gibbons, R. (1998). Incentives in Organizations. *The Journal of Economic Perspectives* 12 (4): 115–132.

Goldberg, V.P. (1976). Regulation and Administered Contracts. *Bell Journal of Economics* 7: 426–448.

Grossman, S.J., O.D. Hart (1986). The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration. *Journal of Political Economy* 94 (9), 691–719.

Hart, O.D., J. Moore (1990). Property Rights and the Nature of the Firm. *Journal of Political Economy* 98, 1119–1158.

Hart, O.D., J. Moore (1999). Foundations of Incomplete Contracts. *Review of Economic Studies* 66, 115–138.

Hart, O.D. (1995). *Firms Contracts and Financial Structure*. Oxford.

Joskow, P.L., R. Schmalensee (1986). Incentive Regulation for Electric Utilities. *Yale Journal on Regulation* 4, 1–49.

Laffont, J.-J. (1994). The New Economics of Regulation Ten Years After. *Econometrica* 62 (3), 507–537.

Laffont, J.-J., D. Martimort (1997). The Firm as a Multicontract Organization. *Journal of Economics and Management Strategy* 6 (2), 201–234.

Laffont, J.-J., D. Martimort (1998). Transaction Costs, Institutional Design and the Separation of Power. *European Economic Review* 42, 673–684.

Laffont, J.-J., D. Martimort (1999). Separation of Regulators against Collusive Behavior. The Rand Journal of Economics 30 (2), 232–262.

Laffont, J.-J., J. Tirole (1993). *A Theory of Incentives in Procurement and Regulation*. Cambridge, MA.

Laffont, J.-J., J. Tirole (1994). Access Pricing and Competition. *European Economic Review* 38, 1673–1710.

Laffont, J.-J., J. Tirole (1996). Creating Competition Through Interconnection: Theory and Practice. *Journal of Regulatory Economics* 10: 227–256.

Laffont, J.-J., J. Tirole (2000). *Competition in Telecomunications*. Cambridge, MA.

Mas-Colell, A., M. D. Whinston, J. R. Green (1995). *Microeconomic Theory*. New York.

Maskin, E., J. Tirole (1999a). Unforeseen Contingencies and Incomplete Contracts. *Review of Economic Studies* 66, 83–114.

Maskin, E., J. Tirole (1999b). Two Remarks on the Property-Rights Literature. *Review of Economic Studies* 66, 139–149.

Martimort, D. (1995). Multiprincipal Regulatory Charter as a Safeguard against opportunism. Mimeo.

Martimort, D. (1996). The Multiprincipal Nature of Government. *European Economic Review* 40, 673–685.

Milgrom, P., J. Roberts (1992). *Economics, Organization and Management*. Englewood Cliffs, NJ.: Prentice Hall.

Myerson, R. B. (1979). Incentive Compatibility and the Bargaining Problem. *Econometrica* 47 (1): 61–73.

Neven, D., R. Nuttall, P. Seabright (1993). *Merger in Daylight : The Economics and Politics of European Merger Control*. London: CEPR.

Nicolaides, P. (1997). Competition Versus Social Responsibility in the European Union. *Intereconomics* 32(3): 115–125.

OJ (Official Journal of the European Communities, L) (1987). Council Decision 87/373/EEC, laying down the procedures for the exercise of implementing powers delegated to the Commission under Article 145 EEC (OJ L 197/33, 1987).

OJ (Official Journal of the European Communities, L) (1988). Commission Directive 88/301/EEC of 16 May 1988 on competition in the markets for telecommunications terminal equipment (OJ L 131/72, 27.5.1988).

OJ (Official Journal of the European Communities, L) (1996). Commission Directive 96/19/EC of 13 March 1996 amending Directive 90/388/EEC with regard to the implementation of full competition in the telecommunicatrions markets (OJ L 74/13, 22.3.1996).

OJ (Official Journal of the European Communities, L) (1997a). Directive 97/13/EC of the European Parliament and of the Council of 10 April 1997 on a common framework for authorisations and individual licences in the field of telecommunications services (OJ L 117/15, 7.5.1997).

OJ (Official Journal of the European Communities, L) (1997b). Directive 97/33/EC of the European Parliament and of the Council of 30 June 1997 on the interconnection in telecommunications with regard to ensuring universal service and interoperability through application of the principles of open network provision (ONP) (OJ L 199/32, 26.7.1997).

OJ (Official Journal of the European Communities, L) (1998a). Commission Recomendation 98/195/EC of 8.1.1998 on interconnection in a liberalised telecommunications market Part 1 - Interconnection Pricing 98/195/EC (OJ L 73/42, 12.3.1998).

OJ (Official Journal of the European Communities, L) (1998b). Commission Recomendation 98/322/EC of 8.4.1998 on interconnection in a liberalised telecommunications market Part 2 - Accounting Separation and Cost Accounting (OJ L 141/6, 13.5.1998).

OJ (Official Journal of the European Communities, L) (1998c). Commission Recommendation of 29.7 1998 amending Recommendation 98/195 on interconnection in a liberalised telecommunications market Part 1 - Interconnection Pricing 98/511/EC (OJ L 228/30, 15.6.1998).

OJ (Official Journal of the European Communities, L) (1990a). Council Directive 90/387/EEC of 28 June 1990 on the establishment of the internal market for telecommunications services through the implementation of open network provision (OJ L 192/1, 24.7.1990).

OJ (Official Journal of the European Communities, L) (1990b). Commission Directive 90/388/EEC of 18 June 1990 on competition in the market for telecommunications services (OJ L 192/9, 24.7.1990).

Olsen, T., G. Torsvik (1995). Intertemporal Common Agency and Organizational Design. How much Centralization. *European Economic Review* 39, 1405-1428.

Qian, Y., B.R. Weingast (1997). Federalism as a Commitment to Preserving Market Incentives. *The Journal of Economic Perspectives* 11 (4), 83–92.

Persson, T., G. Tabellini (1998). Political Economics and Public Finance. In: A. Auerbach, M. Feldstein (eds.) *Handbook of Public Economics, Vol III*. Forthcoming

Sauter, W. (1997). *Competition Law and Industrial Policy in the EU*. Oxford.

Seabright, P. (1996). Accountability and Decentralisation in Government: An Incomplete Contracts Model. *European Economic Review* 40 (1), 61–89.

The High Level Group on the Information Society (1994). Europe and the Global Information Society: Recommendations to the European Council. *EC Bulletin* Supplement 2/94.

Tirole, J. (1999). Incomplete Contracts: Where Do We Stand? *Econometrica* 67 (4), 741–781.

Valetti, T.M., A. Estache (1999). The Theory of Access Pricing: An Overview for

Infrastructure Regulators. CEPR Discussion Paper Series No. 2133. Center for Economic Policy Research, London.

Williamson, O.E. (1985). *The Economic Institutions of Capitalism*. New York.