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The New Institutional Economics of Antitrust and Regulation

by

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Abstract:
Hybrid governance structures between markets and hierarchies in many industries, e.g., in energy and telecommunications, challenge antitrust and regulation policy. The paper focusses on the theoretical and methodological basis provided by the New Institutional Economics (NIE) for analyzing the economics of complex vertical and horizontal coordination problems. It sketches the specific view of NIE at industrial organization, antitrust and regulation, discusses three current issues – the European antitrust policy concerning complex vertical contracts, regulatory reform of the electricity industry and the allocation of regulatory competencies in the EU – and presents some implications of NIE for economic policy making, research and advisory activities.

Keywords: New institutional economics, incomplete contracts, antitrust, regulation, regulatory reform, economic models of federalism.

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I. Introduction

Antitrust and regulation have to face the increasing importance of hybrid governance structures between markets and hierarchies in many industries, e.g., in energy and telecommunications. These structures result from the complexity of the vertical and horizontal coordination problems of these sectors. The purpose of this paper is to describe methodological and theoretical developments in industrial and regulatory economics and to assess their potential consequences for economic policy making and economic policy advice.

The theoretical and methodological basis provided by the New Institutional Economics (NIE) – to which we confine our discussion appears to be particularly well suited for analyzing the economics of complex coordination problems. NIE is taken to comprise transaction costs economics, property rights theory, and principal-agent theory. Real differences between these approaches notwithstanding, they mainly bear a complementary relation to each other. They all maintain that institutions matter and that institutions are susceptible to economic analysis. To perform this analysis they focus on the microanalytics of contracts. Accordingly, we will discuss issues concerning purely private coordination and issues concerning antitrust and regulation as contract issues. This approach builds on the assumption that market or policy failures are always attributable to the presence of positive transaction costs and the associated contractual problems. By taking into account incomplete and asymmetric information, and opportunistic behavior of private and public agents, issues concerning substantive rules and the institutional design of antitrust and regulatory policy can be addressed more systematically than by using more traditional approaches.

The paper is structured as follows: We will introduce the basic analytical concepts and implications of NIE with a specific view at industrial organization, antitrust and regulation (Chapter II). Against this backdrop, we will discuss three current issues in antitrust and regulation: The European policy concerning complex vertical contracts, regulatory reform of the electricity industry and the allocation of regulatory competencies in the EU (Chapter 0). On this basis we will assess the implications of NIE for economic policy making, research and advisory activities (Chapter IV). For a sketch of some alternative and complementary approaches to antitrust and regulation see the appendix.

II. New institutional economics of antitrust and regulation: Methodological issues

A. Basic analytical concepts of New Institutional Economics[1]

At the core of the NIE stands the Coase theorem (Coase 1960): In a hypothetical world with no costs of reaching and enforcing contracts – and generally only in such a world – would all potential gains from trade be realized irrespective of the distribution of property rights and institutional arrangements. In the real world, however, carrying out a transaction is associated with costs. Transaction costs arise especially because of contractual hazards of trade between opportunistic actors under uncertainty. To realize (most of) the potential gains from trade parties involved have to cooperate. Their actions have to be coordinated and the parties must be motivated to comply with their contractual duties. Because of opportunism of individuals – defined as self-interest seeking with guile (Williamson 1985: 47) or the willingness of individuals to capitalize on strategic advantages (Masten 1999: 39) – mere promises may not be enough to (self-) enforce the agreements made to solve the coordination and motivation problems and to protect trading partners from the hazards associated with exchange.[2] The contractual relationship must be carefully *designed* and *governed.* Thus, institutions, i.e. rules *and* instruments to enforce these rules (North 1990, Davis and North 1971) matter for the efficiency of contracting. For analyzing institutional arrangements, NIE focuses on the specific features of transactions, the nature and size of the transaction costs, and on the way institutions affect these transaction costs (Masten 1999: 38).[3]

The two most important conditions under which transactions may cause especially severe contractual hazards are information impactedness and asset specificity.

1 For a comprehensive overview on NIE see Furubotn and Richter (1997).

2 Transaction costs may, thus, be divided into *coordination costs,* e.g., the costs of acquiring, transmitting and processing information, and *motivation costs*, e.g., the costs of motivating actors involved in a transaction (Milgrom and Roberts 1992: 25, 29–30). In a generalized meaning, transaction costs include both the direct costs of carrying out a transaction and the opportunity costs incurred when an efficiency-enhancing transaction is not realized (Milgrom and Roberts 1992: 604).

3 Transactions may differ in a variety of dimensions such as the degree of asset specificity, the amount of uncertainty and complexity, and frequency (Williamson 1985: 52ff.).

Information impactedness refers to a situation where either information is asymmetrically distributed between transacting parties and can be equalized only under great cost, or it is costly to apprise an arbiter of the true information condition should a dispute arise between contracting parties with identical knowledge about the underlying circumstances. In such situations opportunistic actors may disclose information in a selective and distorted way. If one party holds private information at the time of contract negotiation, this party may be tempted to misrepresent this information for obtaining more favorable contract terms (*adverse selection*). After an agreement has been reached, there may not be enough or adequate information to correctly assess whether or not the terms of the agreement have been honored. This entails incentives to not comply with the agreement (*moral hazard*).

Asset specificity generally refers to a durable investment that is undertaken in support of particular transactions, with the value of the investment being much lower in the best alternative use should the original transaction be terminated prematurely.[4] The realization of cost economies often requires investments in relationship-specific assets that 'isolate' the transactors from market alternatives and the protection they can provide (Masten 1999: 40). Once specific investments have been made, i.e. the cost associated with the investments are sunk, they effectively lock the buyer and seller into a bilateral trading relationship, even if both market sides have been in competition prior to the investment.[5] This may give rise to a hold-up problem: The party undertaking a relationship-specific investment is vulnerable to the threat by the other party, aiming at obtaining better terms than initially agreed, to terminate that relationship. Hence, without some specific *safeguard* against appropriation (such as a long-term contract or vertical integration, i.e. joint ownership of assets) parties may be reluctant to invest in relationship specific assets despite the potential gains from doing so (see II.B.).

Contractual hazards may differ for various types of contracts:

In standard (neoclassical) theory it is usually assumed that *complete contracts* can be costlessly written and enforced. Complete contracts unambiguously describe, for each contingency, what action each party has to take and prescribe

4 Williamson (1985: 55) distinguishes four different kinds of asset specificity: site specificity, physical asset specificity, human asset specificity, and dedicated assets. In addition, "temporal specificity" describes a situation where the difficulties of finding substitute performance (in due time), or where the timing of performance (by at least one party) is particularly important (Crocker and Masten 1996: 8, 27). Arguably, this form of specificity is particularly important for some network industries. See II.C.1., 0.B..

5 This is the "fundamental transformation" according to Williamson (1985: 61–63).

the distribution of all benefits and costs. In reality, however, to write and enforce complete contracts is very difficult, because of transaction costs. It is generally impossible to unambiguously account for all (potential) contingencies in contracting.

One possible way to model problems related to informational impactedness is to assume transactors be able to write and enforce *comprehensive contracts* only. Such contracts are conditioned only on contingencies that are observable by both parties, and in case of dispute can be verified by third parties (such as courts). This is usually assumed in the normative principal-agent theory (incentive theory under incomplete information). However, as long as it is assumed that comprehensive contracts can be written (and enforced) at no cost between all relevant parties, the boundaries of the firm and the allocation of competencies in private or public organizations are difficult, if possible at all, to explain.

If complete or comprehensive contracts can be written at all, they will have to be rather undifferentiated and inflexible. This, in turn, would often be rather inefficient (ex post). Furthermore, in various instances, even contingencies that are observable to both parties may be nonverifiable by third parties, such as courts. Hence, the contractual choice may be restricted to writing non-comprehensive, *incomplete contracts,* that determine the rights and obligations of the parties only partially (if at all) and only for some contingencies. The contracting parties may largely confine themselves to state the general objectives and terms of the contract and establish the rules and instruments (governance structures) for enforcing or adjusting the contract and for deciding disputes. Theories of incomplete contracts are at the heart of transaction cost economics and the new property rights theory (Grossman and Hart 1986; Hart and Moore 1990).[6]

Incomplete contracts allow parties to flexibly respond to unforeseen (or unforseeable) contingencies, but that is why they also imply problems of imperfect commitment by the contracting parties and the danger of ex-post opportunistic behavior. Thus, in choosing between more or less incomplete contracts, and in designing these contracts, there is generally a trade-off between the protection against opportunistic behavior on the one hand and the ability to flexibly adjust to unforeseen or changing contingencies on the other.

[6] For a discussion of the methodological foundations and problems of the incomplete contracts approach of the new property rights theory see Tirole (1999), Maskin and Tirole (1999a, 1999b), and Hart and Moore (1999). Complementary to this theory is the multi-principal incentive theory as a new variation of the traditional principal agent approach (see II.C.2. and 0.C.).

In a world of positive transaction costs, contractual or institutional arrangements (governance structures) are both costly and imperfect. Therefore, measured against the standard neoclassical 1st-best, not all potential gains from trade can be realized. Some arrangements, however, are associated with lower transactions costs than others; the choice of governance structure influences efficiency. Which governance structure will (*should ?*) actually be chosen is influenced by the *institutional environment*, i.e. the basic political, legal and social rules of the game that define the context in which economic activity takes place. The institutional environment influences both the set of governance structures that can actually be chosen, and their comparative efficiency. This holds true for both private choices, such as the make-or-buy decisions of a firm, and public choices with respect to antitrust and regulation, e.g., the design of competencies for a regulatory agency.

B. Implications for industrial organization

The NIE paradigm has profound implications for the economics of industrial organization, some of which we will sketch in this section. Implications for antitrust and regulation will be discussed in II.C..

Firm-as-production function versus firm-as-governance structure. In standard neoclassical theory, the notion of the firm is confined to a technologically determined black box without reference to organization. The firm is conceived of as a production function with the complementing objective of profit maximization; its boundaries are defined by technology. Any effort of the firm to extend its reach by recourse to nonstandard contracting is presumed "to have monopoly purpose and effect" (Williamson 1985: 26). The idea of the firm-as-production function does not leave much scope for efficiency justifications for such practices. In contrast, most NIE approaches, and in particular transaction cost economics, to industrial organization build on the concept of the "firm as a governance structure": Firms (i.e. hierarchies) and markets are considered alternative (polar) modes of governance, and the allocation of activity between firms and markets is to be determined endogenously. It does not depend solely on the technology of production but also on the costs of contracting. The comparative advantages of and the choice between market, hierarchy and hybrid modes of governance depend on the nature and size of transaction costs under each regime of governance.[7] NIE aims at analyzing integration and nonstandard

[7] The basic idea of this approach goes back to Coase (1937) who argued that the existence and the boundaries of the firm could be explained only if the firm and the market are

contracting in terms of the efficiency purposes they may have in addition to possible monopoly purposes.

Characteristics of discrete market exchange. At one end of the spectrum of governance structures for private transactions lies the pure, anonymous (spot) market. Discrete market transactions provide actors with considerable autonomy and flexibility and with powerful incentives to exploit profit opportunities by adjusting their behavior to unfolding events. Market participants are quick to adapt, in an autonomous way, to changing circumstances once information is revealed in prices. However, discrete market exchange also provides trading partners with "a variety of tactics through which they may seek to extract rents and to elicit a more favorable distribution of the gains from trade" (Masten 1999: 40). Although the existence of a large number of potential trading partners may contain such conflicts, the protection provided by competition may be insufficient or ineffective where parties have to make specific investments or suffer from information impactedness. In these instances, the party with the a strategic advantage may try to extract information rents or appropriate quasi-rents that result from efficiency enhancing specific investments of the trading partner, respectively. Such behavior or its anticipation will lead to inefficiencies in the exchange relation, and it may even prevent the transaction from taking place at all.

Characteristics of hierarchical exchange. At the other end of the spectrum lies the hierarchical exchange. It corresponds to transactions that take place under unified ownership and control within the integrated firm. The comparative (dis)advantages of vertical integration relate to at least two important features of hierarchical governance within a firm:

(i) Vertical integration centralizes ownership of physical assets and thus residual rights of control over the use and disposition of these assets. Unified ownership, thus, restricts the ability of (now) non-owners to withhold assets from production, thereby limiting their hold-up opportunities. At the same time, non-owners may now be subjected to increased hazards of opportunism if, for example, they invest in effort and specific human capital (see Williamson 1979; Klein et al. 1978; Grossman and Hart 1986; Hart 1988, Hart and Moore 1990).

(ii) Integration changes the "type of contract law" (Williamson 1991: 274) governing the transaction. By way of vertical integration a firm will, for the now internal relations, 'exit' from being subjected to standard contract law, which mainly applies to external relations. Hence, legal rules and procedures governing

considered alternative governance structures for a given transaction. Williamson and other proponents of NIE have substantially refined and operationalized the argument (see, e.g., Grossman and Hart 1986; Klein et al. 1978).

transactions within a firm and those between 'independent' commercial contractors differ substantially. The implicit law governing transactions within a firm is "forbearance" (Williamson 1991: 274): Courts will refuse to take on disputes between internal divisions, whereas courts will routinely grant standing to firms in disputes with external contractors over prices, damages due to delays, lacking quality, and the like. Thus, "hierarchy is its own court of ultimate appeal" (ibid.). These changes support greater discretion and control in response to change compared to transactions between independent commercial actors.

The centralization of residual rights of control and the improved opportunities for intervention and control may have important advantages. Hierarchies offer greater protection of quasi-rents related to specific investments and provide relatively efficient mechanisms for responding to change in cases where closely coordinated and exceptionally quick adaptation is necessary (Williamson 1996: 327). These potential benefits come at a cost, though. By sacrificing some of the high-powered incentives that characterize market transactions integration gives rise to another type of opportunism. Owners and/or top managers will be unable to credibly commit themselves to intervene into the decision-making of subordinate employees only when there are obvious (or likely) benefits to all parties involved and not to intervene in ways that appropriate rents of performance enhancements from those whose effort created these rents ('impossibility of selective intervention'). This ultimately weakens the incentives of subordinate managers to innovate, maintain assets, acquire and utilize information, and otherwise invest in the efficient operation of the firm. The movement from market to hierarchy thus entails a trade-off between the high-powered incentives and autonomous adaptive properties of the market, and the safeguards and central coordination properties of the firm (Shelanski and Klein 1999: 90–91).

Characteristics of hybrid contractual exchange. In between markets and hierarchies as the polar modes of governance there is a broad variety of different forms of hybrid governance structures (e.g., complex long-term contracting, franchising, strategic alliances and joint ownership arrangements). In choosing a specific form of hybrid contracting transactors attempt to realize the specific advantages and avoid the specific disadvantages of markets and hierarchies for specific types of transactions. Hybrid contractual arrangements may, in many instances, provide more high-powered incentives than integration, and provide some level of protection against opportunistic behavior, e.g., hold up in the presence of asset specificity. However, since contracts are generally incomplete, hybrid contracting – like any other form of contracting – can at best limit, but not eliminate, the hazards of opportunism. To accommodate uncertainty, contractors must either anticipate and devise responses to a large number of

contingencies or prescribe a process through which adaptation can be executed. They must do so, moreover, in terms that courts can be expected to understand and implement at reasonable cost. As transactions become more complex and the environment more uncertain, the limitations of complex contracting as a safeguard against opportunism become particularly acute, thus, increasing the attraction of integration and hierarchical governance that better supports adaptive, sequential decision making while limiting the scope for opportunistic behavior.[8]

Basic implications and empirics. The most basic implication of the NIE approach to industrial organization is that many forms of organizing economic activities that could not be explained purely technologically, and were thus ascribed to market power purposes, can now (at least partly) be explained as the result of the transacting parties' rational efforts to economize on transaction costs. The relevance of this "efficiency explanation" is, by now, supported by a large body of empirical research.[9] The empirically supported presumption that contractual arrangements serve efficiency purposes should have, of course, important implications for antitrust and regulation. As Joskow (1991) points out, there is however a general weakness of the empirical literature that is particularly important for purposes of antitrust and regulatory policy: For most contractual and institutional alternatives we do not have quantitative estimates of their efficiency effects for specific transactions. While the empirical research supports the assertion that private decision makers are sensitive to transaction cost concerns, the question as to how important organizational form actually is for performance is left unanswered by most empirical studies.[10] For many antitrust and regulatory problems, in addition to knowing which governance alternative offers superior efficiency it also is important, however, to quantify

[8] Furthermore, the design and implementation of specific hybrid contractual arrangements designed to meet the specific needs of non-standard transactions is often quite costly. These costs are easier to recover for particularly large transactions or transactions that occur frequently. Thus, the frequency of transactions is another relevant dimension for the efficient choice of governance structures.

[9] For excellent selective surveys see Joskow (1991), Crocker and Masten (1996), Lyons (1996), and Shelanski and Klein (1999). Joskow (1991: 81) concludes that the growing body of empirical work on the NIE implications for industrial organization is in "much better shape than much of the empirical work in industrial organization generally".

[10] There are as yet only very few attempts to quantify the efficiency effects of organizational choice or the costs of failing to choose the correct form of governance. One of the few studies that exist is Masten et al. (1991) which shows that cost effects *can* be potentially large (also see Crocker and Masten 1996: 29).

the difference and "to know how much we lose by going from the best to the next best" (Joskow 1991: 81–82).

C. Implications for antitrust and regulation

We now turn to discuss, at a rather general level, the basic normative implications of the NIE perspective for antitrust and regulation. [11] In particular, we will address the question of how to justify and design antitrust and regulatory policies in a world of positive transactions costs and opportunism of private as well as of public agents. Both questions of determining appropriate substantive rules (II.C.1.) and of implementing and enforcing these rules (II.C.2) are considered in this section. For more specific issues of antitrust and regulatory policy see 0..

In case private contracts are unable to entail specific contractual objectives on the basis of *general* contract law and general court enforcement it may be useful to try and establish alternative governance structures. Apart from taking recourse to purely private solutions such as (vertical or horizontal) integration or private bi- or multilateral hybrid contracting, it may also be worthwhile considering *specific* laws or regulatory rules and their enforcement by a public "regulator" (antitrust or regulatory agency).[12] In analyzing these options, it may be useful to conceive of antitrust and regulation as a long-term, collective (implicit) contractual relationship between firms and consumers. A regulator – as an agent

[11] There are no unique definitions of antitrust and regulation and in many practical cases antitrust and regulation do overlap. Differences between the two concepts can, in a nutshell, be characterized in the following way (see Vogelsang 1997: 74,78): Antitrust is the specific set of policies to protect and enhance competition in all markets. The very nature of competition relying on freedom of contract requires that antitrust rules should not be overly intrusive, taking action only occasionally when competition is undermined, either by collusion or by dominant firms. In contrast, with regulation the state intervenes in selected markets on an ongoing basis; even a regulated firm that complies with all rules may be subject to the interventions of the regulatory agency. Moreover, regulation can explicitly interfere with competition. Regulation is also more of an ex ante nature; from the point of view of the regulator it is about imposing or actively "writing" contracts and prescribing certain behavior rather than about policing contracts and proscribing some forms of private contracts as it is generally the case for antitrust.

[12] We disregard the possibility of public ownership as a governance structure. For a transaction cost based analysis of contractual problems between public agents (government, regulator) and firms as a cause for nationalizing network infrastructures see Spiller (1993) and Levy and Spiller (1994). For a survey of formal contract-theoretic models for a comparative analysis of public and private ownership of firms see Schmidt (1996).

of all or some of the contracting parties – is made (at least partly) responsible for the "administration" of the contract, i.e. for its design, execution, interpretation, revision, adaptation, and enforcement (Goldberg 1976).[13]

Antitrust and regulation may add confidence and the expectation of being treated fairly and may thus help contain transaction costs more effectively than private agreements on the basis of contract law and court enforcement alone. Note that the theoretical identification of a potential market power and market failure problem does not in itself imply that antitrust and regulation would ensure an increase in efficiency: (i) Before regulating, an assessment is necessary about the empirical relevance (existence and magnitude) of the problem. And (ii) there are, of course, transaction costs problems under antitrust and regulation as well. Because of information asymmetries both between regulator and firms and between regulator and consumers and because of commitment problems even a benevolent regulator could not perfectly solve the contracting problems of the private parties; and non-benevolence of the regulator could give rise to additional inefficiencies. Thus, the counterpart of "market failure" is "regulation failure". Comparing the efficiency properties of "unregulated" markets and competition (or integration) based on general contract law on the one hand and specific laws such as antitrust and regulation on the other, therefore, is a comparison of constrained (2nd-best) efficient institutional alternatives, at best. Antitrust and regulation *could* be (not need be) a cost effective device for private exchange relations in industries with complex coordination problems.

From a normative point of view, the choice between general contract law and antitrust or (more specific) regulation becomes largely a question of whether court enforcement or administration by antitrust or regulation agencies is the more effective means of governing those agreements.[14]

[13] For analytical purposes it is often appropriate to focus on partial relations between some of the parties to the administered contract only and to analyze these relations in contract theoretic terms as well. The (partial) relation between the regulator and a regulated firm is often termed the 'regulatory contract'.

[14] Cf Crocker and Masten (1996: 12). See also Schmidtchen (1994: 162), Kirchner (1997).

1. Antitrust and regulatory policies: substantive provisions and rules

a) Antitrust

The choice of specific contractual and institutional arrangements may have externalities on outside parties. It may, in particular, have substantial negative externalities on customers either directly or indirectly by reducing competition (increasing entry barriers). In case of contractual decisions unaffected by antitrust (and other public restrictions) the contracting parties can be expected to consider these externalities in their decision only if affected parties can and will "bribe" them to do so. In a zero transaction cost world externalities would be internalized via bargaining; there would be no reason for public intervention, e.g., in form of antitrust policy. With positive transaction costs, however, private bargaining is likely to fail to internalize these externalities (and thus to be 1st-best efficient). In these instances, prohibiting certain forms of contracting may be a transaction cost economizing (2nd-best efficient) solution. From the point of view of *all* affected parties, prohibiting certain contractual arrangements may decrease overall transaction costs even though it increases the transaction costs of the parties directly involved (e.g., those that intend to collude on their price setting behavior).

Which contractual arrangements should actually be prohibited by a transaction cost efficient antitrust policy depends on the efficiency as well as competitive and the anti-competitive effects of these arrangement. Given the NIE understanding of the transactional characteristics that make it economical for firms to integrate (vertically) or to enter into various nonstandard contractual relationships (see II.B.), it is no longer "acceptable to assume that 'nonstandard' alternatives to anonymous spot market transactions are inherently suspect because they are likely to be the consequences of efforts to maintain or obtain market power and, as a result, to disadvantage consumers" (Joskow 1991: 54). They may, rather, be the result of the parties efforts to reduce transaction costs and may, thus, be efficient (in a static sense).

But there is more to it: Practices that may be anti-competitive in appearance may facilitate the operation of the competitive process. If the (spot) market is not the only, or "natural", institution to mediate transaction but just one, polar, form on the spectrum of potentially transaction cost economizing governance structures it is not reasonable to restrict the meaning of "competition" to spot market transactions between anonymous buyers and sellers (Joskow 1991: 55). The choice of an innovative or just different form of contractual or institutional arrangement for governing transactions may, if efficient, translate into a (temporary) competitive advantage. The search for better institutional

arrangements is an element of competition as a "discovery procedure" (Hayek) and may foster interbrand competition. Thus, there is not generally a trade-off between (transaction cost) efficiency and competition.

In the antitrust evaluation of contractual or institutional arrangements the NIE perspective is shifting the traditional focus of almost exclusively looking at potential anti-competitive purposes or effects of a proposed merger or non-standard contractual arrangements to a kind of a priori assumption that these arrangements are efficient. Of course, there may be market power motivations or anti-competitive consequences as well. In these cases, a trade-off between private transaction cost efficiencies and competition and its welfare properties may exist. In order to assess potential competitive and anti-competitive effects (e.g., of vertical restraints) it is important to analyze the contractual relation in its entirety rather than from a discrete transaction perspective (Goldberg 1976): From an ex post perspective long-term contracts (almost) always impose restrictions which limit the trades in which different parties can engage.[15] They therefore appear to undermine competition ex post. It would be inappropriate, however, to focus exclusively on the ex post characteristics of contractual arrangements and on whether the ex post behavior of one party was "restricted" in some way or whether one party was "forced" to do something she might prefer not to do, or on whether market power in one market is "leveraged" into another market. Rather, contractual arrangements should be examined as a whole, i.e. ex ante and ex post (Joskow 1991: 60).

In determining whether specific contractual arrangements are likely to have predominantly anti-competitive or negative welfare effects, a large number of (potentially important) arguments has to be considered. It would, therefore, be tempting to conclude that antitrust must be very discretionary, favoring a rule of reason concept rather than per se rules. However, the transaction costs stemming from information and enforcement problems as well as from the non-benevolence of the regulator (see II.C.2) may differ substantially between a rule of reason approach and a per se rule. Even without knowing their exact size, administrative costs, costs of delays and diminished legal certainty, which are only part of the costs of discretion, suggest that per se rules have to be favored if sufficiently clear and robust conclusions are possible for some kind of practice and market conditions.

[15] "Freedom of contract is the freedom to impose restrictions on one's future behavior" (Goldberg 1976: 428).

In the following we will sketch an NIE based perspective of some of the standard issues of antitrust policy, namely cartels, mergers and complex long-term contracts (for a more detailed discussion of vertical restraints see 0.A.).

Cartels – A cartel agreement whose only purpose is to raise prices (and thus profits) of cartel members has obvious negative externalities on consumers. It is widely accepted that the anti-competitive (negative) effects are larger than (potential) positive effects on cartel members and for competitors that are not members of the cartel (higher profits). Issuing a ban on cartel agreements amounts to increasing the transaction costs (of the potential cartel members) of agreeing on and enforcing cartel provisions. The ban is an imperfect substitute for a more encompassing agreement between the members of the cartel and negatively affected customers, which is unlikely to come about because of prohibitively high transaction costs. Thus, in accord with most traditional approaches to antitrust, a per se prohibition of price cartels seems to be justified from the NIE perspective.

Mergers – In case of a merger firms may benefit from higher efficiency due to a better exploitation of economies of scale or scope in production, or economizing on transactions costs related to the improved governance of transactions, e.g., in case of specific investments or temporal specificity.[16] Mergers of firms without significant market power should, thus, be allowed per se.[17] If merging firms do have significant market power, however, anti-competitive effects may be relevant,[18] and a rule of reason approach for mergers seems to be appropriate.[19] Enforcement agencies should try to understand the

[16] See fn 4.

[17] For a discussion of problems that arise in deciding whether or not firms possess market power see Schmalensee (1988) and Schmidtchen (1994).

[18] This holds for horizontal and for vertical mergers. Recent research has clearly shown that foreclosure is (at least) a theoretical possibility. Hart and Tirole (1990) show that vertical integration can help to commit not to sell to rival downstream firms which in turn helps reduce competition on downstream markets. Bolton and Whinston (1991, 1993) and Bickenbach and Williams (1996) show that the same effects on incentives for specific investments encouraging efficient vertical integration in a bilateral context can lead to anti-competitive effects and inefficiencies in a (strategic) multilateral environment.

[19] Caution is warranted for the assessment of whether or not efficiency effects are outweighed by anti-competitive effects on competition: Negative effects of reduced competition are often very hard to describe and to estimate (and thus are often underestimated), while the efficiency effects are often less difficult to describe.

underlying efficiency motivations for mergers and the likely long-run effects on competition in the markets affected by the merger.[20]

Complex long-term contracts – In case of complex long-term contracts antitrust authorities again have to weigh potential (transaction cost) efficiency effects on the one hand and potential anti-competitive effects on the other. Where market power is absent, it is reasonable to assume that contractual arrangements are shaped entirely by considerations of efficiency and have no serious negative effects on competition. Thus, complex long term contracts should be permitted per se except for contracts of firms with substantial market power, for which a rule of reason approach would be appropriate. Per se restrictions on the availability of certain types of contracts (even if only for dominant firms) may significantly limit the search for and availability of potentially efficiency-enhancing contractual arrangements (see 0.A.).

Given hybrid contractual arrangements and outright mergers are (if imperfect) substitutes from the point of view of the transacting parties (see II.B.) a comment seems to be in order on the *relative treatment of contracts and mergers* by antitrust policy. Two arguments may justify stricter antitrust standards for cartel agreements as compared to horizontal mergers (for the following see Demsetz 1994: 9): Firstly, there are important differences between the costs borne by firms entering into a price agreement and by those firms that achieve more concentrated market structures by way of merger. To enter into a mere price agreement would be 'cheap' in the sense that no serious organizational issues are posed for the internal operations of the cooperating firms. In contrast, mergers, generally, have a large impact on the firm's organization and costs. It seems rather unlikely that firms (especially firms with little market power) tend to merge just because they want to reduce competition and cartels are banned by antitrust authorities. Secondly, cartels are less likely to have positive efficiency effects than mergers. Thus, social benefits are more likely to be derived from merger induced concentration of markets than from pure price agreements.

For more complex horizontal or vertical contracts that second point is much less clear cut, however. Aiming, e.g., at reducing the hazards of opportunistic behavior by one party, the transacting parties may well choose to merge if the

[20] In some European and U.S. antitrust cases increased efficiency of the merged firm was considered an argument against allowing the merger (see Kumkar 2000: C.II.2.c). However, the argument that increased efficiency should be considered an additional reason to block mergers (efficiency offense rather than efficiency defense), because rivals' now have to compete with a more efficient competitor, are not convincing. Efforts to reduce costs and resulting pressures on competitors are part of the desirable (overall positive) effects of competition.

intended vertical contract and close substitutes are banned. If anti-competitive effects of the contractual arrangements were actually dominant prohibiting hybrid contractual arrangements (while allowing the firms to merge) may be "doubly inefficient": There is not only the efficiency loss from the (privately) inferior institutional arrangement, but also a counterproductive effect on competition. Hence, contrary to the situation of pure price or quantity fixing cartels, a generally more restrictive treatment of complex vertical or horizontal contracts as compared to mergers does not seem to be justified (see 0.A.).

In a nutshell, on the basis of these examples, the upshot of the NIE perspective for the antitrust treatments of business practices and contractual arrangements (including full integration) may read as follows:

– General hostility towards horizontal price or quantity fixing arrangements (cartels).
– Friendliness in cases of vertical contracts and vertical or horizontal mergers in evidently competitive conditions (not to be equated with conditions of spot market competition).
– A rule-of-reason approach towards vertical restraints and horizontal or vertical mergers where market power is present.

This position, of course, does not appear to be an entirely new one.[21] With respect to cartels, e.g., the NIE perspective merely restates the conclusion of most traditional approaches to antitrust. More generally, this attitude is a hybrid between the more "extreme" attitudes toward antitrust of the Harvard school and the Chicago school, that have been characterized as "market power phobia" and "efficiency euphoria", respectively (see appendix).

b) Regulation

Network industries, e.g., the transport, energy and telecommunications industries (to which we restrict our discussion on regulation in this paper), have traditionally been considered to be examples of industries where regulation is necessary to achieve efficiency. These industries are characterized by particularly complex contracting problems stemming from a number of specific technical and economic features, namely important economies of scale and scope, a great importance of investments in highly specific assets with extraordinary longevity, complex complementarities between operating and investment decisions within and between different vertical levels of the industry,

[21] For a very similar formulation from a somewhat different perspective see Vickers (1996).

and coordination problems that require extremely timely solutions ("temporal specificity").

The complex coordination problems may give rise to particular acute hazards of opportunism between parties on the supply side that can hardly be contained by governance structures based on discrete market transactions alone. This may explain why hierarchical or hybrid governance structures have traditionally been dominating in these industries. These comprehensively integrated or cartelized industry structures, however, may lead to increased problems of opportunistic behavior of the monopolistic (dominant) firm(s) vis-à-vis consumers. Hence, the specific contractual problems of network industries may entail a "competition failure" and, thus, a potential justification of a sector-specific regulation. In the case of network industries, regulation may help overcome private parties' contracting problems in two quite different ways. Regulation may serve predominantly as a *substitute* or as a *precondition* for competition.

Traditional industrial and regulatory structures in network industries *substitute* a combination of private hierarchy and public regulation for market and competition. Under this approach permitting or even fostering integration is considered an efficient solution to deal with the opportunism problems on the supply side. Legal entry barriers may be useful to foster investments in specific assets (e.g., the network infrastructure) by protecting quasi-rents from being eroded too quickly. Opportunism problems between the monopolist and consumers, that are aggravated by integration should, according to this regulatory approach, be limited by means of regulating the (pricing) behavior of the monopolist. Restricting the options of both producers and consumers serves to protect specific investments of suppliers (by securing the "producer's right to serve", Goldberg 1976: 432) and shelter consumers from the abuse of market power (thus securing the "consumer's right to be served", ibid.: 439). Thus, considering regulatory contracts in their entirety yields a plausible explanation and potential justification for (important elements of) the traditional form of regulating network industries. Recent empirical evidence with more competitive institutional settings (liberalization and re-regulation) in the network industries, however, seems to suggest that there is an efficiency enhancing role for increased competition on at least some stages of these industries, e.g., the generation stage in the electricity sector (for more on this example see 3.2).

It may, thus, be appropriate to focus on the role of regulation as a *precondition* for establishing and sustaining effective competition on at least some stages of the network industries. Regulation may help establish competition if it replaces integration in its role of limiting potential hold-up situations between (independent) firms being active in or on the brink of entering the industry. Just consider the example of a potential supplier of services or network facilities

considering entry into a market. Generally the entrant will have to rely on the access to or the interconnection with the existing network(s). The difficulties in ex ante excluding ex post opportunism of the incumbent network operator(s) by private contracts may be a substantive barrier to entry. Regulating the conditions of network access and network interconnection may help mitigate hold-up problems and other forms of opportunism of (previously) monopolistic suppliers *vis-à-vis* newcomers and, thus, reduce entry barriers.[22] Thus, "regulation can serve to infuse trading confidence into otherwise problematic trading relations" (Williamson 1996: 268, see also Schenk 1997: 145). Provided that the regulation in question is 'appropriate', it may foster competition and improve incentives to invest in specific assets.

Optimal regulatory rules? Thus the question arises of what 'appropriateness' or 'optimality' of regulatory rules might mean and how the choice and implementation of such rules can be ascertained. There is, of course, an intense discussion in politics and academia on the 'optimality' of specific regulatory rules, e.g., the UK-style price cap regulation, the ECP-rule for access price regulation, or the mandatory separation of bottleneck facilities.

It has repeatedly been proposed that *price-cap regulation* is an optimal rule for regulating prices of a monopoly supplier that should be substituted for traditional rate-of-return regulation.[23] Proponents of price-cap regulation (correctly) argue that it gives high-powered incentives for the firm to actively search for cost reducing measures (thus enhancing productive efficiency). This is because under price-cap regulation prices are (to be) predetermined irrespective of (endogenous) changes of the firm's costs. In contrast, rate-of-return regulation calls for prices to (roughly) reflect costs at any point in time. This entails a high degree of allocative efficiency and does not allow the firm to realize monopoly rents – at the price, though, of weakening the firm's incentives to reduce costs. Thus, there is clearly a trade-off in the choice between the two rules. The New Economics of Regulation shows that,[24] apart from special cases, optimal price regulation requires an "incentive contract" comprising elements of both rate of return and price cap regulation with exogenous indicators

[22] At the same time, access regulation provides a potentially efficient alternative to integration in that industry.

[23] The major difference between the two is the extent to which changes in the costs of production can or should be passed on to consumers via prices. For details on the discussion on *rate-of-return regulation* and *price-cap regulation* see Liston (1993).

[24] This approach employs the principal-agent paradigm of comprehensive contracts. For an overview see Laffont (1994).

determining the extent to which costs could be passed on.[25] The New Economics of Regulation has not (yet) been able, however, to derive implementable rules that are optimal under a broad class of circumstances. Even under strict assumptions the optimal incentive contracts depend in a sensitive and complicated way on all kinds of information 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.

One of the most important but also one of the most controversial questions in regulated network industries is the 'access pricing problem'. Although the economic literature on alternative rules for the *regulation of access* to the bottleneck facilities of vertically integrated (network and service) providers 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 regulatory measures.[26] The complexity of the access problem largely stems from the fact that, in practice, regulators generally have multiple goals and constraints to follow. Optimal access regulation, however, is highly sensitive to the regulatory objectives and the details of the (technological and informational) 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. Only under very specific conditions (see Laffont and Tirole 1996: 242), for example, the 'optimal' access rule satisfies the *efficient component pricing rule* (ECP-rule), which has often been proposed as a general solution to the access problem (see, e.g., Baumol et al., 1997).

Measures of structural regulation are often proposed to disintegrate bottleneck (network) facilities from potentially competitive parts of a comprehensively integrated and regulated industry (see, e.g., Kruse 1997). A *mandatory separation* of ownership is considered a complementary or even substitute measure for access regulation. Generally, however, such a separation does not

[25] In a simple formal model of asymmetric information between regulator and regulated firm with adverse selection and moral hazard this trade-off can be analyzed more closely (see Laffont and Tirole 1993: 153). If there is no asymmetric information about the firm's own effort in reducing costs (adverse selection, no hidden action), the model suggests the superiority of (pure) rate of return regulation. If, on the other hand, there is no adverse selection (pure) price-cap rule is optimal. This is true at least as long as direct transfers between regulator and the firm and non-linear prices are (e.g., by law) excluded.

[26] For an overview see Valetti and Estache 1999, also see Bickenbach 1999 and Laffont and Tirole 1994.

render obsolete access price regulation because of the remaining market power of the (now separated) bottleneck owner. The importance of such a regulation for establishing effective competition may decline, though, since the incentives of the network monopolist to discriminate between competing service firms will be reduced. Under separation access regulation may also become easier because of the greater symmetry of competitors on the service market and because information asymmetries between the regulator and the firms may decline (see Bickenbach 1999). Any improvement of access regulation (and the benefits of a higher intensity of competition in the service market) has to be weighed against losses in efficiency due to a non-realization of (potential) economies of scope, however. The extent of these losses depends on the actual importance of these economies of scope in the respective industry, and on the extent to which these economies can be realized under alternative institutional arrangements – such as a complete separation of ownership in combination with long-term contracts or a mere separation in terms of accounting or organization. And it depends on whether and to what extent these forms of "partial" separation will actually help improve regulation. Thus, there is a plethora of relevant factors and causalities that renders extraordinarily complex the analysis of optimal structural regulation and of the relations between conduct regulation and structural regulation. The question of whether a mandatory separation of vertically integrated firms in network industries is warranted can hardly be decided on the basis of (formal) theoretical reasoning alone. What seems evident, nevertheless, is that separation is no panacea to the problems of regulation in network industries.

This selective discussion of regulatory rules suggests that there is no such thing as an "optimal regulatory rule". Appropriate regulation is highly sensitive to the particular circumstances of the industry considered and the weighing of different (partial) objectives of regulation (e.g., allocative and productive efficiency). Tying regulation to strict rules is hardly sensible, given the rather unsatisfactory state of normative regulatory theory and, moreover, the extremely rapid changes in some of the network industries. Technical progress and the evolving liberalization in these industries will trigger further, largely unforseeable, changes in the technological and market conditions to which policy (and economic research and advice) will have to react.

These insights suggest that the regulator should have considerable discretion as to the choice and concrete implementation of regulatory rules and instruments. This may be a dangerous strategy, though, if the hazards of opportunism of the regulator *vis-à-vis* firms or consumers are taken into account. Thus, a trade-off arises between the need for a flexible response of regulation to a changing technical and economic environment on one side and the need for containing the risk of opportunistic behavior of the regulator on the other. This

trade-off is not only influenced by substantive regulatory restrictions (on the availability of regulatory instruments or the respective rules) but also by the governance of regulatory policy.

2. Governance of antitrust and regulation

In discussing the institutional design of antitrust and regulation, NIE takes as the point of departure that antitrust and regulation policies are inevitably defined and enforced by individuals that are neither omniscient nor omnipotent or benevolent.[27] Thus, analysis and design of different 'political governance structures' have to take into account the hazards of *regulatory opportunism*.

Regulatory opportunism originates from the (explicit or implicit) contracts between firms and antitrust or regulation agencies being incomplete (see II.C.1.). The same factors that generally impede the writing and enforcing of private complete (or comprehensive) contracts, also impede the writing and enforcing of complete long-term contracts between the public agents and the firm(s) and/or consumers. The incompleteness of regulatory contracts inevitably creates discretionary power of the public officials in antitrust and regulatory agencies. Generally, the risks of opportunistic behavior by public officials increase with the extent of information asymmetries between the different agents (firms, public agents, consumers and taxpayers).

There are several forms of regulatory opportunism: There may be problems of adverse selection and moral hazard (on the side of the regulator); and if the appropriate incentives arise, public officials may be captured by the regulated firms and help pursue their specific interests (even at the expense of efficiency) or they may help consumers to "hold-up" the regulated firms and appropriate the quasi-rents stemming from their specific assets.

It is important to note that even in case of a benevolent regulator there may be important problems of regulatory opportunism. The ex post modification (renegotiation or unilateral change by the public authorities) of the contract between the agency in question and the firms may be short-term efficient, but long-term (or ex ante) inefficient, i.e. a time-inconsistency can arise. A case in point is renegotiation in form of a 'bail-out' of a struggling firm; while such a

[27] Compare Dixit 1996: 8. Of course, NIE does not possess a monopoly over the assumption of self-interested political agents (voters, lobbyists, politicians and bureaucrats). Traditional Public Choice Theory also builds on that assumption.

bail-out may be in the ex post (or short term) interest of both the firm and consumers, it may – if anticipated – impair ex ante incentives of the firm.[28]

In the real world, 'the' regulator is no single agent; a unified government body or agency governing the whole industry does not exist. Typically, there is, for example, a hierarchy of regulators. The 'upstream regulator' (politicians in the legislative or the executive) establishes (by means of an incomplete contract or law) the basic competencies of downstream regulators (regulatory agencies, antitrust agencies and/or courts) which themselves establish and enforce the more detailed regulatory rules for the private actors.[29] This hierarchy of regulators (and the separation of regulatory powers more generally) is a source of regulatory opportunism but may also be part of its solution. It contributes to the emergence of regulatory opportunism on the side of downstream officials, but may also contribute to the reduction of regulatory opportunism on the side of upstream officials.

The problem of regulatory opportunism exists on each political and administrative level of antitrust and regulation. Even if upstream public officials (legislature) were benevolent, the problems of information impactedness would prevent the writing and enforcing of complete contracts with the bureaucrats in antitrust and regulation agencies. As a consequence of these contracting problems antitrust and regulation may entail similar problems as complex private governance structures. In particular there is the risk of sub-optimal effort or investment (e.g., in information acquisition) of the downstream regulator.

Even if it were possible, in specific cases, to limit the discretionary powers of bureaucrats by writing a rather complete or comprehensive contract between upstream regulators and downstream antitrust and regulatory agencies, there would still be the problem of regulatory opportunism by politicians (the 'upstream regulator') which would not be limited by way of delegation through almost complete contracts. Establishing appropriate governance structures might mitigate the contracting problem between the politicians (or the electorate) and the bureaucrats in antitrust and regulation agencies and thus to the problem of regulatory opportunism. This governance structure should be built along three complementary principles – independence, accountability, and transparency – in

[28] Similar problems arise if the anticipation of a unilateral change of regulation by the regulator induces the firm to change its behavior in inefficient ways in order not to reveal information the regulator could use to adjust regulation to the firms disadvantage. This is the so-called 'ratcheting-problem'; see, e.g., Laffont and Tirole (1993, Chapter 9).

[29] Generally, there are in addition several government bodies or agencies on each hierarchical level. For example, several 'downstream regulators' may share the control of the firm or industry; for more on this see below.

designing downstream agencies and regulatory processes (Neven et al. 1993, Seabright 1994).

(i) *Independence*: Independence of an agency can be defined as the existence of discretionary powers to pursue (clearly defined) specific goals that differ from the more complex goal of nurturing the 'public interest'. It may help supervise the activities of the agency and, thus, increase its accountability. Installing a downstream institution with explicit discretionary powers – and specific interests and information – may help the upstream regulator to credibly commit himself not to interfere (arbitrarily) with the process of actual regulation. This commitment would be a desirable feature of the institutional design of antitrust and regulation to contain regulatory opportunism.[30]

(ii) *Accountability*: If self-interested (downstream) regulatory agents have discretion, it is important to contain *their incentives* to act opportunistically. To do so, regulatory agents should be held accountable through the political process to the general public. The incentives of the downstream officials to behave opportunistically may be limited by establishing review procedures and instruments for disciplinary action as safeguards.[31] To be compatible with independence, reviews should take place at regular intervals and on the basis of clearly (pre-)specified criteria.[32]

(iii) *Transparency*: Downstream agencies should be obliged to make public the information and reasoning upon which their decisions and actions are based. This helps reduce informational deficiencies and asymmetries, which are the main basis of regulatory transaction costs, in particular of the costs resulting from inappropriate decisions of the downstream agencies.

In order to help implement these principles, an explicit institutional separation of powers and a system of checks and balances may (often) be helpful.[33]

[30] This is true, at least, if the time-inconsistency problems and not the politicians non-benevolence are the main source of regulatory opportunism.

[31] Generally within government (agencies) incentives related to career concerns will be more important than direct financial incentives. For an analysis of the incentives of governments agencies' officials in a career concern model see Dewatripont et al. 1999.

[32] Restriciting the exercise of influence to infrequent and predertermined intervals may also help reduce regulatory capture as the ability to exercise influence at such intervals may be more equally distributed between different interest groups than is the ability to exercise day-to-day influence (Neven et al. 1993: 173).

[33] The implementation of these principles does not only depend on the specific characteristics of the industry in question (as emphasized in II.C.1.), but also on the institutional environment (in particular, on the legislative, executive and judicial institutions), in which the antitrust and regulation agencies operate. The institutional environment

Separation of powers means that different agencies have been given specific competencies to regulate or monitor the industry in question. This separation may entail conflicting and, hence, inefficient decisions.[34] At the same time, however, it may lead to an efficient system of checks and balances in which (on each horizontal level of regulation) different institutions of regulation in legislation, executive, and judiciary control each other horizontally and vertically. This may, for example, make it more difficult for interest groups to exert influence (capture) on distinct institutions. Overall efficiency may be enhanced although the introduction of additional regulators will entail externalities and thus inefficiencies between the actors.[35]

With the help of the multi-principal incentive theory[36] it is possible to analyze formally the ways a separation of (regulatory) powers may reduce efficiency

influences the trade off between credibility and flexibility. This helps understand why in some countries (e.g., the U.S.) the formal laws to govern the competencies of antitrust and regulation agencies can be extremely incomplete (particularly as to the substantive rules of regulation); while in others (e.g., the U.K.) regulators have to be bound by private contracts with the regulated firms. The options for modifying or renegotiating the original contract vary substantially. In the U.K. the sector-specific agencies generally cannot modify the contract without the (explicit) agreement of the regulated firms (with other agencies, the Monopoly and Mergers Commission (MMC) or a Secretary of State, getting involved in case of dispute). In the U.S. the regulatory agency has substantial scope for unilateral change of regulatory provisions (the regulatory commissions typically have executive, and quasi-judicative powers with the decisions of the regulatory commissions being monitored by the courts). For an analysis of these examples see Spiller (1996), Spiller and Vogelsang (1997).

[34] For instance, general antitrust authorities typically are to monitor each industry with the explicit goal of enhancing or stabilizing competition, while regulatory agencies are to regulate firms with market power (e.g. electricity transmission companies), possibly in combination with the authority to grant exclusive concessions (as in the British case for electricity transmission companies). Obviously, the competencies given to the two types of agencies may lead to conflicting decisions.

[35] The possibility that a separation of 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 the introduction of an additional distortion may enhance efficiency.

[36] This theory assumes that comprehensive and enforceable contracts can be written only between some (pairs of) actors, no grand comprehensive contract encompassing all relevant actors can be written, however. The relations between various principals (e.g., regulatory authorities) and the agent (e.g., a regulated firm) are modeled as competing (regulatory) contracts or incentive mechanisms. By only slightly extending the limits of the traditional incentive theory (principal agent paradigm) towards a theory of more incomplete or less comprehensive contracts it allows to make use of much of the tools and insights of this well studied paradigm (Laffont and Martimort 1997: 202).

problems of economic regulation. The induced (partial) increase in transaction costs can represent a countervailing element for other unavoidable contractual imperfections and may thus increase the overall efficiency of regulation. The structural separation or duplication of decision making competencies and the induced increase in transaction costs of political actions may in particular (i) reduce time-inconsistency problems by increasing commitment possibilities and it may (ii) reduce the hazards of regulatory capture.[37]

Ad (i). The structural separation or duplication of decision making competencies may entail a free-rider problem among (non-co-operating) regulatory agencies at the time of renegotiating the regulatory policy (Martimort 1995). This makes the possible improvement of ex-post efficiency of regulation harder to achieve. Raising the costs of *future* policy changes improves the commitment ability of the regulatory policy makers. It may, thus, strengthen the credibility of incentive mechanisms; it may, for instance, enhance ex ante incentives of the firm to produce efficiently or to invest in specific assets.

As usual in 2nd-best models optimal solutions are quite sensitive to the underlying assumptions, e.g., 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 make the ex ante efficient design of regulation extremely difficult. The price of commitment is inflexibility, and these inflexibilities can be very costly, e.g., in times of a very dynamic evolution of the network industries.

Ad (ii). The potential role of a separation of competencies between several regulators in containing the influence of organized interest groups on regulatory decision has 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 (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 regulators, and it can reduce the moral

[37] In addition to constraining regulatory opportunism competition between different regulators may – under certain conditions – increase regulatory efficiency also by mitigating the problem of low powered incentives, that is typical for regulation under asymmetric information even if opportunistic behaviour of the regulator would not be an issue (see Chapter III.C.).

hazard problem that exists between the public and the regulators due to the fact of incomplete contracting.

The theoretic models alluded to under (i) and (ii) show, 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. In doing so they stress that 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. It is the transaction costs of coordination between regulators and between regulators and interest groups that helps control opportunistic behavior.

III. Selected current issues in antitrust and regulation

A. Vertical restraints in European antitrust law

Currently the European Union is undertaking a major review and reform of its competition policy towards vertical restraints. On June 10th 1999 the Council of the European Union has adopted two regulations (European Council 1999a,b) giving the Commission the necessary powers to reform its competition policy applicable to vertical restraints.

Within the European Community vertical restraints are treated on the basis of Articles 81 and 82 (ex-Articles 85 and 86) of the EC Treaty. Article 81 prohibits agreements that restrict or distort competition and have an effect on trade between member states. Article 81(3) provides for the possibility of exempting agreements which are of economic benefit. This provision has been used by the Commission to grant exemptions to individual agreements and block exemptions for certain important categories of vertical restraints, as formulated in various Commission regulations. These block exemptions comprise rather strict form-based requirements.

This approach has several important shortcomings (as stressed by the European Commission 1998: 4 itself, see also Comanor and Rey 1997: 50): (i) The rather legalistic form-based requirements may work as a strait-jacket impeding innovative contractual arrangements, and in particular innovative methods of distribution (e.g., as an answer to technical innovations such as the Internet). As individual exemptions are rarely granted, firms face incentives to stick to distribution systems or types of vertical contracts that closely fit current block exemption requirements. (ii) The form-based (rather than effect-based) block exemptions apply to vertical contracts between firms irrespective of their market power. This implies an unnecessary regulation and legal uncertainty for small companies without any market power whereas even monopolistic firms can benefit from the block exemptions (as a withdrawal of the exemption works with effect for the future only).[38],[39]

[38] Vertical restraints may also be and actually have been (successfully) challenged as an abuse of a dominant position under Article 82, to which there is no equivalent provision for exemption.

[39] An additional weakness of the current policy is that current block exemptions do not cover intermediate goods or services but only vertical agreements concerning the resale of final goods.

On the basis of the new powers conferred to it, the Commission intends to draw up and adopt a *broad* block exemption regulation covering (almost) all kinds of vertical restraints affecting finished or intermediate products and services[40] subject to two important conditions: (i) It will apply only to firms whose market shares do not exceed a specific threshold (suggested to be 30 p.c.), and (ii) it will exclude (by means of a black list) certain "hardcore restrictions that always fall outside the Block-Exemption" (European Commission 1998: 29). These include practices involving the imposition of fixed or minimum resale prices and certain forms of territorial protection that prevent or restrict resales, imports or exports and thus may, according to the Commission, thwart the objective of market integration.[41]

NIE analysis of vertical restraints. An assessment of the new EU policy has to rest on an economic analysis of vertical restraints, for which NIE arguments provide important insights. "Vertical restraints are, loosely speaking, contracts between firms at different stages in a production chain that specify more detailed commitments by the parties than simply to exchange a given quantity of goods or services at a given price per unit" (Seabright 1998: 161). This is, of course, a very broad definition that encompasses almost all real world contracts between firms in a vertical production chain. Accordingly, there is a very large number of different forms of vertical restraints (or contracts). Some of the most prominent types of vertical restraints (which all have several variants) are the following:[42] (i) A resale-price maintenance (RPM) clause is a provision according to which the final price (or a minimum or maximum price) to be charged by distributors to consumers is set by the manufacturer. (ii) Under an exclusive dealing agreement, the distributor agrees not to engage in any other business that competes (directly) with the manufacturer's activities, in particular the agreements may prohibit a retailer from stocking competing products. (iii)

[40] The new rules are not – at least from the beginning – intended to apply to the treatment of motor vehicle distribution, for which there is currently a specific block exemption regulation that will expire on 30 September 2002.

[41] The Commission intends to draft guidelines to clarify its policy on cases above the threshold and the terms of a possible withdrawal of the block exemptions below the threshold (see European Commission 1998). There are also supposed to be changes concerning enforcement rules. The requirement that all vertical agreements have to be notified prior to individual exemption shall be given up; the scope for retroactive exemption shall be broadened.

[42] In the following we make selective use of the definitions in Rey and Caballero-Sanz (1996). For more comprehensive overviews and attempts to categorize the different forms of vertical restraints in a meaningful way see also Kay (1990) and Seabright (1998).

Under an exclusive territory (exclusive customer) agreement manufacturers commit to supply to only one distributor in a particular locality (for a particular customer group); in exchange the distributor is generally restricted more or less strictly to supply to customers only within this particular territory or a particular customer group (Rey and Caballero-Sanz 1996: 7). In practice, firms quite often do not use a single restraint but bundle several restraints together in a broader vertical agreement. An example are franchise contracts, which usually combine exclusive dealing and exclusive territory agreements and other vertical restraints.[43]

Broadly speaking, the private benefits of vertical agreements come from an improved (intrabrand) coordination between firms of the vertical chain. Coordination problems may be usefully distinguished into (i) problems that relate predominantly to externalities between members within a given vertical structure and (ii) problems that relate to the credibility of policies (of threats or promises) towards third parties, e.g., competing vertical structures.

Ad (i): Each vertical structure, considered as an entity, faces a number of decision variables (wholesale and retail prices, quantities sold, selling efforts, investments into specific assets, etc.) that affect the size and distribution of its joint profits. If the externalities that a decentralization of these activities generates are not correctly taken into account inefficiencies may occur. Vertical restraints can help internalize the externalities. The most standard example for such an externality problem is double marginalization, which refers to a situation where both the producer and the distributor enjoy some market power and where pricing decisions in the absence of coordination lead to a final price above the level which maximizes the aggregate profit of producer and distributor.[44] If prices are easily verifiable, the most obvious (but not only) solution to this problem consists in fixing the retail price (or at least a price ceiling) through RPM. More generally, the simplest way of influencing the price, the quantity and quality decisions of any party would be to directly specify the conditions under which the product is to be sold in a contract.

Often, however, that will not be possible. Certain variables such as the effort to be undertaken by either the manufacturer or the distributor to improve quality, e.g., of pre-sale service and advice, are intrinsically non-contractible (Kay 1990: 558). And sometimes the appropriate level of a decision variable that is actually contractible depends on information that is nonobservable (or noncontractible),

[43] Compare footnote 45 below.

[44] Both parties have an incentive to add a mark-up on cost without taking into account the negative externality on the other firm's profit.

such as advertising expenses or even pricing that depends on local demand characteristics. In this case externalities cannot be directly internalized. Instead, firms may want to offset the externality by agreeing on restraints on verifiable decision variables that will give the parties incentives to make (2nd-best) efficient decisions on the non-verifiable variables. RPM, exclusive dealing or exclusive territories may all be used to give (downstream) firms incentives to increase expenses for pre-sale service by excluding or reducing the intensity of price competition. Vertical restraints may, thus, serve as an "enforcement mechanism" for implicit agreements on non-contractible variables (Klein and Murphy 1988).[45]

Ad (ii): The second type of coordination problems relates to "strategic credibility" (Seabright 1998: 173/4), i.e. to the credibility of the policies of firms of a vertical structure in the interaction with third parties, e.g., competing vertical structures or (single) competing manufacturers or distributors. Self-imposed restraints on the behavior of firms of a vertical structure may help them commit to strategies (threats or promises) or strategic decisions that increase the profit of, at least, one of the firms. RPM for example may make collusion on prices or cartel enforcement easier because it decreases manufacturers' incentives to undercut rival manufacturers, thus helping firms to commit to price less aggressively; exclusive dealing or exclusive territory agreements may help to deter entry by making the threat not to deal with (efficient) entrants more credible. Obviously these commitments, even if profitable for the vertical structure itself, may have considerable anti-competitive and negative welfare effects.

Potential negative welfare implications of vertical restraints can be attributed to (negative) externalities on third parties, in particular, consumers.[46] There are different ways in which vertical restraints can inflict negative externalities on customers. "Intra-marginal" customers may be adversely affected by the terms of contracts designed to meet the preferences of marginal customers (Seabright

[45] The general concept as well as many of the specific arrangements of franchise contracts can be explained similarly. Just consider brand name reputation which is a valuable asset. Without specific safeguards, individual franchisees would have an incentive to free-ride on the general brand reputation by reducing service or quality. One potentially efficient safeguard is to require franchisees to invest in specific production assets that imply high capital cost penalties in case of termination and may thus serve as a hostage (see Klein 1980).

[46] For the following see the more comprehensive overviews of possible negative effects on consumers and competition in Seabright (1998) and Rey and Caballero-Sanz (1996).

1998: 177).[47] More importantly consumers can be adversely affected when the vertical restraints weaken interbrand competition, i.e. competition between different brands or types of a product. This can happen in several ways: Exclusive dealing may raise costs consumers have to incur when comparing product qualities or prices or when they want to switch products (see Klemperer 1995). Vertical contracts may allocate profits between manufacturers and dealers in a way that weakens their incentives to cut prices (and steal business from rival brands) which may lead to higher prices as compared to both full vertical integration and vertical disintegration with ordinary linear supply contracts (Rey and Stiglitz 1988; Bonanno and Vickers 1988). In addition, measures such as RPM may make it easier for members of a cartel to monitor and police price cutting and to enforce cartel discipline (Jullien et al. 1997 quoted in Seabright 1998: 178). In all of these examples, interbrand competition is reduced by making (pricing) behavior of firms less aggressive, which is to the benefit of all firms within the industry.

Restrictions of interbrand competition may not always be affected in ways that benefit rivals, however. Vertical restraints can also be used for "raising rivals' costs" (Salop and Scheffman 1983). "Raising rivals costs" strategies may be used to force actual competitors out of the market or at least to substantially reduce their market share (e.g., by restricting access to a scarce input); they may also be used to prevent potential rivals from entering the market. Long-term exclusive supply contracts with liquidation damages may, for example, be designed so as to discourage entry of other (presumably more efficient) suppliers (Aghion and Bolton 1987).[48]

Other types of vertical restraints can be used to deter entry by changing the partners' behavior, in particular towards competitors, and thus to commit themselves to an aggressive behavior in the event of entry. Exclusive territories

[47] This is the case for example when customers who value pre-sales advice relatively little are "forced" to consume more service than they require because vertical restraints (e.g., RPM) induces firms to provide higher service rather than to lower prices. The aggregate welfare effect of a (profit maximizing) quality enhancing RPM may well be negative in this case. The aggregate effects can also be positive, however, if marginal consumers value service more highly than intra-marginal consumer. Whether it is welfare enhancing or not will, generally, be quite difficult to decide for antitrust authorities.

[48] For those suppliers that enter nevertheless, the damages represent a kind of 'entry fee' that allows the original vertical structure to claim some of the rent that the entrant would otherwise obtain by virtue of his greater efficiency. This entry fee can be used to compensate distributors which were hurt by the reduction of competition between manufacturers and to "bribe" them into the exclusive agreement.

may, for example, be used to induce a tougher response (by distributors) in the event of a geographically limited entry (Rey and Stiglitz 1995).

It may also be profitable to exclude entry if a manufacturer with some market power (or an owner of a bottleneck asset) faces a commitment problem in his dealings with distributors that tends to dilute the exercise of his market power. Even dominant manufacturers may not be able to achieve monopolistic prices for their products if they cannot commit not to sell more products to other distributors once the deal with a specific distributor has been struck. This commitment problem increases with the intensity of (intrabrand) competition in the distribution segment. Certain vertical restraints, therefore, by restricting the degree of competition (between distributors) can serve as a commitment device for the manufacturer (Hart and Tirole 1990; Rey and Tirole 1996). Note that it is a reduction in *intrabrand* competition that hurts customers in this case: Without the restriction of competition between distributors of the same good the manufacturer is not able to exploit his monopolistic position.

Summing-up and Policy implications. Vertical restraints can, on the one hand, help *intrabrand coordination* (and thereby enhance efficiency) in various ways: Decisions can be coordinated by giving the manufacturer direct control over distributors' actions (such as pricing behavior in the case of RPM) or indirectly by restructuring incentives by reducing the incentives to reduce (and free ride on other distributors') pre-sale advice, e.g., by granting exclusive territories. Vertical restraints can, on the other hand, affect *interbrand competition*. They may promote entry and interbrand competition if they raise profits (through increased efficiency) without raising entry barriers. In markets where *interbrand competition is initially imperfect*, vertical restraints can exacerbate existing imperfections and reduce further the degree of interbrand competition (Rey and Caballero-Sanz 1996: 18). They may reduce competition among existing suppliers by sustaining collusive behavior and they can reduce competition in the long run by erecting entry barriers (Comanor and Rey 1997: 37–38).

This variety of potential effects is not only characteristic of vertical restraints in general, but of every single type of vertical restraint. "All types of vertical restraints, including both price and nonprice restrictions, may either increase or decrease efficiency, and they have different economic effects in different contexts" (Comanor and Rey 1997: 38–39).

Identifying the theoretical possibility of specific effects of vertical restraints does not, of course, imply that the relevant effects are straightforward to diagnose in practice. It will often be extremely hard for competition authorities to know whether the costs (in terms of negative externalities on consumers or restrictions of competition) are significant when set against some of the benefits vertical contracts may bring. The assessment of vertical contracts is further

complicated by the fact that quite often, in practice, firms do not use a single restraint but bundle several restraints together in a broader vertical agreement. Certain combinations of restraints may have less adverse effects on competition (or customers) than their use in isolation. The opposite, however, is also possible. Thus, "a competition policy that makes a particular restraint always acceptable or always unacceptable will limit the achievement of economic efficiency" (ibid.).

There are few per se rules that could (more or less easily) be implemented without running the risk of a substantial number of inefficient decisions. Probably the most important lesson for antitrust is that "it is only if interbrand competition is weak that a negative externality upon consumers is even worth investigating" (Seabright 1998: 179). In assessing the likely effects of vertical restraints, thus, market structure and in particular the extent of interbrand competition are critical factors. If a given vertical structure faces strong competition both from other brands and other distributors vertical restraints are unlikely to harm efficiency.

More specific per se rules for certain types of restraints seem to be hard to justify. In light of the substantial efficiency effects, and the possibility to substitute specific vertical restraints by other restraints,[49] per se prohibitions of certain restraints – even if restricted to firms with some degree of market power – seem to be rather inadequate. On the other hand form-based block exemptions of (very) specific vertical restraints (such as those traditionally granted by the EC) also seem to be inadequate both because they may have anti-competitive effects in specific situations and because such an approach might impede the development of new distribution forms. Thus, notwithstanding the costs of discretion,[50] a rule-of-reason approach seems likely to be preferable if firms which have some market power are involved.

[49] Despite the theoretical possibility that vertical contracts may – under specific circumstances – increase the credibility of anti-competitive practices as compared to the case of full vertical integration (i.e. vertical integration may be less anti-competitive than vertical contracts), there seem to be no justification for being, as a general principle, more permissive towards vertical mergers as compared to vertical contracts as it is the case in the EU (see Seabright 1998: 164, also compare II.C.1. above).

[50] Discretion implies a lack of legal certainty because decisions are hard to predict, there is a danger that decisions are biased towards the interests of parties that have an interest and the means to exert influence and/or to employ specialist lawyers or economists, and, of course, there are substantial administrative costs and costs of delays of decisions. As a consequence the business strategy of firms' may be biased towards institutional solutions for which there is rather less legal uncertainty or for which decision can be expected to be taken more quickly (even if they would otherwise be neither privately nor socially efficient).

Evaluation of current changes in the EU. In the past, European antitrust policy towards vertical restraints has exhibited important shortcomings. The relatively broad block exemption for vertical contracts between firms without significant market power, that has been proposed by the European Commission, seems to be an important step towards a more appropriate and theoretically founded policy. However, in light of the economic analysis the decision to differentiate between price and nonprice vertical restraints and not to subsume RPM under the block exemption seems to be rather artificial. Much will depend on the guidelines on cases above the threshold and the terms of a possible withdrawal of the block exemption below the threshold, to be developed by the Commission, and their practical application in the future. The NIE approach may help develop these guidelines and identify the specific circumstances through which a particular restraint affects competition (e.g., by increasing entry barriers) and efficiency (e.g., by preventing free riding) in particular circumstances.

B. Regulation in traditional network industries – The case of the electricity industry

Since the break-up of AT&T in the United States in 1981, a drastic restructuring of both regulation and industry structures has taken place in most traditional network industries. At the level of the EU, the process started with the liberalization of the markets for telecommunications terminal equipment. Since then, the European Union has become an engine for the liberalization of traditionally comprehensively regulated national markets. This is an ongoing process. The telecommunication markets and other network infrastructures have successively been opened to competition.[51] In some industries, particularly in the energy sector, the liberalization has only just begun,[52] whereas the water industry has remained almost completely untouched so far by European liberalization pressures. Important questions remain open, both on a political as well as on an academic level.

The electricity industry is an example of an industry where the liberalization of potentially competitive segments and the regulation of network access are particularly difficult to implement. Electricity supply is characterized by significant complementarities between, and within, the different stages of the

[51] Cf Bergman et al. 1998; Bickenbach 1998; Boss et al. 1996.

[52] Cf Gilbert and Kahn 1996; Herrmann 1997; Kumkar 1997; Kumkar and Neu 1997; Midttun 1997.

supply chain (Joskow and Schmalensee 1986; Kumkar 2000). The production of the final product (delivered electric power) requires the coordinated supply of at least two intermediate products, generation and transport (transmission and distribution). Every stage of this supply chain is characterized by a high degree of capital intensity and a high (technical) longevity of highly specific assets. There are important vertical and horizontal complementarities, both in operation and in investment planning. They stem from three technical peculiarities: (i) Electricity cannot generally be stored economically but must be produced simultaneously with consumption. (ii) The efficient supply of electricity to customers generally requires the use of grids, i.e. a complex system of transmission and distribution cables. These grids typically connect many power stations with a large number of customers and show economies of density, scale, and scope. (iii) The costs of generating electricity vary substantially in the short run. Taken together, the operation of the several parts of an electricity system must be tightly coordinated within and between different stages to avoid system instability and to provide electricity at low cost. Against this background, (contractual) safeguards are necessary to limit opportunistic behavior of the different agents in supply and demand. This is particularly true with respect to the volume and specificity of investments in generation and transport.

The Traditional Answer: Monopolization and Comprehensive Regulation. Historically, the political and economic answer to the contractual problems in the electricity supply industry consisted of a twofold approach: On the one hand, competition, ex ante and ex post, has been effectively ruled out and national or at least regional monopolies were established, that held exclusive rights to serve all customers in their respective franchise areas.[53] Either the vertical and horizontal integration of formerly autonomous firms has been actively promoted (e.g., in England and Wales or France), or the formation of tight cartels has been approved or even enforced (e.g., in Germany). On the other hand, the corollary of this industry structure was a comprehensive regulation of the monopolies. Typically, the regulation did comprise a supply obligation in the respective franchise area, complemented by the regulation of the investment and pricing behavior. Moreover, other goals such as environmental, regional, structural, and social objectives were defined in the political process and implemented by regulation (often in a rather opaque way, though).[54]

[53] Except for some minor areas; electricity self generation at industry plants is a case in point: Here, at least in Germany, competition was possible.

[54] The situation in telecommunication, and in railway transport was very similar.

Trends in Regulation of Network Industries. Beginning in the early 1990s, growing political dissatisfaction with the traditional regulatory structures in the electricity industry (and in particular with high electricity prices) entailed political action. In Europe, the formerly state-owned English system was the first electricity system to be fundamentally restructured in 1990; several other countries followed suit (see Kumkar 1994, 1998; Kumkar and Neu 1997). According to the Directive 96/92/EC of the European Parliament and of the Council of December 19, 1996 concerning common rules for the internal market in electricity, all member countries of the EU must open their electricity markets for competition at least for large customers (European Community 1997). In Germany a new electricity law complying with the directive has come into effect in April 1998. This law, however, leaves open important questions relating to regulation in the future. Neither has it been decided, how transportation prices will be regulated (e.g., price-cap vs. rate-of-return), nor has it been clarified, which hybrid governance structures in power trade shall be allowed and in which way these will be regulated.

Abstracting from details, the regulatory structures in countries where electricity reforms have already been implemented have one common feature: The stages of transmission and distribution are subject to ongoing regulatory surveillance and control. Where the various reform approaches mainly differ is in the regulation of electricity trade at the wholesale and the retail level. The scope of regulatory models span from the single buyer model to the common carrier model (see Kumkar 2000 for details):

The *single buyer model* is mentioned in the European directive concerning common rules for the internal market in electricity and was applied in numerous US states. It encompasses partial deregulation of the generation stage and of wholesale trade; all other activities in the electricity industry continue to be strictly regulated. The *wheeling model* is likewise recognized in the European directive (in particular as “negotiated third party access”), and implemented on the federal level of the United States, and in the United Kingdom until 1990. It provides some customers with wheeling rights, i.e. with rights to use grids owned by others. In this respect, it implies a partial deregulation either of wholesale trade (the US-, and old UK-approach) or of retail trade (the approach of the EU directive) or a combination of both (apparently the new German approach). In either case, however, the owners of grids still have the right to use their own grids with priority. The *pool model*, implemented in England and Wales in 1990, provides a strict regulation of electricity trade at the wholesale level in form of a mandatory participation of all generators at the central power exchange, and, at the same time, deregulates retail trade. The *common carrier model*, blueprint of the Norwegian, Swedish, and Finnish as well as the

California reforms, permits the evolution of trade institutions (both on the wholesale and on the retail level), which is supported by a strict implementation of a non-discrimination rule in electricity transmission and distribution.

Often, both the academic and the political discussion about the appropriate regulatory structure for the electricity industry is about identifying the 'optimal' regulatory model. NIE contests that such a model exists (see II.C.1.). From an NIE perspective, the appropriate question rather is, how well one particular model performs relative to other models under a specific set of circumstances (see also Joskow 1996). An analysis aiming at identifying an appropriate regulatory structure for a specific industry under specific circumstances (e.g., the geographic extension of the market) must begin with the identification of the properties that distinguish institutional alternatives (regulatory models) from one another and of the costs associated with governing exchange under each regulatory model, and, finally, it must relate the incidence of those costs to observable dimensions of the transaction in a discriminating way.

The overall transaction costs associated with the four above mentioned regulatory models are determined mainly by three criteria of the specific industry and political framework (see Kumkar 2000 for details): Market size; scope and quality of the transmission and distribution network(s); and stability of the institutional (political) environment and its ability to control regulatory opportunism. It can be shown that "optimal" rules cannot be identified without explicitly recognizing the specific characteristics of the respective electricity market: Very large systems should be regulated in a fundamentally different way than smaller systems, efficiency of electricity markets in developed countries requires other regulatory approaches than efficiency of the electricity sectors in less developed countries. For example, efficient competition between several electricity trade institutions (e.g., between bilateral contracts and power exchanges) is only to be expected if the market is of sufficient size and the grids are of good quality.

More specifically, the single buyer model has a comparative advantage in less developed countries, while especially in highly industrialized and rather large countries the common carrier model has a comparative advantage concerning (i) the costs of safeguarding specific assets in generation and consumption against regulatory hold-ups, (ii) the potential for establishing efficient price structures (in time and in space), as well as (iii) the efficiency of regulating transport prices. The two other models possess comparative advantages mainly in medium-sized electricity markets. They may serve also as transitional models on the way to a common carrier model in cases of initially highly concentrated generation markets.

As to the German situation, which is characterized by a large market size, high quality of grids, and a rather stable political environment, following this NIE reasoning it can be argued that further regulation should be oriented towards a common carrier model (Kumkar 2000). On the basis of the common carrier model, the quick and complete deregulation of electricity trade on the wholesale and on the retail level is warranted. Note that this also implies a (temporarily) more intensive regulation of transportation (access) prices of the electricity transport firms than as compared to the current electricity law. However, the efficiency gains to be expected from a complete deregulation of trade and generation will most probably outweigh the costs of this intensive regulation.

The agents in generation and trade, who depend on access to the grids, as well as the transport firms need ex ante (i.e. before investing in new facilities) confidence in fair ex post decisions by the regulator. In this sense, the regulation of transport firms in the common carrier model serves predominantly as a *precondition* for establishing competition in generation and trade - and not predominantly as a *substitute* for competition as in the case of comprehensive regulation, and (in order of successively declining importance in the single buyer model, the wheeling model, and the pool model.

Because there is little experience with this access regulation as yet, the regulator must have discretionary powers to enforce and adjust efficient transport regulation. To limit the corresponding problems of regulatory opportunism, the regulation of access prices should have a rather strong rate-of-return character, supplemented by elements of a price-cap rule. Measures of structural regulation do not seem to be necessary (Kumkar 2000). In addition, the restrictive definition of regulatory competencies in the common carrier model (regulation is constrained to the transport stage, per se) limits the danger of regulatory opportunism. i.e. the problem of regulatory hold-up, and enhances the accountability of the regulator.

Under the particular German circumstances, there is the potential for leaving much room for efficient governance structures to emerge evolutionary rather than by regulatory fiat. It is to be expected that trade will emerge both through power exchanges, through individual contracts, power brokers, and hierarchies as alternative contractual arrangements. The future pattern of governance structures in trade is unknown, however. It will reflect the emerging competitive pressures and the details of transport regulation.

C. The governance of regulation in the EU: Federal aspects

It has been argued in II.C. that there is a trade-off between the (potential) efficiency effect of regulatory discretion and the increased hazards of regulatory

opportunism and that this trade-off can be influenced by the design of regulatory structures and processes such as an implementation of "checks and balances". In particular it may be influenced by the federal allocation of regulatory competencies.

It is, of course, the European integration process where questions related to the 'federal' (and horizontal) allocation of regulatory competencies are currently particularly important and controversially discussed. The more active stance that the European Community has taken since the late 1980s on the competition policy of member countries and on the regulatory policy for the network industries has increased the urgency of the long-standing competency debate. The Commission's efforts concerning the liberalization and re-regulation of European network industries have repeatedly met considerable resistance from (some) member states.[55] The current policy discussion as well as the complexity of the existing allocation of competencies clearly indicate that (at least) for competition and regulation policy neither a complete centralization at the European level nor a complete decentralization are considered particularly relevant alternatives (see Bickenbach 1998). The political discussion rather focuses on alternative systems of competing or concurrent competencies. In this chapter we sketch recent theoretical developments that deal with these issues from an NIE, that is a contract theoretic perspective.

Traditional approaches to the federal allocation of competencies. The traditional economic analysis of the allocation of competencies in federal polities is largely based on the Theory of Fiscal Federalism (in the tradition of Musgrave, Oates and Breton) and the political-economy extensions of that theory. The theory postulates a general trade-off between an improved coordination of political decision making under centralization on the one hand and an improved differentiation and alignment of political decisions towards citizens' preferences 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, generally 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 interconnection of local and national networks may induce important direct and

55 Compare Bickenbach (1998), Boss et al. (1996), Kumkar and Neu (1997).

indirect interjurisdictional spillover effects of regulatory decisions.[56] Moreover, there may be important economies of scale and harmonization benefits (in the sense of reduction of transaction costs) for both public and private actors in the design, implementation and enforcement of regulatory policies.[57] On the basis of these arguments, fiscal federalism would suggest a *centralization* of regulatory competencies.

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 more fundamental problems of the theory. Traditional fiscal federalism suffers from important methodological shortcomings: (i) The advantages and disadvantages of (purely or completely) centralized or decentralized allocations of competencies are merely postulated rather than theoretically explained. Well in line with practical intuition, information problems are perceived to be the basic reason for this trade-off. What is missing, though, is a systematic analysis of the capabilities and incentives that politicians at the different federal layers have for acquiring, processing and using the information that is necessary for an efficient decision making.[58] (ii) The comparative (dis)advantages of alternative

[56] 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 consumers and producers 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.

[57] There may, for example, be important cost savings for a firm that wants to provide services in different Member States, if it were necessary to acquire only one centrally issued license (one-stop shopping procedure).

[58] The mechanism design literature has shown that within a comprehensive contracts paradigm information asymmetries alone cannot account for this trade-off (see Crémer et al. 1996): By appropriately shaping decision making procedures and transfer mechanisms federal government could entice the electorate, firms and consumers to truthfully "reveal" the decentralized information that is necessary for an informationally constrained efficient policy making ('revelation principle'). By the same token, decentralized governments could, in a zero transaction cost world, negotiate and enforce contracts that allow for the internalization of externalities without a central authority. Thus, if complete contracts were possible, the vertical allocation of competencies would actually be irrelevant for efficiency.

systems of parallel or concurrent competencies are not analyzed; actually, they cannot readily be analyzed within the traditional models of fiscal federalism. Within the analytical framework of traditional models of fiscal federalism it is hardly possible to analyze how centralized and decentralized political decision-making interact, and what role central guidelines may play for securing the efficiency of decentralized decision making. In consequence, traditional fiscal federalism is almost mute on problems of concurrent competencies. It does not address the question of why it should not be possible to combine the advantages of centralized and decentralized systems without incurring their respective disadvantages. In particular, it cannot be discussed as to whether or not "administered" contracts 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, as the EU is by now much more than a mere international agreement between sovereign states but not a fully fledged federal state.

Towards a new theory of federalism. From an NIE perspective, the basic reason for these shortcomings can be traced to lack of an (explicit) analysis of transaction costs and information asymmetries and the role they play for the efficiency of political decision making and the containment of political opportunism under different allocations of regulatory competencies.[59]

Building on contract theoretic approaches, the theory of incomplete contracts and the multi-principal incentive theory, mainly developed within the 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

[59] To solve the puzzle of the perceived (theoretical) irrelevance of the (de)centralization of political competencies it is not enough to give up the assumption of benevolent, welfare maximizing political actors, as done by Public Choice approaches to federalism. In addition, the institutional restrictions to the political actors' behavior (stemming, e.g., from the vertical and horizontal separation or rather duplication of competencies in a systems of concurrent competencies) have to be integrated into the analysis. This, however, requires to address the transaction costs of political decision making. 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 and Martimort 1998: 674).

paradigm. Within these approaches the trade-offs postulated by traditional fiscal federalism have been traced back to unavoidable contractual imperfections and the corresponding commitment and credibility problems and the incentive and commitment effects of concurent competencies have been discusssed.

Incentive and commitment effects of (de)centralization. It has been argued by traditional fiscal federalism that the *advantages of a centralization* of political decision making stem from a more effective policy coordination and an internalization of interregional and international spillovers. However, the theory did not explain why the necessary coordination could not possibly be achieved by bi- or multilateral contracting or even by informal agreements. From an NIE-perspective it seems natural to trace back problems of coordination by interjurisdictional agreements to a lack of credibility in their enforcement. If the agreements have to be rather complex it may be hardly possible (or take a lot of time) to detect whether an individual contracting party is cheating on the wording or the 'spirit' of the agreement. A centralization of competencies could contribute to fostering credibility in this case. Credibility problems of policy coordination under different (centralized and decentralized) allocation of competencies can be systematically discussed using methods and arguments of transaction cost economics and contract theory. The incomplete contracts approach emphasizes that the advantages of centralization do not depend upon the size of potential coordination and the spillover effects alone, but also upon a series of information and transaction cost aspects that determine the extent to which coordination advantages could be reaped simply on the basis of interjurisdictional agreements (see, e.g., Begg et al. 1993).

In particular, in those areas where externalities and differing "national interests" are significant, it will be extremely difficult to (self)enforce such agreements without an at least partial centralization of regulatory competencies. 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 but also requires harmonization and re-regulation measures to guarantee 'non-discriminatory' access to, or interconnection 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. 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.

In traditional fiscal federalism models there is no real explanation (apart from alluding to plausibility) of the *disadvantages of a centralization* of competencies. In particular, there is no explanation of *why* local (decentral) politicians should have better information on local conditions or why decentral political agents should use this information more efficiently. In so far as there really are information 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. 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:[60]

Ad (i): An essential impediment for central politicians in the process of information acquisition is that they cannot commit themselves credibly to use that information only in an ex ante agreed upon way and not to use it to implement policies that are against the interests of the local provider in the future.[61] This makes local actors reluctant to provide the required information. A decentralization of competencies would 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): 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 the information they provide is not likely to be decisive for the central politicians' decision (e.g., because they rely on other sources of

[60] There is also the possibility that the comparative disadvantage of centralization stems from central political agents having less incentives than decentral agents to use the information they have to efficiently differentiate their policy. This possibility has also been analyzed within the incomplete contract framework. Given the extraordinary incompleteness of the 'contract' between the electorate and politicians, probably the only 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 or the credibility to orient the policy toward regional preferences either in a centralized or decentralized setting of competence allocation (Seabright 1996).

[61] This is a public sector variant of the "impossibility of selective intervention" (see II.B.), and is directly related to the ratchet effect (see II.C.2.).

information as well). Decentralization of competencies can increase the credibility to use local information appropriately and thereby also the incentives for information acquisition. This incentive effect holds for the decentralization of formal authority as well as for strengthening the real authority of lower level units, in the sense of increasing the likelihood that the local agents information or recommendations are decisive for the actual decision (Aghion and Tirole 1997).

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 just described alert us to the important incentive problems in 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 via some kind of advisory process. With credible delegation of at least some real competence to national regulators, the information problems may be eased. If endowed with (real) competencies, local (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 firms' interests.[62] Thus much of the explicit design of regulatory rules and their application should be taken care of at the level of the Member States.

Nevertheless, 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. 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

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

important international dimension and/or to supervise national implementation in cross-border cases.

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 competencies. It may therefore be reasonable to give the European decision makers 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.[63]

To sum up: Models based on the theory of (incomplete) contracts can rationalize the, in traditional fiscal federalism merely postulated, (dis)advantages of alternative distributions of competencies on the basis of rather simple arguments. In addition the modeling strategy allows new insights with respect to the relevant variables and their interaction such as the relative importance of formal and real competence or authority and the possibility to strengthen real authority even without transferring formal competencies.

Incentive and commitment effects of concurrent competencies. The incentive and commitment effects of alternative systems of concurrent competencies in the EU and the potential benefits of centrally imposed constraints on decentralized regulation may be discussed on the basis of multi-principal incentive theory. The theory has been used to discuss how a separation of regulatory powers in the sense of establishing two (or more) regulators may, at least theoretically, help mitigate efficiency problems of economic regulation related, e.g., to regulatory opportunism (see II.C.2.). If the principals within these models are interpreted as different national or national and European regulators (on the legislative or executive level) this result should have some relevance for the discussion of the (vertical) allocation of regulatory competencies in the EU.

Multi-principal 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 mutually interrelated competencies

[63] The current Commission White Paper on the modernisation of the rules implementing European competition law (European Commission 1999) may be interpreted as signalling 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 decentralise the implementation of European competition law.

for the same firm or industry. 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) 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.[64] 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 principal to increase one type of effort leads to an increase in both activities. Thus the principals inflict *positive* externalities on each other. Hence, regulators may try to free ride with respect to the costs of incentive regulation and, in sum, therefore, the regulated firm is exposed to insufficient incentives which add to the inefficiencies (low powered incentives) that generally arise even in the case of only one regulator.[65] 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 has stronger incentives to increase effort. The externalities that result from the separation of regulatory competencies countervail the inherent efficiency problems (low powered incentives) that relate to the asymmetric information between the regulators and the firm.

Thus, having several regulators compete for the initiative of a regulated firm may improve the *incentives* of the regulated firm (relative to the case of a single regulator). These incentives may be further improved by centrally imposing restrictions on the regulatory rules (contracts) each of the regulators is allowed to impose on the firm. Even in the first example 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 (Dixit 1996). It may be optimal to

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

65 This result is consistent with many economists' reservations about parallel or concurrent competencies.

allocate regulatory competencies to several competing regulators but to impose central restrictions on the regulatory contracts (rules) that can be used by the principals. Under such an arrangement the efficiency of the decisions of the firm 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 higher under a system of concurrent (European and national) competencies than both under a complete centralization or complete decentralization of regulatory competencies.

Whether competition between regulators increases or decreases incentive problems within the models crucially depends on whether there are positive or negative externalities between regulators. With respect to the regulation of European infrastructures both cases may be of some relevance. There is, for instance, a considerable amount of common costs for providing various infrastructure services (e.g., domestic calls and international calls) or border crossing infrastructure projects; 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. Thus, on the basis of existing models, it seems hardly possible to come up with general conclusions on the appropriate level of (de)centralization of regulatory competencies for the European network industries.

There is even more scope for a positive welfare effects of a system of competing competencies if the regulator(s) cannot be assumed to have perfect self-commitment possibilities and/or to be benevolent. It has been shown, within the multi-principal incentive paradigm, that the hazards of *regulatory opportunism* may be mitigated by the establishment of structurally separated regulators (for references see II.C.2.). That result may also be of some relevance for the allocation of regulatory competencies in the EU. A system of concurrent European and national competencies and the induced interaction between European and national regulators (on the legislative or executive level) may serve to increase the credibility of regulation and it may mitigate the danger of regulatory capture by specific interests groups. Opportunism problems are arguably of particular importance in the regulation of the network industries. Probably, both the national and the European regulator are prone to opportunistic behavior. On the one hand, national regulatory agencies – 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 have short term competitive interests, such as low access prices favoring entry and competition even at the expense of incentives to invest in the longer term.[66] The theoretic models (alluded to in chapter II.C.2.) stress that 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. It is the transaction costs of coordination between regulators that helps control opportunistic behavior, provided the regulators have different interests and different information. In the case of European and national regulators this condition seems to be met, as information, and interests will generally differ quite substantially between the European and the national level.

The contract theoretic approaches to federalism, sketched in this section are still in their 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 an analysis of federal systems and political governance structures, more generally. Methods and intuitions are provided by this approach that, compared to the traditional approaches, allow for an improved (theoretical) analysis of the central role that information asymmetries and transaction costs play for the relationship between various public agents and between public and private agents for an appropriate design of (economic) policy institutions.

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. Moreover, 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. The application of theoretical results is further complicated by their second-best nature and the

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

corresponding sensitivity of the results. Thus, policy recommendations that may be derived within a particular model have to be taken with considerable caution. Thus, it seems to be too early to derive any definite conclusions for the allocation of regulatory competencies in real federations or quasi federal systems such as the EU. We, nevertheless, maintain that the models are an important step towards shifting the frontiers of a normative analysis of the allocation of regulatory competencies.

IV. Research Needs and Implications for Economic Policy Making and Economic Policy Advice

In concluding the paper we will first point out needs for further theoretical and empirical research, and then summarize general policy implications of an NIE approach to antitrust and regulation, as well as implications for economic advisory activity.

A. Research Needs

It is important to recognize that the state of economic knowledge differs quite substantially between antitrust, regulation and the role of political and administrative institutions for policy governance. Needs for further theoretical and empirical research vary accordingly.

In most of *antitrust,* economic theory seems comparatively mature. There is a multitude of theoretical models which illustrate (partial) effects and potential trade-offs, of, e.g., vertical integration and vertical restraints. The theoretical literature leaves us with an abundance of potentially relevant results and implications, however. Almost everything seems possible given the right assumptions. Theory, thus, has to put more emphasis on clarifying how to choose among the many models for real policy problems, how to test the theories and how to measure the relevant variables. In order to develop guidelines for antitrust policy it is necessary to identify the specific circumstances through which a particular business practice is likely to affect competition and efficiency. This will require more theory-based empirical research.

As it stands, empirical analysis in industrial organization is in rather good shape as far as private parties' choice of institutions is concerned. There is, however, little quantitative evidence on the size of the benefits and costs of alternative governance structures. For many antitrust and regulatory problems, knowing which governance alternative offers superior efficiency may just not be enough. The hard problems in antitrust (and regulation) often involve potential trade-offs between apparent increases in market power and potential gains in private efficiency or between regulatory imperfections and organizational or contractual imperfections. What is lacking are quantitative and comparative institutional analyses to quantify the social trade-offs underlying mergers and vertical restraints. This, however, is a very difficult, time-consuming and (for the researcher) risky task. It requires gathering appropriate data on contracts or other

institutional choices and on their likely determinants. These data are rarely published (if recorded at all) and often they are subject to commercial confidentiality. Nevertheless, there have been ingenious efforts at data collecting and interpreting at least in the field of industrial organization. Similar progress can be expected in the field of antitrust economics, mainly in terms of a better theoretical foundation and structuring of individual antitrust cases under a rule-of-reason approach.

In *regulation,* there has recently been an enormous amount of theoretical research along the lines of the NIE approach mainly focusing on problems of information asymmetries and credibility. Nevertheless, many questions concerning the appropriate regulation of traditional network industries remain open. Firstly, issues of access price regulation as a precondition, rather than as a substitute for competition, which have become the main issues of practical regulation policy in the network industries, have been addressed by theorists only recently. Here, reality is far ahead of theory, which is, as yet, not able to provide robust prescriptions for current policy problems, neither with respect to conduct regulation nor with respect to structural regulation.

Secondly, increasing competition in many liberalized industries raises even more complicated questions than the regulation of monopolistic network owners, which are hardly dealt with in economic theory, as yet. For example, the work on electricity regulation sketched in this paper shows that in the future, in principle, even a deregulation of the transport stage, in particular a partial deregulation of investments in new transportation facilities, is conceivable (Kumkar 2000). However, up to now there do not exist theoretically satisfying solutions for the treatment of the inherent incentive problems in planning and operation. Similar questions arise in other traditional network industries, e.g., in the telecommunication industry.

The analysis of specific regulatory rules is considerably complicated by the fact that the subject of analysis is still very much a moving target. This dynamic nature of the problem also implies that future analysis should focus more on institutional aspects within the process of regulation. Concerning this issue, questions of an appropriate division of powers between genuine antitrust agencies and regulation agencies must be explored in a more systematic fashion than the literature provides as yet. One of the topics that should rank high on the agenda is the analysis of whether, and under which particular circumstances, the ‘regulation’ of network companies by antitrust authorities (the ‘New Zealand approach’) may be superior to a regulation by sector-specific regulation

agencies.[67] This research agenda has to encompass both theoretical as well as empirical comparative analysis.

However, empirical comparative institutional research in the field of regulatory economics is even more difficult than in the case of antitrust economics. Existing empirical work relies too much on (non-comparative) qualitative case studies and thus often comes close to a mere ex-post rationalization of observed regulatory regimes. The general problem of rather small samples becomes particularly acute because of the multitude of theoretically suggested technical and political variables determining the comparative efficiency of alternative modes of regulation which in addition are themselves quite complex and differ in many dimensions.

Nevertheless, to gain evidence on the validity and importance of theoretically suggested trade-offs there seems to be no alternative to empirical comparative institutional research. To obtain interpretable results, it is crucial to identify the essential institutional details of existing regulatory modes. This encompasses the collection of (often qualitative) information about the legislative, executive and judicial institutions, about customs and other informal norms. This type of "institutional accounting" must be accompanied by a carefully conducted identification of market structure and market performance, and – where appropriate – their trends in the liberalization process. This entails similar, if less restricting, data problems as in the context of antitrust economics; confidentiality problems, for example, are somewhat less severe because regulated firms are often obliged to publish otherwise confidential commercial information.

The NIE approach has broadened the focus of antitrust and regulatory economics to include into the analysis of antitrust and regulatory policy the *role of political and administrative institutions and procedures for policy governance*. As yet, economic analysis has barely scratched the surface of the interaction between the general political, administrative and federal institutions and the institutions of antitrust and regulation, however. The formal contract theoretic analysis of the allocation of regulatory competencies among several regulatory agencies and government bodies has only just begun. Many of the papers are based on straightforward transfers of institutions and techniques of the NIE approach to the theory of the firm. A more systematic analysis of the

[67] This is, for example, an important topic in the current discussion on the electricity sector reform in Germany, not least because the future institutional design of electricity regulation, i.e. the division of powers between cartel office(s), state regulators and courts, is highly unclear as yet.

particularities of political transaction costs and their determinants is definitely warranted.

Most of existing applied work deals with the specific political and administrative institutions and procedures of the US system. There is rather little research done on the consequences for regulatory governance of the specific political and administrative institutions of other countries or of the EU, however. This is also true for the analysis of the federal allocation of competencies. Differences in existing federal or "quasi-federal" systems (e.g., Germany and the EU, respectively) have to be reflected and analyzed in the models. To this end, the existing and changing assignment of antitrust and regulatory competencies (and capacities) on the different federal layers has to be compiled. In doing so, it seems to be important to distinguish between formal and real (capacity-restricted) competencies. In order to identify the complementarities between different regulators (or jurisdictions), it is desirable to have at least a rough idea of the empirical importance of the regulatory externalities. To our knowledge, no empirically based results on the quantitative importance of these effects have been provided in the literature, as yet.

B. Implications for Economic Policy Making and Economic Policy Advice

Despite the still unsatisfactory state of the NIE-based literature on antitrust and regulation, at least in some subject areas, both the general idea and the particular insights of the NIE approach should have profound implications for economic policy making and economic advisory activities.

Greater attention should be given to the positive efficiency of hybrid and hierarchical governance structures when making concrete competition and regulatory decisions.

There is by now clear empirical evidence in favor of an efficiency explanation of institutional choice in the private sector. Hybrid and hierarchical governance structures do not reflect per se – and not even predominantly – market power considerations, but are often a consequence of inherent contracting problems. Prohibiting integration or vertical restraints should only be considered in the case of strong evidence of significant horizontal market power (in at least one of the vertical markets affected) and if alternative institutional arrangements are available which retain a sufficient amount of the vertical complementarities, if relevant.

The importance of the specific characteristics and the related uncertainty over appropriate policies suggests a cautious policy approach that encourages

institutional competition, experimentation and learning both by private and public agents.

Optimal antitrust and regulation policy depends in a complex way on the specific technological and economic characteristics of the industry under scrutiny as well as on the institutional environment. Generally all institutional arrangements suffer from transaction-cost problems, and generally no single institutional arrangement is superior irrespective of specific circumstances. Thus, textbook type regulatory rules typically do not provide a robust answer to real world problems in antitrust and regulation. Neither is it enough to simply copy regulatory rules that have proved to be successful in another industry or country. From the NIE perspective, the appropriate question rather is how well each particular type of antitrust or regulation model performs relative to others under a specific set of circumstances. There are only partial answers to this question, as yet. Important political decisions will have to be made before theoretical and empirical clarity has been attained.

Getting the governance structures for antitrust and regulation right is of utmost importance especially in the light of a fast changing political and technical environment.

The dependence of the appropriate policy on specific market conditions attaches a positive value to discretionary policies. However, discretion has its costs, too. Regulatory opportunism due to time inconsistency and non-benevolence of the public agents leads to the danger of underinvestment in specific assets or weak incentives for cost-reduction by the firms. Thus, there is clearly a trade-off between the benefits of discretion and the risk of regulatory opportunism. An appropriate system of checks and balances, possibly encompassing the establishment of independent agencies, may help contain that risk and sustain regulatory flexibility. Institutions also matter in policy, administration, and judiciary, and again, there is no easy advice (or panacea) for institutional choice. No single institutional choice is appropriate irrespective of the characteristics of the wider (technological, economic, and political) environment.

Economic advice should explicitly distinguish between "getting the institutions right" and "getting the decisions right", as well as between "advising politicians" as public agents and "advising the public".

Political actors are self-interested individuals, whose decisions are restricted and guided by institutional arrangements. Therefore, in dealing with the question of getting the antitrust and regulatory institutions right, economic advisors should give more importance to the analysis of political decision-making processes. They should provide concrete suggestions for the design of these processes explicitly recognizing problems of political opportunism. In dealing

with the question of getting the decisions right, advisors should get more directly involved, not only as nonpartisan experts but also as advocates on a case-by-case basis in decision-making processes. It would hardly be reasonable to assume that just economic advisors are benevolent individuals. However, competition between them and the complementarities between their academic reputation and the quality of their testimonies should help secure a quality of advice high enough to improve the informational basis for actual decision making.

It is reasonable to assume there to be significant information asymmetries between politicians and the public as their principal which render it more difficult to control political decisions. The general task of economic advice to the public – as distinguished from the advice to politicians – is not only to reduce these asymmetries by enhancing transparency on the issues, alternatives, and trade-offs, but also to explain the consequences of remaining asymmetries and possible institutional remedies to regulatory opportunism. And it has to make clear that – as for most institutions – even the best available political and administrative institutions are beset with transaction costs, and are, thus, imperfect.

Appendix: Some alternative and complementary approaches to antitrust and regulation

Antitrust

The most prominent protagonists in the long standing debates over antitrust policy have been economists of the Harvard school, who are largely responsible for development of the theory of imperfect competition and economists of the Chicago School, who maintain a tradition based on neoclassical (price) theory. At the center of the *Harvard School* approach to antitrust lies the structure-conduct-performance (S-C-P) paradigm. According to this paradigm, market structure (market concentration, product differentiation, size of entry barriers, etc.) determines the conduct of the market participants (pricing behavior, temptation to collude, etc.) which then determines market performance (firms' profits, productive and allocative efficiency, etc.).[68] This approach was the basis for a large number of cross-industry studies on the relationship, e.g., between market concentration and individual firms' profits. Overall, these studies were considered to support the thesis that market concentration leads to increased prices and profits and a loss of efficiency.

In the 1960s and the 1970s, this S-C-P paradigm had an important impact on antitrust in the U.S. (but also in Germany); it led to a rather restrictive antitrust policy stance both with respect to mergers and to (almost) all kinds of nonstandard (vertical) contracts or business practices (not only of dominant firms). In merger policy a trade-off between efficiency and market power (anticompetitive) effects was strictly rejected. If a proposed merger could be expected to lead to decreasing costs or an increase in efficiency this was considered an argument against (rather than in favor of) that merger since it disadvantages rivals.[69] Non-standard contracts and business practices were almost always interpreted as attempts to exploit, strengthen or leverage market power. Many kinds of contracts and business practices were, therefore, declared illegal *per se*.

[68] While market structure was treated as exogenous in the early studies ("Old Harvard School") its endogeneity was increasingly acknowledged in more recent studies ("New Harvard School").

[69] According to Williamson (1985) this "efficiency offense" amounts to a "perverse use of efficiency reasoning".

In the 1970s the Harvard view came increasingly under attack from the *Chicago School* of antitrust, that gained considerable influence on US antitrust policy in the 1980s. The Chicago School turned the Harvard (S-C-P) reasoning upside down and took efficiency as the most important *source* of firm size and market concentration. Market concentration was presumed to arise because of efficient and innovative behavior of firms and "technological break-throughs that spur the growth of one or a few firms in an industry" (Demsetz 1994: 12). With the exception of horizontal price agreements antitrust policy should, thus, be very permissive towards all kinds of contractual arrangements including vertical (and with some qualifications also horizontal) mergers (ibid.: 24). If horizontal mergers are likely to yield lower costs or other efficiencies a defense based on these efficiencies should be considered in antitrust cases – even where the merger would lead to a very high market concentration and, thus, potentially to a greater control over price and an ease of horizontal price agreements. Concerning nonstandard vertical contracts or business practices of dominant firms the Chicago reasoning focused on arguing that nonstandard vertical contracts (and vertical mergers) or unusual business practices of dominant firms (e.g., tying) could not reasonably be used to enhance market power.[70] As there was generally no monopoly purpose the most likely explanation for all kinds of nonstandard contracts was that these practices represented efficient ways of doing business; thus, an attack from antitrust authorities was unwarranted.[71]

From the point of view of the NIE both the position of the Harvard school and that of the Chicago school occur to be rather extreme and biased. Schmidtchen (1994) describes the Harvard School view as one of "market power phobia" ("Marktmachtphobie") and the Chicago view as one of "efficiency euphoria" ("Effizienzeuphorie"). He attributes this extremism to a lack of knowledge or an unsatisfactory state of the art of economics and a certain "path-dependency" of economic reasoning.

Harvard referred to market power as an explanation for most non-standard business practices, because at that time there was no other satisfactory

[70] The main argument was that monopoly power, where it exists, could be more efficiently exploited by increasing prices rather than by the use of these practices.

[71] A more recent development – the *theory of contestability* – somewhat narrows the difference between neoclassical (price) theory (Chicago) and imperfect competition theory (Harvard). In denying that the degree of concentration alone can reveal anything about the intensity of competition the theory acts to de-demonize structural monopoly. For more on the theory of contestability see the paragraph on regulation within this appendix.

explanation.[72] The conclusion of the Chicago School that most restraints on downstream firms (e.g., retail price maintenance) or customers (e.g., tying) could not possibly increase or leverage market power seems to be convincing only in non-strategic situations. If strategic interaction in oligopolistic markets (or commitment and information problems that can limit the ability to extract monopoly prices even for monopolists) is explicitly taken into account this conclusion is much less convincing, however. All the more so as proponents of the Chicago School did not, generally, make a systematic attempt to explain the supposed efficiency effects.[73] "The Chicago approach correctly recognises that vertical restraints may often serve wholly legitimate commercial purposes: but it underestimates the extent to which vertical restraints may be motivated by strategic objectives" (Kay 1990: 561). Compared to Chicago and Harvard, the NIE approach is, thus, oriented towards a more differentiated reasoning, in particular in analyzing the efficiency properties of nonstandard contractual arrangements and at strategic and dynamic aspects of anti-competitive effects. In doing so, though, NIE has come up with less clear cut predictions than the two major schools of antitrust policy.

Two of the more recent approaches to industrial organization as a basis for antitrust shall be mentioned here:

1. In the 1980s, the literature on industrial organization has come to be dominated by a new generation of (game) theoretic models. By focusing on strategic interaction of firms in oligopolistic markets – very much in line with some of NIE reasoning – these models attack one of the weaknesses of the Chicago approach. This "*new theoretical industrial organization*" has since produced an unmanageable class of 'reasonable' oligopoly models. The multiplicity of reasonable modeling alternatives together with the fact that many of the models – despite the application of various "refinement" concepts – allow for multiple equilibria has triggered the criticism that almost every outcome could be rationalized and, thus, nothing be explained by these models (Sutton 1997). There have been, basically, two responses to these difficulties. On the one hand, there was a growing literature on 'single industry studies' that took recourse to idiosyncratic features of particular markets to motivate a specific set assumptions. On the other hand there is the attempt to derive bounds on the set

[72] "If an economist finds something – a business practice of one sort or another – that he does not understand, he looks for a monopoly explanation" Coase (1972: 67).

[73] "Thus, the Chicago School focused on explaining why vertical integration and non-standard vertical contracts did not create or enhance market power while transaction cost economics focused on why these vertical arrangements emerged as cost-reducing responses to certain transactional characteristics" Joskow (1991: 56).

of outcomes that can be supported as equilibria (of a broad class of (reasonable) models) and to explain statistical regularities in cross industry studies from (these) basic constraints on equilibrium structure.[74]

2. Based on (theoretical and empirical) results of the *managerial discretion* (principal-agent) the *rentseeking* literature Mueller (1996) stresses the point that even mergers and vertical restraints that do not have a direct anticompetitive effect can have negative efficiency effects that should be considered in their antitrust assessment. Managers of many firms may have discretion to pursue goals other than the maximization of their companies' profits, and in particular pursue growth rather than profits through mergers. There are a number of empirical studies showing that mergers are often likely to be efficiency reducing, even when they do not impair competition (Mueller 1996: 436). From this Mueller challenges the view of (most of) NIE that competitive forces do shape organizational and institutional structures to economize on transaction and decision making costs (Mueller 1996: 430). Furthermore, even if it were profitable for every firm in a specific market to impose, e.g., retail price maintenance on its retailers to increase advertising outlays (given the actions of other firms and retailers) society may be worse off than if there were no restraints on retailers and thus less advertising and more price competition (Mueller 1996: 435). There may be a social dilemma of individually profitable but socially wasteful activities, that mainly intend to redistribute demand (and associated producer rents) rather than to increase demand by cutting prices or improving quality. Against this backdrop, Mueller criticizes the increasingly permissive attitude towards antitrust issues in the United States and in Europe, as well. He recommends to shift the emphasis in antitrust proceedings from a proof of anticompetitive impact (by antitrust authorities) to a proof of positive, net social welfare gains from increases in efficiency (by firms involved). An action with potential anticompetitive effects shall be presumed to be illegal *unless* the firm(s) involved can demonstrate that this action is reasonably likely to generate efficiency gains substantially greater than its anticipated anticompetitive welfare effects.

Regulation

In the late 1960s the conventional wisdom was that the public utility regulation is a necessary and efficient response to natural monopoly cost conditions. It was held that productive efficiency in an industry with declining long-run average costs requires a single firm serve the market, but that a sole supplier will restrict

74 On the latter approach see Sutton (1991, 1998).

output to monopoly level, generating an efficiency loss. It was assumed that efficiency can only be achieved in such settings if government restricts entry and regulates the price the monopolist can charge the public (Crocker and Masten 1996: 10–11). The question of how to regulate was addressed within two quite different paradigms (i) the institutional approach to Cost of Service Regulation and (ii) the Ramsey-Boiteux approach of regulation as an exercise of 2nd best optimization.

Ad (i). In most countries the regulation of utilities has been implemented by constraining the rate of return on capital (in the form of cost of service regulation). The aim is to attract capital to utilities and at the same time to avoid an excessive exercise of monopoly power. There is a huge number of papers discussing the appropriate valuation and accounting rules related to this type of regulation as well as problems of the implementation of these rules by administrative procedures. Most research took a rather narrow perspective, though: Despite the general quest for rules and procedures to make regulation 'work better', there was an almost "total lack of a normative framework" (Laffont 1994: 509).[75] The enormous literature written on cost of service regulation is a list of defects of this procedures and suggestions of partial solutions with no clue whatsoever on whether those defects are the outcomes of optimal trade-offs. "Because of this lack of a normative framework it is impossible to appraise this type of regulation or to suggest improvements" (ibid).

Ad (ii). Within the Ramsey-Boiteux paradigm, regulation was treated as a simple exercise of 2nd best optimization theory (Laffont and Tirole 1993: 34). It was assumed that the regulator had perfect information and could simply direct the utility to minimize costs and to make decisions in the public interest; the question was exactly what decision or pricing rules (average or marginal cost pricing; nonlinear pricing; peak load pricing; Ramsey pricing) best served the public (Joskow and Schmalensee 1986: 16).

An important (early) attack on the conventional wisdom was *Demsetz*' (1968) paper on utilities franchising. Demsetz maintained that the need for regulation did not follow logically from cost and demand conditions and that "market" (or market like) solutions existed that could potentially solve the problem of a single supplier (in the case of no transaction costs). He disassociated the conditions of natural monopoly (decreasing costs) from the implied conclusion that only

[75] For example the choice of a rate-of-return to capital higher than the market rate (which is the source of the Averch-Johnson effect) reflects a need to give the firm some sort of rent without there being any clear justification for this need.

(traditional public) regulation could prevent monopoly price and output to result when these conditions are present. Demsetz' solution was to use a system of competitive bids for granting the exclusive right to supply services (or goods) for a specified period of time. With proper contract specifications, competitive price and output would be approximated even under conditions of decreasing costs. "This so called 'Chicago Theory of Regulation' highlights the ability of bidders to enter into complete contracts that provide for renegotiation of long-term contracts at non-restrictive costs" (Ekelund 1998: xxvi). While it is a major advantage of (re)introducing the concept of "competition for the market" into the discussion, it is of course the complete contract assumption where criticism from the NIE perspective sets in – in particular in combination with long-lived specific investments (see Goldberg 1976, Williamson 1976).

Related to Demsetz' "competition for the market" is the *theory of contestability* and its application to regulation (Baumol et al. 1982; Bailey 1981). Proponents of the theory share Demsetz' view that economies of scale determine whether an industry is naturally monopolistic in the sense of there naturally being only one firm in the market at any time. They go even further, however, in denying that the degree of concentration alone can reveal anything about the (potential) force of competition. Under the condition of "perfect contestability" even a "natural monopoly" will be vulnerable to competitive forces (potential competition) and will be forced to behave (almost) as a competitive firm or industry (if "sustainability" is guaranteed).[76] Perfect contestability requires that entry and exit to the particular market or industry must be free and easy implying that there are no sunk costs (if there are fixed costs or costs associated with entry they must be immediately and completely recoverable or be borne by an entity other than the firm itself).

Though many regulated industries and, in particular, the utilities are characterized by important sunk costs the theory of contestable markets may – according to its proponents – well be relevant for the regulation/deregulation debate for these industries. If it is possible to disentangle non-sunk areas from sunk areas in that industries, e.g., by a mandatory separation of network facilities from service provision, much of the need for traditional economic regulation of the service industry may disappear, even if the network itself is still a natural monopoly. It may suffice if government ensures fairness of access to the sunk facility (Bailey 1981: 179). The theory of contestability, thus, "supports policy measures that attempt to separate out those portions of an industry in which market failures attributable to natural monopoly or other

[76] In a sense, the market process itself establishes (repeated) Demsetz auctions.

elements play an important role from those portions of the industry in which fixed, but not sunk, costs predominate, so that competition and consumer choice can contribute to quality and restrain costs" (Bailey and Baumol 1984: 137). Regulation should be strictly limited to those "sub-markets" within the network industries that are non-contestable (monopolistic bottlenecks) – i.e. to sub-markets in which scale economies are not yet exhausted ("natural monopoly") and where – in addition – sunk costs are relevant (Knieps 1996).

Given the alleged simplicity of this approach its proponents tend to favor a rigorous policy of (vertical or horizontal) disintegration of traditional public utilities. This position seems to assume that there are no economies of vertical integration or that they can be replicated with simple 'access rules' or that the gains from replacing competition with regulation in the competitive or contestable segment(s) will be very large compared to the costs of imperfect linkages between these sector(s) and the regulated monopoly network on which it depends (Joskow 1996: 347).[77] This, however seems to underestimate the problems related to the definition of "governance structure, prices, and terms and conditions of service that will replace what are now vertically and horizontally integrated organizations relying on internal control mechanisms with an industry structure that relies on multiple competing players at one horizontal level operating through decentralized contractual arrangements with a regulated monopoly network at another level of the vertical chain, is a critical issue in restructuring and deregulation" (ibid).

Politics of antitrust and regulation

Like in many other fields of public economics antitrust and regulatory economics has for a long time been dominated by '*Public Interest' Theories* of politics that view public policy as an (efficient) response to market failures and monopoly. Governments are assumed to be benevolent and, thus, to maximize social welfare (under constraints). In the early years of this theory, government was modeled as an omnipotent, omniscient and benevolent dictator. While policy analysis soon began to include additional constraints on the government's action (gave up the assumption of omnipotence in the general theory of the 2nd

[77] An example is Kruse (1997: 259) who acknowledges that there could be disadvantages due to insufficiently exploiting vertical cost advantages. His assessment is, however, that this disadvantage could be kept at bay since these economies may equally well be realized by contractual exchange. Kruse further maintains that potential economies of scope would hardly match the magnitude of efficiency gains ensuing to a vertical separation. He concludes: "As a rule, deregulation get started with vertical desintegration! – not doing so is one of the failures of the timid German deregulation policy" (Kruse 1997: 267, authors' translation).

best) and informational limitations (gave up omniscience in the principal-agent/mechanism design theory) the normative (public interest) approach continued to view policymaking as a purely technical problem. "The implicit assumption is that once a policy that maximizes or improves social welfare has been found and recommended [by economists], it will be implemented as designed, and the desired effects will follow" (Dixit 1996: 8-9).[78]

The NIE of regulation is, of course, not the only and not the first approach that gave up the assumption of a benevolent (dictator as) regulator or government. The theory of regulatory capture and the economic theory of regulation (Stigler 1971) and more generally the Public Choice theory of regulation also assume self interested behavior of political actors. Under this assumption they analyze the consequences of the rational attempt of firms within an industry and other interest groups to influence regulatory policy.

Within the "Economic Theory of Regulation" – in the tradition of Chicago economists Stigler, Peltzman and Becker – regulation is considered an equilibrium outcome of a market-like process in which politicians supply regulation in response to the demands of (organized) interest groups that act to maximize the rents available to their members (the most important effect of regulation is assumed to be a redistribution of rents). If the (potentially) regulated firm(s) is the only interest "group" that is effectively organized and active on "the market for regulation" (as assumed by Stigler 1971) the result will be the "capture" of the regulatory process by the regulated firm (or industry) and, thus, a regulatory policy that maximizes industry rents even at the expense of overall welfare. As more and more interests affected by a regulatory decision were represented with roughly equal effectiveness, the resulting regulation may approach an efficient solution. Under the assumption of a frictionless (zero transaction cost) "market" for regulation an efficient regulatory decision would occur in equilibrium (see Becker 1983; compare Noll 1989: 1265).[79] In the end, "the generalized Chicago school theory is more a theory of pluralism than a theory of capture" (Moe 1997: 462–463).

[78] Most of the mechanism design approach to regulation is still very much in this tradition, though the research agenda of the new regulatory economics (as defined by Laffont and Tirole 1993: 34–35 Laffont 1994: 533–535) goes beyond that.

[79] If one assumes, as Becker (1983) does, that the various interest groups are effectively organized, the expected policy decisions would mirror an efficient policy for that policy area all the more the broader the coverage of the represented interest groups is. If, take the extreme case, all affected interests are represented with (roughly) the same effectiveness, the outcome of the lobbying process would be efficient, absent transaction costs (see Noll 1989: 1265).

One important shortcoming of this theory is that the "power of a group in influencing policy is exogenously given and independent of the design of the regulatory institutions. Henceforth, these models cannot discuss how different institutions affect the efficiency of the interest groups' political influence" (Laffont and Martimort 1998: 675). Doing so requires an analysis of transaction costs (and information asymmetries) in the process of regulatory decision making. More generally, 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 and Martimort 1998: 674).

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