

Antonio Nicita · Filippo Belloc

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# Liberalizations in Network Industries

Economics, Policy and Politics

 Springer

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# Introduction

This book analyzes the economic, regulatory, and political facets behind the liberalization wave observed in network industries (such as electronic communications, gas, electricity, water, postal services, airports, and rail), in OECD countries and globally, in the past three decades.

During this period, many countries around the world have experienced a deep and extensive wave of pro-market reforms in these industries, once dominated by state-controlled monopolies. Policies aimed at removing restrictions to entry into previously heavily regulated markets and promoting government withdrawal from corporate ownership have been implemented throughout the world, and especially in OECD countries, stimulated by globalization and by the diffusion of pro-market reforms.

In this book, we focus on market liberalizations and integrate the traditional economic analysis with the most recent studies of the political determinants of market-oriented policies, following a “political economics” approach.

The liberalization process is at the core of the new boundaries between the state and the market as they have been shaped by the so-called first-wave (1980–1990) and second-wave (1990–2010) neo-liberal paradigm that has characterized OECD industrial and regulatory policies. This process entails different decision domains and involves a great number of stakeholders: governments, politicians, voters, regulators, incumbent and new entrant firms, and consumers. This is the reason why a global understanding of this enduring phenomenon requires an interdisciplinary study across economics, politics, law, and regulatory disciplines. Partial analysis can only reveal some side of the motivations, purposes, and strategies behind the realm of the liberalization phenomenon. The aim of the book is thus (1) to explore the economic and political rationales behind the wave of liberalization reforms experienced by OECD network industries over the last 30 years and (2) to provide the reader with a minimum set of analytical tools, interdisciplinary literature, and empirical outcomes to approach the issue from a broader perspective.

According to OECD (2014):

pro-competition regulation in product markets can help boost living standards. Many empirical studies have shown that competition can overall raise output per capita by increasing investment and employment as well as by encouraging companies to be more innovative and efficient, thereby lifting productivity (Bourlès et al. 2010; Conway and Nicoletti 2006; Nicoletti and Scarpetta 2005). In light of these economic gains, countries have, step by step, removed obsolete or badly-designed regulations in product markets over the past decades, reducing State involvement in business sectors, making it easier for entrepreneurs to create firms and to expand them, and facilitating the entry of foreign products and firms. While in some cases regulation was largely removed, in others it was replaced by better-designed legislation that can even help to enhance competition.

Network industries' liberalization has been the focus of a wide literature in both law and economics studies and in political science research, as these industries are crucial in the modern economy. Liberalization of network industries has been particularly important in Europe, where the legacy of previous state-owned monopolies was strongest. A recent report by the European Commission (2013) outlines that the economic relevance of network industries:

goes well beyond their being sizeable sectors per se, as it encompasses the strategic complementarities they exert over the whole productive system. In particular, e-communications, energy, and transport represent key network industries regulated at the EU level. In fact, they account together for some 9 % of value added, 6 % of employment, and 11 % of households' purchases in the EU.

In this book, we first summarize the law and economics theories of liberalizations (together with differences and complementarities with privatizations) and then analyze the most updated data available on liberalizations and privatizations, through the lens of the recent political science research on the political determinants of economic policies. We thus couple the traditional economic analysis with the most recent studies of the political determinants of market-oriented policies, following a "political economic" approach.

The volume outlines new econometric evidence on several policy issues, including institutional complementarities' dynamics, the problem of policy sequencing and the role of government political ideology.

One of the main objectives of the liberalization efforts in network industries derives from the economic analysis and is referred to efficiency increases associated to the opening of market to competition, bringing:

prices for consumers as close as possible to market prices. This should provide an efficient allocation of resources in the economy, avoid rent-seeking positions, and contribute to delivering diversified choices and an increased quality of services to consumers. In addition, market integration should bring about more homogenous price levels for the same kind of services, creating a level playing field for businesses and citizens. (European Commission 2013)

In his opening remarks on the 2015 Global Forum on Competition, the OECD Secretary-General Angel Gurría stated that:

on-going research by the OECD shows that the massive liberalization of network industries such as electricity, gas, transport, and communications across OECD countries over the last 40 years has raised employment in downstream industries by around 2.5%. Of course, this is not to deny that there can be temporary jobs lost within the network industries as they are liberalized. The point is that rapid job creation in downstream industries has more than compensated for these losses. In the whole of the OECD area, these reforms have created more than seven million jobs in the tradable sectors. In the UK, for instance, product market reforms alone in the 1990s and early 2000s are estimated to have contributed to increasing employment rates by between 2 and 4% points. More competition in the market place reduces mark-ups and, consequently, prices. Lower prices benefit consumers and stimulate the demand for products, which expands output and in turn increases the demand for labor. Furthermore, as lower prices affect profit margins, firms must invest more in physical capital, research and development, and in the re-skilling of their labor force, in order to remain competitive.

However, besides economic rationales, also political motivations play a crucial role in shaping the nature, timing, and extent of liberalization processes. Thus, the specific patterns of liberalization policy in a given country are the result of the interdependence between the “economic game” (among regulators, firms, and consumers) and the “political game” (among politicians, voters, pressure groups, and international relations).

Based on our previous research and through a thoughtful and comprehensive discussion of case studies, empirical outcomes, and literature’s milestones, the book helps the reader to investigate the reasons why many countries adopting similar reforms, simultaneously and in identical sectors, actually differ in their policy “bundling,” intensity, and implementation of, respectively, liberalizations and privatizations. Our conclusions attempt at providing new interdisciplinary insights for researchers, regulators, and policymakers on the economic, political, and institutional design of liberalized markets.

The book is divided in six main chapters. In the first chapter, we offer a comprehensive description of the economics of market liberalizations and summarize the standard economics theories explaining liberalization policies. In the second chapter, we investigate the economic relationship between liberalization and privatization policies, the content of pro-competitive regulation and the institutional design associated to both liberalization and privatization. We investigate how countries’ deregulation patterns have been characterized by both liberalization and privatization. Here, we introduce an important question, that is, whether there is an optimal sequencing of the reforms. In particular, we explain that there are four dimensions through which liberalization-privatization paths can be characterized. First, the “bias”: policy adoption may be biased towards liberalization versus privatization or vice versa; we may thus observe unbiased paths, liberalization-biased paths, and privatization-biased paths. Second, the “balance”: the two policies may be adopted to the same extent at the same time or the government may prefer to push one before the other; paths may thus be balanced, in the former case, or unbalanced (with privatizations following liberalizations or vice versa), in the latter. Third, the “gradualism”: policies may be adopted step by step, with small

improvements each time or with massive simultaneous interventions (a “big-bang” policy path). Fourth, finally, once the two policy processes are launched, they may progressively tend to full liberalization and privatization of the market, or we may observe “reversals” (new barriers to entry or further public ownerships are reintroduced in the market). In that chapter, we analyze both countries’ aggregate and sectoral data and identify the specific patterns that have been chosen by governments in network industries.

The third chapter focuses on the role that competition and pro-consumer policies play in enhancing the impact of liberalization. Concerning antitrust law, the analysis will be devoted in particular to the so-called essential facility doctrine and to the enforcement of antitrust law against margin squeeze abuses of a dominant position. Recent cases have raised the question of how to define the proper boundary between regulation and competition policy in this respect. We then analyze the so-called “demand side” liberalization policy, i.e., policies and regulation aimed at empowering the final consumer in order to enhance freedom to choose among providers, to reduce switching costs and to increase churn rates.

Chapter 4 offers a specific focus on the liberalization patterns in the telecommunications sector, which has been steadily at the heart of national and international debates about industrial policy in Europe in the last decades. With reference to the telecommunications market, we discuss the role of institutional complementarities and show that the removal of entry barriers to market before the establishment of a regulatory authority has reduced, in some countries, the positive impact of liberalizations on the telecommunications market structure.

Chapter 5 focuses on the political determinants of liberalization and, particularly, on the debate raised by the empirical literature. We report updated data (from the last release of the OECD deregulation indicators) on market liberalizations and analyze countries’ aggregate trends and sectoral patterns. In particular, we explore such heterogeneity in market liberalization patterns and analyze the role played by government ideology. We explain how the available empirical literature has failed to acknowledge country-level variations in which liberalizations and privatizations have been differently combined in network industries and therefore why we still lack a full understanding of how so many countries adopting similar reforms, simultaneously and in identical sectors, actually differ in their policy “bundling,” intensity, and implementation of, respectively, liberalizations and privatizations. While a traditional view still supports the idea that governments dominated by right-wing parties tend to espouse liberal economic programs, including deregulation, privatization, and liberalization and, generally, the introduction of competition, we show (through recent econometric results obtained in some of our research articles) that right-wing governments pushed for privatization policies more intensively than left-oriented ones, whereas left-wing governments favored liberalization over privatization. Thus, within the common *neo-liberalism wave*, a partisan trade-off between privatization and liberalization seems to have characterized OECD countries’ governance of network industries. We propose and discuss various interpretations of these findings, including the role of policy diffusion dynamics, swing voters’ signaling, possible policy reversal and institutional

drivers' effects, the role of public finance concerns and the emergence of new political agendas.

In the last chapter, we draw the main conclusions with brief final considerations and open research questions.

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# Chapter 1

## The Liberalization of Network Industries: Meaning and Purpose

**Abstract** In this chapter, we analyze the economic meaning and objective of liberalization policies in network industries, traditionally characterized by natural monopoly and originally controlled by public ownership. We briefly recall the main features of alternative market forms (perfect competition, monopoly, monopolistic competition, and oligopoly) as distinct from those characterizing natural monopoly through decreasing average costs over the range of relevant output, non-divisibility of the network, high cost of duplicating the network infrastructure, and public or universal service obligations. We then outline the many economic facets of network industries and the evolution of liberalization and regulation in OECD countries.

### 1.1 Introduction

In this chapter, we analyze the economic meaning and objective of liberalization policies in network industries—such as gas, electricity, rail transport, airports, postal services, and electronic communications—traditionally characterized by natural monopoly and originally controlled by public ownership.

As Ugur (2007) refers, for these industries while “in the US model, private ownership combined with regulation has been the norm”; in Europe and in other OECD countries, at least from the past three decades, network industries have experienced a long wave of liberalization coupled with the emergence of national/European regulators, which “can be interpreted as a move towards the US model even though the emerging European model does not require privatization.”

We briefly recall, first, the main features of alternative market forms (perfect competition, monopoly, monopolistic competition, and oligopoly) as distinct from those characterizing natural monopoly through decreasing average costs over the range of relevant output, non-divisibility of the network, high cost of duplicating the network infrastructure, and public or universal service obligations.

We then outline the many economic facets of network industries and the evolution of liberalization and regulation in OECD countries.

## 1.2 Market Structure and the Nature of Competition

The market is a system of institutions, which regulate the exchange of goods and services. Markets can show different forms, and different criteria are used to distinguish market forms, for instance:

- (1) Firms' size (firms are said small if they produce a negligible share of the quantity of goods/services exchanged on the market)
- (2) Number of firms (the number of firms is high if the exit of a single firm does not affect the market as a whole)
- (3) Type of product (products are homogeneous if they are viewed as identical by buyers)
- (4) The presence/absence of barriers to entry/exit and so on

A "Market success" is an equilibrium allocation of resources that is *Pareto efficient*. A market failure occurs when scarce resources are not put to their highest valued uses and, as a consequence, the allocation achieved by the market is not *Pareto efficient*. Few concepts are more widely used within economics than that of "efficiency." It usually means not wasteful or doing the "best" one can with available resources. However, there are specialized usages, for example, the concept of efficient markets in the finance literature or Leibenstein's concept of *X-inefficiency*. Not all these meanings, even in academic work, have a common provenance. Nonetheless, the concept as used in neoclassical economics has a precise but rather narrower meaning, given to it by Vilfredo Pareto, the Italian economist and sociologist, in his work *Course in Political Economy* and *Manual of Political Economy* around the turn of the twentieth century.

Pareto suggested the following definition: *an allocation of resources in the economy was optimal if there existed no other productively feasible allocation which made all individuals in the economy at least as well off, and at least one strictly better off, than they were initially.*

This definition, which is widely used in Economics, shows some pitfalls (Zerbe 2001). First, it is only well defined within the so-called *neoclassical framework*, that is, under an ideal type where the preferences of individuals and the technical possibilities of production are taken as the ultimate data of economic analysis. Furthermore, even within this framework, Pareto efficiency is an ordinal concept of efficiency, as it does not rely on any intensity of preference, interpersonal comparability of utilities, or commensurability of different inputs or outputs for its definition. Finally, while it provides a ranking of allocations of economic goods between individuals, it does not allow a ranking of all such allocations, that is, there are many different allocations that are Pareto-optimal and which differ with respect to the distribution of real income (i.e., utility) among the individuals in society.

Nonetheless, being aware of its limits, the notion of efficiency provided by Pareto is widely used in economics as it allows to compare alternative market configurations and equilibria and to identify "winners" and "losers" among firms,

policy makers, and consumers. It also allows the comparison between success and failure of markets.

An alternative formulation of the concept of “market failure” can be drawn from the analysis of the *first welfare theorem*. The first welfare theorem states that if there are enough markets (there are no externalities), all consumers and producers behave competitively, and an equilibrium exists, then the allocation of resources in that equilibrium will be Pareto-optimal (see Arrow 1951). Accordingly, a market failure is said to occur when the conclusion of this theorem is false, that is, when the allocations achieved through market exchanges are not efficient in the sense of Pareto.

The first condition requires there to be enough markets. Although there are no definitive guidelines as to what constitutes “enough,” the general principle is that if any actor in the economy cares about something that also involves an interaction with at least one other actor, then there should be a market for that something and it should have a price. This is true whether the something is consumption of bread, consumption of the smoke from a factory, or the amount of national defense. The first of these examples is a standard private good, the second is an externality, and the third is a public good. All need to be priced if we are to achieve a Pareto-optimal allocation of resources; without these markets, actors may be unable to inform others about mutually beneficial trades which can leave both better off.

The informational role of markets is clearly highlighted by a classic example of market failure, when a coordination game does not reach an efficient equilibrium. Consider the case of a services industry, which must decide whether to operate. Starting activities will be profitable if and only if, say, the telecommunications industry begins operations within 5 years. The telecommunications industry, on the other side, will be profitable if and only if the services industry is operating when the telecommunications industry begins its own operations. Clearly, each cares about the other and it is efficient for each to operate; the services industry begins today and the telecommunications industry begins later. Nevertheless, if there are only spot markets for services, the telecommunications industry cannot easily inform the services industry of its interests through the marketplace. This inability to communicate desirable interactions and to coordinate timing produces a market failure. To solve this coordination game, in a world of incomplete contracts (Williamson 1985), vertical integration between “service” and “industry” shall emerge, thus substituting a market exchange by a hierarchical order within an organization.

The second condition of the first welfare theorem is that all actors in the marketplace behave competitively. This means that each must act as if they cannot affect prices and, given prices, as if they follow optimizing behavior. Consumers maximize preferences subject to budget constraints, and producers maximize profits, each taking prices as fixed parameters. This condition will be violated when actors can affect the values that equilibrium prices take and in so doing be better off. The standard example of market failure due to a violation of this condition is monopoly in which one actor is the sole supplier of an output. By artificially restricting supply, this actor can cause higher prices and make himself or

herself better off even though the resulting equilibrium allocation will be inefficient.

The ideal type of perfect competition identifies an ideal market configuration where Pareto efficiency is maximized. However, as Coase (1988) outlined, in a perfect competitive market “exchange takes place without any specification of its institutional setting. We have consumers without humanity, firms without organization, and even exchange without markets. [ . . . ] And when economists do speak of market structure, it has nothing to do with the market as an institution but refers to such things as the number of firms, product differentiation, and the like, the influence of social institutions which facilitate exchange being completely ignored.” In Chap. 2, in this volume, we will outline the institutional approach to markets and the complex framework of rules needed to let the markets work well. Here, the notion of perfect competition is taken into account just as a reference point which allows to investigate the potential sources of market failure—as guidelines for understanding State–Market boundaries and the role of liberalization policies—rather than as a real market configuration to be reached, given its extremely unrealistic assumptions.

To analyze the economics of the public intervention in network industries and monopolistic markets, it is useful to recall the basic microeconomics of competition and market failures.

Let us start with the case of market competition with *decreasing returns to scale* (the relevant part of the total cost curve shows decreasing returns): the quantity  $q$  that maximizes profits is one corresponding to the maximum distance between the curves of total revenues (TR) and total costs (TC). In this point, the average marginal costs (AMC) equal the marginal revenue (MR),  $MR(q) = MC(q)$ . See Fig. 1.1.

In the case of perfect competition, with constant returns to scale, a situation as that depicted in left side of Fig. 1.2 will emerge: if  $p' > MC$ , price  $p$  is always positive and increasing, if  $p' = MC$ , price  $p$  is zero and the optimal quantity cannot be determined, and if  $p' < MC$ , price  $p$  is always negative. In the right side of Fig. 1.2, the case of increasing returns to scale is represented. Here, if  $p' > MC$ , price  $p$  is always positive and increasing, if  $p' = MC$  or  $p' < MC$ , then the price is always lower than the ATC curve, so  $p$  is always negative.

The maximum social welfare is always achieved in the presence of perfect competition. Define social welfare ( $W$ ) as the sum of consumer surplus (CS) and profits of  $n$  firms:  $W(p) = CS(p) + \Sigma \Pi_i(p)$ . Then in the case of perfect competition, the price is such that the deadweight loss is minimized. Consider for simplicity the case of constant returns to scale, as in Fig. 1.3, with  $\alpha = CS$ ,  $\beta = \text{profits}$ , and  $\gamma = \text{deadweight loss}$ .

Here, competing firms will lower prices to the level  $p' = MC$ . The result will be a maximization of the social welfare, with zero deadweight loss.

In the presence of a monopoly, potential competitors cannot enter into the market because of the presence of barriers. The monopolist can choose either the quantity or the price. Indeed, the demand curve for the market (which in this case coincides with the demand curve for the monopolist firm) is such that the price

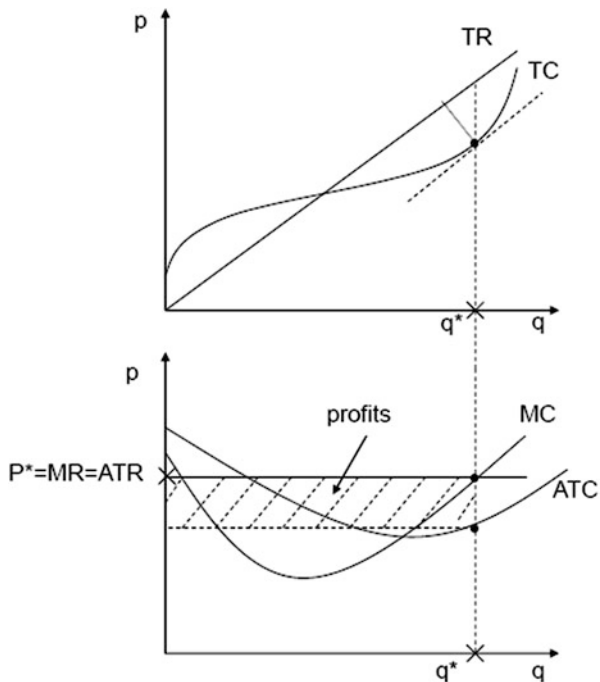


Fig. 1.1 Market competition with decreasing returns to scale

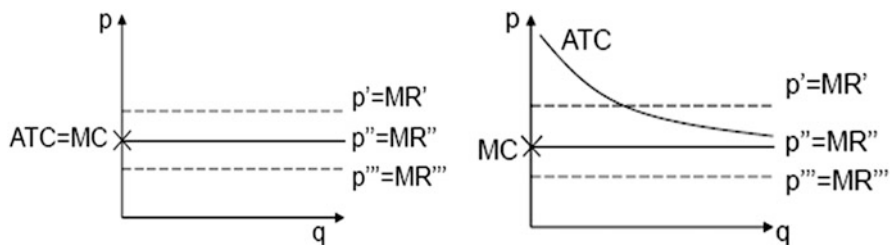


Fig. 1.2 Market competition with constant (left panel) and increasing (right panel) returns to scale

results are determined once the firm chooses the quantity and vice versa. Assume that the firm chooses the quantity.

In this case, the problem for the firm can be expressed as follows:  $\max \Pi(q) = TR(q) - TC(q)$ . From this, deriving with respect to  $q$ , it can be obtained:

$$0 = [(d\Pi(q))/dq] = [(dTR(q))/dq] - [(dTC(q))/dq] = MR(q) - MC(q)$$

Thus, the firm will produce a positive quantity  $q_m$  in correspondence to which MR and MC are equal. Indeed, if  $MR > MC$ , then by increasing the quantity the

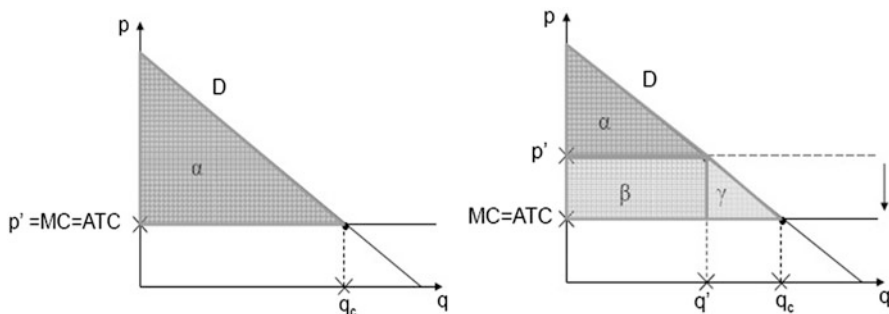


Fig. 1.3 Static efficiency in competitive markets

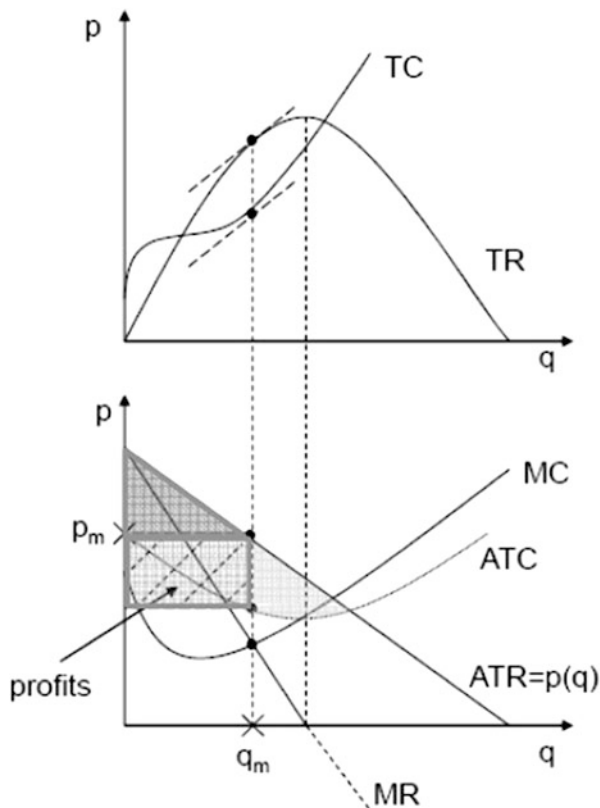
firm would see its revenues increasing more than the costs, so that the firm would expand further its production; if  $MR < MC$ , then by increasing the quantity the firm would see its revenues increasing less than the costs, so that the firm would reduce its production. As a result, as it is shown in Fig. 1.4, given the cost function  $TC(q) = F + cq^2$ , the monopolist chooses the optimal quantity  $q_m$  in correspondence to which  $MC$  and  $MR$  are equal. Then, the price  $p_m$  is determined by the level of the demand that corresponds to  $q_m$ . In the case of the monopoly, note that in contrast to the case of perfect competition, the demand curve for the firm is decreasing (since it coincides with the demand curve for the market). The average total revenue (ATR) is always equal to the price; indeed  $ATR = (TR/q) = (p \times q) / q = p$  and the marginal revenue (MR) is always lower than the price.

As it is shown in Fig. 1.4, a monopolistic firm will maximize its profits by choosing a level of  $q$  ( $p$ ) that is lower (higher) than that of perfect competition. A measure of the deadweight loss can thus be obtained by looking at the gray area between the  $ATC$  curve and the demand curve for the quantity levels that are not traded in the market ( $q > q_m$ ).

Monopoly also impacts over other types of inefficiencies such as technical inefficiency (X-inefficiency) with lower incentive to minimize the costs and dynamic inefficiency with lower incentive to innovate both processes and products (but consider also the Schumpeter's argument later in this volume). Furthermore, it may induce *rent seeking behavior*, given the monopolist's incentives to allocate further resources to the defense of own monopoly position (R&D aimed to patenting new product only as a defensive strategy, excessive advertising, lobbying, etc.).

Finally, the market configuration known as *Imperfect competition* refers to those market structures that fall between perfect competition and pure monopoly. When only a few large firms dominate a market, may provide a homogeneous good or service, an *Oligopoly* occurs. Firms' actions are interdependent, as the decision of each one, in terms of quantities and prices, has an important impact on others. Each firm is aware of its strategic interdependence with others. Under an oligopoly, joint output is greater than the monopoly quantity but it is less than the competitive

**Fig. 1.4** Static (in) efficiency in monopolistic markets



industry quantity, market prices are lower than monopoly price but greater than competitive price, and total profits are less than the monopoly profit.

Under *Monopolistic Competition*, many firms sell products that are similar but not identical; thus, each firm may exert “some” market power against consumers.

Figure 1.5 outlines the main distinctive features of alternative market forms. Typical examples are tap water and cable TV for monopoly, tennis balls and crude oil for oligopoly, novels and movies for monopolistic competition, and wheat and milk for perfect competition.

In the context of network industries, it is useful to recall the special case of *natural monopoly*. The standard definition of natural monopoly is that the cost function is subadditive. This means that whatever is the combination of outputs desired, it is cheaper for a single firm to produce that combination. Put differently, subadditivity of the cost function simply means that the production of all combinations of outputs is accomplished at least cost by a single firm. In this case, when a single firm can produce a product or a group of products more cheaply than two or more firms, it should be desirable to maintain a monopolistic market structure. Technically, a natural monopoly exists in an industry where the costs are subadditive, that is, in the case of two firms, where each produces, respectively,

MARKET FORMS		CHARACTERISTICS			
		<i>Firm's size</i>	<i>Number of firms</i>	<i>Product's type</i>	<i>Barriers to entry/exit</i>
<b>Perfect competition</b>		Small (a single firm's production is negligible w.r.t. the overall quantity exchanged on the market)	High (tending to infinite)	Homogeneous	None
<b>Imperfect competition</b>	<b>Monopoly</b>	Big (a single firm's production is the all quantity exchanged on the market)	One firm	----	No possibility of entry
	<b>Oligopoly</b>	Big (a single firm's production is a large part of the quantity exchanged on the market)	Few firms	Homogeneous	Barriers may exist
	<b>Monopolistic competition</b>	Small (a single firm's production is negligible w.r.t. the overall quantity exchanged on the market)	High	Differentiated	None

Fig. 1.5 Taxonomy of market forms

$q_1$  and  $q_2$  and the total costs  $C(Q)$  are lower with joint production, i.e.,  $C(Q) = c(q_1 + q_2) < c(q_1) + c(q_2)$ . Thus, subadditivity implies that the cost function (including initial investment) for the sum of all units at a given level of production is actually smaller than the sum of the various cost functions (given multiple companies) at the same given level. This condition characterizes the case for a *natural monopoly* to emerge.

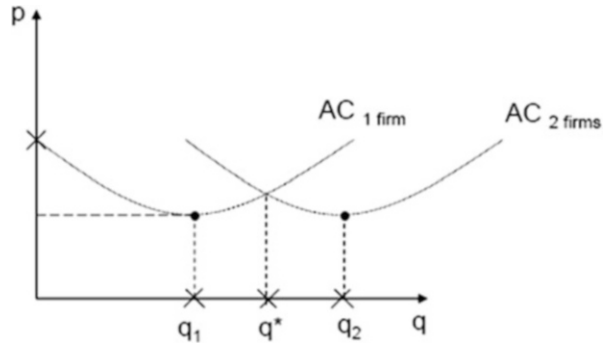
A natural monopoly is a market configuration of an industry characterized by high fixed costs and relatively small variable costs. In this case, additional units provide a lower average cost, but costs per unit begin to rise after a certain level. In this case, economies of scale do emerge, and a same production level is more expensive when more than one company is serving the market.

In Fig. 1.6, the  $AC_{1firm}$  curve is the average cost function for one firm in the market and the  $AC_{2firms}$  curve is the average cost function for two firms in the market. The intersection of  $AC_{1firm}$  and  $AC_{2firms}$  at output  $q^*$  defines the range of subadditivity. For all outputs less than  $q^*$ , a single firm yields least-cost production. Hence, the cost function is subadditive for outputs less than  $q^*$ . Even though there are diseconomies of scale between  $q_1$  and  $q^*$ , it would be desirable to have a single firm producing in that range.

Under a natural monopoly, an incumbent firm thus might be better able at exploiting the potential of its physical and human resources than a number of small firms in a competitive environment. Subadditivity is thus considered a necessary condition for a natural monopoly to be considered optimal. On the other side, economies of scale are a sufficient but not necessary condition for a natural monopoly to be sustainable. As the long run marginal costs meet the demand curve, only one firm may efficiently serve the market.



**Fig. 1.6** Cost structure in a natural monopoly



It is worth emphasizing that the presence of a natural monopoly, however, although it is associated to a lower average cost with respect to a competitive market, also implies both static and dynamic inefficiencies, as in any other case of monopolistic markets. Phrased differently, the subadditivity of the cost function determines a cost structure in the market such that the presence of one firm is preferable with respect to the presence of more firms, and a one-firm monopolistic market in fact may emerge. Nevertheless, the presence of a single monopolistic firm generates other welfare losses that the public regulator may want to reduce or correct. These other inefficiencies include the deadweight loss previously analyzed as well as possible rent seeking and a reduced incentive to improve the product quality and to introduce cost-saving production technologies.

Furthermore, preemptive investments in the network infrastructure give to the incumbent very large first-mover advantages. The incumbent (if regulation is absent) can impose discriminatory terms to potential entrants for the access to its infrastructure, deterring entry, and so maintaining greater output over time. In a Schumpeterian perspective (Schumpeter 1942), the incumbent therefore can count on a stable and large business activity that may make its innovative effort worthwhile (although it can happen also that new entrants are incumbents in another market) (Gruber and Verboven 2001). Economies of scale and the possible presence of network externalities further enhance the first-mover advantage (Katz and Shapiro 1986).<sup>1</sup> Buyer switching costs are another source of first-mover advantages typical of network industries.<sup>2</sup>

<sup>1</sup>Network externalities arise when there are incentives for interconnection or compatibility among users, such as in the telecommunications services.

<sup>2</sup>Switching costs can be contractual costs intentionally created by the seller in order to discourage users from switching to another provider, or they can be due to imperfect information of buyers about the service quality of available providers.

### 1.3 Public Interventions Against Market Failures

Given the various forms of inefficiencies that a monopoly may generate, public authorities in actual market economies often intervene in the market to correct the inefficient allocation of resources that may arise. There are two ways in which the government can attempt to improve the allocation of resources: it can provide goods and services directly and it can make rules that alter market outcomes (by setting “boundaries” to firms’ behavior). These interventions must be carefully targeted, of course, because public intervention might reduce welfare rather than increase it. For the sake of simplicity, we can distinguish direct and indirect forms of public interventions. Direct government intervention refers to the actual participation of government in the economy. Governments intervene directly when they respond to a market failure by producing or supplying a good or service under natural monopoly conditions or by financing production undertaken by the private sector on a contract basis (such as much of the state’s infrastructures). Indirect government intervention refers to the regulatory (in a broad sense) function of government, and somehow the institutional setting behind the process of liberalization falls in this category. It is a second best solution (to extract relevant information spread into the market’s actors is costly and imperfect; in a competitive market such information is revealed through prices).

Indirect government intervention entails enacting a law or proclaiming a legally binding rule that gives rise to market outcomes that are different from those that would have been obtained in the absence of the intervention. When an industry is regulated, industry performance in terms of allocative and productive efficiency is codetermined by market forces and administrative processes. A government cannot regulate every decision, as it is physically impossible for a government to perfectly monitor firms and consumers. As a result, market forces can be expected to play a significant role even in the presence of government intervention. Within the public interest theory of regulation, two alternative ways are used: (1) competition law, involving a negative definition of licit behaviors, i.e., what not to do (the public actor is the competition authority) and (2) economic regulation, promoting a positive definition of licit behaviors, i.e., what to do (the public actor is the regulator).

A wide definition of regulation, in this respect, refers to the use of the government’s power to coerce for the purpose of restricting the decisions of economic agents. Economic regulation typically refers to government-imposed restrictions on firm decisions over price, quantity, and entry and exit. Although economic regulation can encompass restrictions on a wide array of firms’ decisions, the main key decision variables controlled by regulation are:

- (1) *Price*
- (2) *Quantity or Quotas*
- (3) *Number of firms*
- (4) *Quality*
- (5) *Advertising*
- (6) *Investment*

*Price regulation* may specify a particular price that firms must charge or may instead restrict firms to setting price within some range (generally a maximum price is set). If the concern of the government is with a regulated monopolist setting price too high, regulation is apt to specify a maximum price that can be charged (often such that the regulated firm earns a normal rate of return: this is standard practice in the regulation of public utilities).

If the regulated firm has some unregulated competitors, the regulatory agency may also be concerned with the regulated firm engaging in predatory pricing (i.e., pricing aimed at forcing its competitors to exit the market). In this situation, regulation is likely to entail a minimum price as well as a maximum price. More often than not, regulation specifies more than a single price. In fact, it can put an entire price structure in place. Of course, this increases the complexity of implementing economic regulation.

*Restrictions on the quantity* of a product or services that are sold may be used either with or without price regulation. A common form of quantity regulation that is often imposed on a common carrier is that of meeting “all demand at the regulated price.” This requirement is generally used in regulating electric utilities.

*Control of entry and exit* is another policy instrument that governments may use to promote imperfect market fine tuning. Entry may be regulated at several levels. For example, entry by new firms may be controlled, as is typically done in the regulation of public utilities. Or, in addition to controlling entry by new firms, a regulatory agency may also control entry by existing regulated firms. These markets, indeed, may already be served by other regulated firms (as an example, the *Federal Communication Commission* (FCC) placed restrictions on AT&T’s entry into the computer market in the 1980s). A basis for exit regulation is that regulation strives to have services provided to a wider set of consumers than would be true in a free market. Attaining this goal may entail regulated firms serving unprofitable markets, which creates a need for regulations that forbid a regulated firm from abandoning a market without regulatory approval.

One of the other decision variables is the quality of the product or service that firms produce. A regulatory agency may specify minimum standards for reliability of a service (as an example, if an electric utility has regular blackouts, the regulatory agency is likely to intervene and require an increase in capacity in order to improve service reliability). Quality is actually a central concern for the regulator, but quality regulation is also costly. To control any variable, the relevant economic agents have to be able to agree on what the variable is and what restrictions are placed on it. In the case of price and quantity, this is not difficult. Quality, instead, is typically neither so well defined nor so easily observed.

Another variable that is sometimes (though infrequently) regulated is firm investment. Regulation of investment entails government intervention in the production process, i.e., to affect a firm’s choice of technology and inputs.

Finally, antitrust scrutiny of imperfect markets constitutes a form of “public intervention,” even if it is actually enforced by independent authorities. The challenge of antitrust is to distinguish anticompetitive behavior, such as collusion and monopolization, from competition and the exercise of fairly attained monopoly

power (e.g., due to better products). Antitrust law regulates economic activity but differs in its operation from what is traditionally considered “regulation.” Where regulation is often industry specific and involves the direct setting of prices, product characteristics, or entry, antitrust law focuses more broadly on maintaining certain basic rules of competition (Picker and Carlton 2006).

## 1.4 The Rise of Liberalization Policy in Network Industries

The term “liberalization” is generally meant as the process of liberating the economy from various regulatory and control mechanisms of the state, sometimes including public ownership and direct control over the management of firms. The purpose of liberalization process is thus typically coupled with increasing competition and giving greater freedom to private enterprises.

The widespread use of liberalization in economic theory has been originally associated with *trade liberalization* policies among countries in the global arena by opening up internal economies to trade and investment coming from abroad. The idea behind trade liberalization is that by liberalizing trade and capitalizing on areas of comparative advantage, countries can benefit economically. Under the competitive threat coming from abroad, each country would be forced to use their own resources—land, labor, physical, and human capital—to focus on the economic activities in which countries do best relative to competitors, specializing in sectors and businesses showing a competitive advantage. As a consequence, global markets would evolve with higher rate of innovations and lower total costs, with benefits spreading to citizens and consumers.

As an OECD report (2011) recently outlined, more open markets in goods and services can contribute to creating jobs and increase incomes. According to OECD, “reducing tariffs and nontariff barriers can help in the short run where the economic crisis has led to significant involuntary unemployment by reducing costs of imported products for consumers and by providing new market opportunities for exporters.” In a longer term view, lasting gains can be found from reallocation of resources across sector and from productivity growth: “reducing barriers to foreign direct investment in services is found to particularly increase demand for higher skilled labor, while the offshoring of services is not found to shift jobs abroad.”

One of the typical domains where countries have experienced a larger intensity of state control and, thus, a lower degree of market openness is given by the so-called network industries, such as passenger airline, telecommunications, electricity, gas, postal services, and railways services.

As Armstrong and Sappington (2006) outlined, “the design of liberalization policy is of paramount importance in settings where competition is deemed to be a superior alternative to a prevailing monopoly regime,” especially when sunk costs for building “the network” have been already sustained by the former legal monopolist, and competitors can enter the market just paying the cost of access to the network. In particular, “successful liberalization is seldom as simple as removing

all legal restrictions on entry into the regulated industry. Entrants face myriad economic barriers to entry, even when legal barriers are removed. These entry barriers include:

- (1) Customer inertia due to switching costs or ignorance, for example
- (2) Incumbent control of key inputs that entrants require for profitable operation
- (3) The prospect of aggressive pricing by incumbent suppliers

Policies that reduce or limit the effects of entry barriers constitute vital components of a successful liberalization plan” (Armstrong and Sappington 2006).

As Godfrey (2008) recently pointed out “effective competition is a driver of productivity” and that liberalization and competition policy “should be an essential component of any pro-poor growth strategy. Crucially, competition facilitates greater equality of opportunity by breaking down the barriers to fair competition that often help to protect incumbent elites.” Thus, liberalization and competition policies generate “the combined effect of all government policies that influence the level of competition in markets. Many factors influence the level of competition, and a holistic approach is needed to assess it. [...] Barriers to competition stemming from inappropriate government policies or anticompetitive behavior by firms are common in developing countries. They diminish opportunities for innovation and growth and make consumers worse off. Markets are often dominated by big business with close ties to government, and more effective competition reduces opportunities for corruption and creates more space for entrepreneurs and SMEs to grow. Competitive public procurement increases the effectiveness of expenditure on publicly provided services, such as education and infrastructure. Effective and fair competition is not automatic. Sound competition policy can help markets work better and is a key part of the investment climate that can help investor confidence and provide a level playing field for domestic SMEs. For markets to remain competitive, there should be no unnecessary entry barriers, so that new firms can enter when they see business opportunities. Barriers to exit should not be excessive to allow firms to leave markets when they are unable to operate effectively. An effective competition policy should safeguard the rights of entrepreneurs to enter and to leave markets.”

The nature of the above barriers to entry requires that market openness occurs under an institutional framework where regulators and antitrust authorities maintain the conditions for a “workable competition.” This means that, under liberalization policy, direct control of the State is replaced by indirect “control” of other public institutions such as sector-specific regulators and antitrust law enforcers.

However, as the notion of “regulation” is somehow misleading (being often referred to both State direct control and to the activities of independent regulators), liberalization policy needs some further explanation. It is important to distinguish two main approaches (Spulber 1989; Ogus 1994; Baldwin and Cave 1999; Newbery 2001):

- (1) Liberalization as the *creation* of competitive markets in previously reserved public monopolies through the design of a new regulatory setting of powers and

competences (including the introduction of public agencies or independent public authorities)

- (2) Liberalization as a process of *market openness*, per se, “against” any public sphere of intervention (including the reduction of the role exerted by public agencies or independent public authorities or sectoral regulators, where weak legal and institutional design, generates incentives towards regulatory capture and/or weakens regulatory long-term commitment) and thus leading to a process of *deregulation*.

The above distinction is extremely important to our purpose as, in the first approach (1), a new form of public regulation (from direct State intervention and control to indirect control exerted by independent public authorities) is deemed to be *the consequence* of liberalization processes, while in the second approach (2) liberalization is simply intended to be a process that *reduces* regulation in any form and, sometimes, it is targeted against the role of regulatory authorities, so that *deregulation* is the *consequence* of liberalization.

The origin of this ambivalence relies on the US legal tradition which includes, in the wide notion of “regulation,” also legislation and direct governmental intervention, while the European tradition (as well as the recent economic literature on regulation) generally considers regulation as a form of indirect public intervention (through specialized agencies and independent authorities) precisely aimed at governing liberalized markets and/or privatized firms. This is at least the approach adopted by OECD countries, as “regulatory reform is not merely concerned with eliminating restrictions where they are no longer necessary but also, and more importantly, with enhancing regulatory quality in areas where regulation is unavoidable” (OECD 2000).

If, on the one side, the *law and economics critique* towards the public management of market transactions in specific sectors (the regulatory capture by self-interested public governmental agents, politicians, and pressure groups) equally applies to independent regulators (den Hertog 2010), on the other, the nature, meaning, and purpose of regulation, under a liberalization process, largely differs from those affecting regulation in non-liberalized sectors. Indeed, regulation by independent regulatory authorities in liberalized sectors includes different forms of regulation (Kay and Vickers 1990) as *conduct* or *behavioral regulation* (imposing constraints on pricing behavior and other contractual terms) and *structure regulation* (enhancing competition by increasing the number of downstream firms, defining the optimal vertical degree of separation among different segments on the supply side and so on). Thus, what regulation under liberalization adds to the alternative case (no liberalization) is providing a scheme of incentives to both the incumbent and the entrants that are coherent with the introduction of competition at the downstream level. Under liberalization policy, a special role is thus attributed to the competition process itself.

Moreover, under the liberalization paradigm, public control has been typically delegated to “independent” authorities, i.e., to institutional agents that are assumed to have, in turn, a scheme of incentives properly designed to minimize or, at least,

mitigate the influence of various pressure groups (politicians, voters, government, lobbies, firms).

As Geradin (2006) outlined, “in a liberalized market, regulation is typically more important (because, as we have seen above, one needs to create a level playing field between incumbents and new entrants) and to avoid conflict of interests should be carried out by an independent entity. These agencies have to be independent not only from the operators but also from the government as the latter typically maintains some participation or economic interest in the incumbent.” Moreover, Belloc et al. (2013) and Sutherland et al. (2011) find that liberalization and privatization in the provision of infrastructure when accompanied by a supporting regulatory environment can boost investment and increase competition.

However, Armstrong and Sappington (2006) pointed out that “our understanding of the precise conditions under which regulated monopoly supply is preferable to unregulated competition is limited. Furthermore, we know relatively little about optimal liberalization policies—policies that govern the transition to competitive market conditions—in cases where competition is deemed superior to monopoly.”

This complexity reveals an ambiguous relationship between liberalization and regulation, as liberalization processes reduce some form of regulation (the one associated with legislation or direct governmental intervention), while it introduces some new regulatory settings (those enforced by independent regulatory authorities to encourage market competition to the greatest extent).

This point has been made clear by Hellwig (2009): “the liberalization of entry into the provision of services has been accompanied by the introduction of statutory rules requiring network operators to open their networks at regulated prices to competing service providers. It would therefore be misleading to merely refer to the change as ‘deregulation,’ as is sometimes done in invocations of the holy triad ‘privatization, liberalization, and deregulation.’ Whereas some regulations have been lifted, others have been newly imposed—the overall system of governance of network industries is simply different.” Similarly, Newbery (2001) outlined how “creating competitive and efficient markets for network services paradoxically requires sophisticated regulatory institutions, more so for some utilities than others. Networks offer many potential bottlenecks that can be exploited unless there is good regulatory oversight, sufficient competition, and/or enough spare capacity.”

As we will discuss in Chap. 4, when analyzing the case of liberalization in telecommunications, the econometric analysis suggests that the pro-competitive impact of liberalization is significantly higher when it is coupled with regulation by independent authorities.

Somehow, the above distinction recalls two broad traditions with respect to the economic theories of regulation (Spulber 1989; Ogus 1994; Baldwin and Cave 1999; Newbery 2001), summarized in Fig. 1.7. The first tradition has been defined as the “*Public or general interest theory of regulation*” and assumes that regulators, with sufficient information and enforcement powers, effectively promote the public interest and are benevolent, aiming to pursuing the public interest.

The opposite tradition, which can be defined as the “*Private or special interest theory of regulation*,” assumes that entrepreneurs, managers, politicians, and





### 1.4.1 *The Peculiarity of Network Industries*

While liberalization processes have been introduced in many sectors, ranging from financial and banking to professional services, trade and even to job markets, the case of network industries shows distinct features, motivations, and purposes for liberalization, which are, however, common to OECD countries and spread through a *policy diffusion* mechanism (Schneider 2001; Simmons and Elkins 2004). Moreover, OECD network industries increasingly register the emergence of almost homogeneous regulatory frameworks and the presence, in national markets, of multinational players competing in the global arena. These phenomena reduce the prominence of local conditions and allow for a coherent comparative political–economic analysis of the evolution of liberalization policies in OECD network industries.

A *network industry* is characterized, on the supply side, by an infrastructure (the network) that “transports” a service and, on the demand side, by final customers who purchase the service. A network is a collection of nodes and connection lines so that among them there is flow of either energy (as electricity, gas, heating), information (as images, video, IP bytes), or material (as water, mail, passengers). Some networks are one-way directional (as natural gas, water, cable tv, etc.) while others are two-way directional (as transportation, phone, etc.). In some case, the network takes the form of a platform connecting two sides of the market (Rochet and Tirole 2003). Network industries are thus industries where the delivery of products or services to the consumers takes place through the use of a network that requires sunk capital for the installation of a distribution network of pipes, wires, cables, or railroads to supply gas, electricity, telecommunication, television signals, or transport services, and so on. In those cases, the cost per service (average costs) continues to decline as the production of goods and services increases (Baumol 1977; den Hertog 2010).

The main economic characteristics of network industries are the following:

- (1) *Fixed costs* (for the most part also sunk relative to the built infrastructure/bottleneck): this implies a continuous decline of the long-run average costs of production, as the quantity produced increases (i.e., increasing returns to scale).
- (2) *Economies of scope*: many services are usually produced simultaneously and the average total cost of production decreases as a result of increasing the number of different goods produced.
- (3) *Externalities*: network positive effects (the more the users are, the higher are the economic advantages of being a user, which work as economies of scale from the demand side, i.e., positive consumption externalities, e.g., mobile phone service with many subscribers)—it is possible that the markets in which there are such externalities tend to be quite concentrated— and possible network negative effects (it might also be the case that the presence of more networks reduces the advantages of being a user of a single network or that a relatively high number of users generate crowding).

- (iv) *Vertical integration*: the same (former monopolistic firm) owns the essential facilities or bottlenecks whose access is necessary for competitors to enter the downstream market and sells the final services to consumers.

Many of the services delivered through network industries satisfy fundamental needs of customers and citizens (telecommunications, energy, transport, postal services, etc.) to which the society may attach a “constitutional” value, imposing that no one is excluded from the service and that the same should be provided to all on the equal terms (universal service obligations). Moreover, the infrastructure delivering services in network industries is typically a physical facility that shows relevant economies of scale and scope, as well as network externalities, which make it profitable for a unique infrastructure to be originally built (and eventually managed).

A recent report by the European Commission (2013) outlines that “network industries are generally characterized by high fixed and sunk costs, justifying that some segments, exhibiting features of natural monopolies, are regulated by a sectoral authority. This poses a challenge to regulatory authorities, as the regulatory framework has to ensure competition and nondiscriminatory access to the regulatory parts while providing enough incentives for companies to invest in the network. The effective functioning of the market in network industries is even more important because preliminary estimates point to investment needs in broadband, electricity, gas, and transport of between 1.5 trillion euros and 2 trillion euros in the EU.”

These two main distinct features of network industries (the uniqueness of the infrastructure and the social value of services universally delivered through it to citizens) generated, in almost all OECD countries, a monopoly managed by State-owned enterprises. The uniqueness of the infrastructure envisaged a case for natural monopoly as an alternative to an otherwise market failure. Typically, the infrastructure monopoly entailed, in each sector, a vertically integrated firm, responsible for building and maintaining the network as well as for delivering the service to final customers, exempted from antitrust rules. In order to avoid the deadweight loss associated with monopolistic equilibrium, retail prices or rate of return in network industries have been historically managed by regulation of some kind. “Natural monopolies in networks supported monopolies in services, in some instances by statutory regulation, and in others by market foreclosure based on vertical integration. In Europe, most of the vertically integrated monopolies were held in state ownership, and in the USA most of them were private ownership subject to sector-specific regulation. Prices charged to final customers were usually computed on some kind of cost plus basis” (Hellwig 2009).

Table 1.1 summarizes the main characteristics of some network industries. It is interesting to notice how most of the network industries share some important features, such as product homogeneity and the presence of sunk investments, which make these sectors as a typical case for the emergence of natural monopolies. At the same time, however, the presence of public service obligations and possible unbundling suggests the need for public intervention in the form of regulation

**Table 1.1** Main characteristics of network industries

	Communications	Gas	Electricity	Rail	Road	Air	Maritime
Product homogeneity	Long-medium (within segments)	High	High, but lower intertemporal due to non-storability	High	High	High	High
Demand elasticity	Short term: med. Long term: high	Short term: low Long term: med.	Short term: low Long term: med.	Short term: med. Long term: high	Short term: low Long term: high	Short term: med. Long term: med.	Short term: low Long term: med.
Investment in networks	Costly and sunk (lighter at the service provision level)	Costly and sunk	Costly and sunk	Costly and sunk	Costly and sunk	Costly and sunk	Costly and sunk
Physical characteristics of infrastructure	Long distance for backbone, med. for wireless, short for last mile	Long distance Physical network	Med. distance Physical network	Long/short distance Physical network	Long/short distance Physical network	Long/med. distance Physical network	Long/short distance Physical network
Foreign dimension	Important for backbone	Important	Of relevance only indirectly	Of relevance only indirectly	Of relevance only indirectly	Of relevance only indirectly	Of relevance only indirectly
Public service obligations	USO for public telephone network at a fixed location and special measures for the disabled	Last resort supplier	Last resort supplier	Widespread use of PSOs	Yes, through competitive tendering	Infrequently	For islands

(continued)

Table 1.1 (continued)

	Communications	Gas	Electricity	Rail	Road	Air	Maritime
Separation of infrastructure and services	NRAs' remedies include functional separation of SMP vertically integrated operators	Unbundling (full ownership unbundling, legal unbundling)	Unbundling (full ownership unbundling, legal unbundling)	Independence of infrastructure manager	n.a.	n.a.	n.a.
Infrastructure charging for third-party access	For LLU: bottom-up long run incremental cost	n.a.	n.a.	Marginal cost charging	Significant variances but where users are charged, usually based on average costs	n.a.	n.a.

and entry liberalization. The technical feasibility of infrastructure and services, in particular, is largely due to the process of technological development that—in the last three decades—has significantly changed some substantial features of network industries, partly reducing also the subadditivity of the cost structures in these markets.

### ***1.4.2 Competition and Universal Service Obligations in Network Industries***

Universal service obligations (USO), imposed on at least one (incumbent) firm, are typically adopted in liberalized network industries and take the form of uniform pricing and/or uniform quality and/or uniform coverage relative to the delivery of some basic services to the population (Cremer et al. 1998, 2001).

Liberalization under USO raises some relevant issues for entry and competition dynamics in these industries (Crew and Kleindorfer 2005). Ideally, when entry occurs in the whole market, the minimum quality/maximum retail price conditions may not be necessary, if competition works well. However, these conditions might be required in the first steps after liberalization occurs, as entry may reveal initially under a small (geographical and/or product) scale, a phenomenon known as “splintering.”

Under small scale entry, new entrants will initially focus on more profitable, specific areas or products, delaying coverage of the whole market to a subsequent period. This entrants’ “cream-skimming” strategy typically generates two main consequences: competition in some market (more profitable) segments, while monopoly in all other areas (Anton et al. 1998; Chon et al. 2000; Rosston and Wimmer 2000).

Traditionally, the benefits of the competitive process introduced by liberalization policy have been envisaged in the reduced market price in competitive areas and in incumbent’s saving of avoided costs of serving competitive areas (Armstrong 2001). In this respect, universal service obligations, in the form of uniform pricing, on incumbent allow imitation by new entrants in competitive areas (they will fix a lower price), while they will constraint incumbent’s ability to fix a pure monopolistic price on the price charged in all other areas. Typically, the timing of entry is such that USO features are fixed before entry occurs, and thus they affect the dimension and the nature of competition.

However, as Valletti et al. have shown (2002), USO and firms’ coverage decisions, in a liberalized network industry, are also the result of strategic interaction, and the final outcome on competition and consumer’s welfare in the market will depend on a series of features involving the nature of USO, the timing of entry (Calzada 2006; Gautier and Mizuno 2011), and so on. Another important feature affecting the dynamics of competition is given by the way in which USO is financed. Typically, the USO financing, when involving unfair financial burden

(see for instance, the third European postal Directive) on incumbent's side (when the incumbent is the USO provider), might be a combination of both public compensation and cost sharing between service providers. Cost-sharing rule stems precisely from the fact that, once USO is established, selected entry into the most profitable segments of the market reduces the expected gains of the incumbent and thus cross-subsidizations from more to less profitable areas of the market.

As a consequence, the "negative externality" on USO coming from selective entry will be partially internalized through cost sharing.

Here, a quite complex strategic issue arises according to the dynamics of the process, i.e., whether entry (and competitors' coverage and pricing) occurs before or after a cost-sharing rule is imposed to finance USO. Typically, cost-sharing rule will be decided *ex post* and when properly anticipated by competitors it may reduce the dimension of competitors' coverage. The relationship between optimal scale of entry and USO financing (through cost sharing) is thus fairly ambiguous and depends on specific details (such as the dimension of density, scale, and scope of economies, as well as the dimension of entry fixed costs).

Some authors claimed that "the uniform price makes the urban (or low cost) submarkets artificially profitable and this may attract inefficient competitors, i.e., firms that would not be able to challenge the incumbent in the absence of the universal service obligations. Conversely, rural (or high cost) submarkets are artificially unprofitable, and this may deter the entry of efficient competitors. Prices that are not cost reflective may thus generate inefficient entry" (Gautier and Wauthy 2009). This means that post-entry competitive dynamics could be far from being efficient in terms of both cost minimization and consumer's welfare.

For instance, Valletti et al. (2002) show that when entry occurs in the most profitable areas, the incumbent under USO (with uniform pricing obligations) will not maintain incentive to challenge the entrants in the contested markets, as any decrease in price would have to be spread in all submarkets, generating losses. Thus, the incumbent will accommodate entry and eventually exit from competitive markets. As a consequence, entrants in competitive areas maintain, in turn, incentive to select a focal point price lower than that fixed by the incumbent in less profitable areas, but high enough to gain oligopolistic rents. This last effect might be particularly sustained by cost-sharing USO financing rule (that may act as indirect focal point). The result of the price game outlined by Valletti et al. (2002) will be that prices in contested markets will be higher under uniform pricing.

This effect which might be further magnified by cost-sharing USO financing rule could in principle affect the dimension of competitors' coverage, as competitors can employ their rents to expand the market, eventually through scale and network economies. However, competitors' market expansion will reduce the "monopolistic" areas and thus decrease monopolistic quasi-rents for the incumbent who will be induced to enter in competitive areas reducing the entrants' profits. Thus, larger market coverage by the entrants triggers a more aggressive price behavior by the universal service provider. The final result could be one in which the prices charged

in the two areas (competitive and monopolistic) might even generate a welfare loss compared to the average price that would result under a unique monopolistic provider. This would be a rather countervailing paradox of the liberalization processes when USO is at stake.

## 1.5 The Evolution of the Neoliberal Paradigm in Network Industries

As we have explained, typically, network industries have been identified with the emergence of a natural monopoly stemming from the existence of economies of scale. This is because economies of scale are behind the economic rationale for having a monopolistic infrastructure in these industries (Sharkey 1982). The investments necessary to establish a network infrastructure, generally, are irreversible (or sunk) and indivisible (or lumpy). This makes the average unit costs fall with an increase in output, and it increases the relative efficiency of a larger (multiproduct) firm with respect to smaller ones (Panzar and Willig 1977). More specifically, network industries usually have a significant noncompetitive component: “for example, the local loop in telecommunications, electricity transmission and distribution, and rail track are all characterized by economies of scale which give rise to a natural monopoly. The presence of natural monopoly characteristics often means that competition cannot be relied upon to provide the socially optimal outcome, and some form of government intervention in these industries may be desirable.” (OECD 2000). Technological development, since the end of the 1970s, has allowed and stimulated various lines of public intervention, including unbundling and vertical separation, the evolution and the experimentation of new governance and regulatory techniques, and an increasing openness to international challenges and competition, through a process of progressive liberalization and privatization.

As Hellwig (2009) refers, “these industries have been thoroughly reorganized. The vertically integrated monopolies have come under strong pressure; in some cases, they have completely disappeared. The changes differ from industry to industry and from country to country, but a few common elements can be named,” such as privatization of previously State-owned companies, liberalization of entry into the provision of network-based services, and separation or vertical disintegration between the operation of the networks and the provision of services.

Thus, at different speeds, and starting at different times in the past 30 years, OECD countries have been reforming product market regulations, improving regulatory techniques and adapting them to changing market and technological conditions: “reforms concerned both inherently competitive industries (such as road freight and retail distribution) and the so-called network industries in which noncompetitive and competitive segments coexist. Entry and prices in previously restricted markets have been liberalized. The role of the state as an owner of enterprises selling goods and services in the market has been reduced. New

regulations have been designed to promote competition and ensure that traditional public interest goals can be met within an increasingly competitive framework. The objectives of regulatory reforms were to lower costs, enhance consumer welfare, and give greater incentives to producers to innovate” (OECD 2000).

The nature and scope of the (new) regulation under the liberalization wave of OECD network industries started in the 1980s were quite different relative to the “regulation” legacy experienced in the USA (Spulber 1989). In several countries, the legislation created regulatory agencies with the purpose of avoiding monopolistic pricing and to protect social welfare. State intervention in network industries has been traditionally twofold: directly through building and managing the infrastructure and the service delivery and indirectly by regulating the prices charged to customers and/or the monopolist’s rate of returns.

As outlined by Mènard and Ghertman, after World War II “governments and State-owned firms under the authority of Ministries of Industries, or similar institutions, behaved as owners and to a large extent as regulators also with a mix of economic and political objectives, of which national interest and pride were not absent. [. . .] On both sides of the Atlantic, most of the conditions of contestable markets (Baumol et al. 1982) were absent, especially free entry of new competitors. The State used its power through more or less direct intervention in Europe and the USA, respectively. The national interest was interpreted as a need for the State [. . .] to create the infrastructure required for economic development in European countries” (Mènard and Ghertman 2009), following the idea that the absence of a direct public intervention by the State would have determined a market failure.

The first reason for public control and management in network industries was thus the belief that such industries were natural monopolies, with space for only one undertaking in the market. “This view was based on the observation that sectors, such as telecommunications and energy, were subject to large economies of scale and that network infrastructures were very hard or even perhaps impossible to duplicate. Exclusive rights thus legally translated the perceived economic model governing network industries” (Geradin 2006). Moreover, there was a general view that the provision of universal service for “public services” or “services of general economic interest” typically associated with network industries was better performed by the governmental control. As Geradin (2006), again, outlined, “a kind of ‘regulatory’ contract” between governments and large utilities provided services “throughout the territory (including in loss-making areas) to all customers (including unprofitable ones), with a given level of quality and without discontinuity, thereby ensuring social and geographic cohesion. The provision of universal service would certainly have a cost, but the monopoly granted to these firms would allow them to cross-subsidize profitable services with loss-making ones and still make a profit.” Finally, the economic relevance of network industries in terms of GDP, employment, and national security called for maintenance of State control.

Over the years, this vertically integrated state-owned monopoly model in network industries has been increasingly challenged by law and economics scholars (especially those belonging to the Chicago law and economics school, Laffont



2000) and pro-market political movements (the so-called *neoliberal paradigm*, see Nonneman 1996).

The neoliberal critique—originally raised by Stigler’s (1971) seminal article and followed by Peltzman (1976), Posner (1974), and Becker (1983)—focused on the inefficiencies and distortions generated by the “regulatory capture” and the asymmetric information associated with the management of monopolistic infrastructure (*private interest theory of regulation*). As Armstrong and Sappington (2006) clarified, a government or a regulator is said to be captured by the firm he regulates when the regulator generally implements policies that further the interests of the firm at the expense of the broader social interest.” On the one side, price regulation—in one sense or another—was exposed to lobbies’, unions’, or voters’ pressure on governmental decisions leading to decisions contrary to “paternalistic regulation” of a “benevolent” regulator; on the other, an even “benevolent” regulator would hardly have been able to overcome asymmetric information on real costs and to set the correct prices, or rate of returns, to manage efficiently the firm, providing the right rate of employment, investments, and innovation.

This critique, thus, did not explicitly concern the (monopolistic) creation of the (State-owned) infrastructure per se, rather the public management of a static monopoly over the built infrastructure and the governance and policy design of the markets, including the institutional design of regulators and competition policy enforcers.

The main message of liberalization policy was the following: once the infrastructure has been built, economic efficiency would have required to reduce the role of the State and to increase the room for competition in downstream markets.

With different emphasis, the original *Chicago critique* has flourished over time, and particularly from the end of the 1980s to today, generating in the last 30 years the so-called bipartisan *second-wave neoliberalism* (Belloc and Nicita 2012a, b) that has dramatically changed the nature of network industries in OECD countries, opening up to competition those sectors previously operated under statutory monopolies.

A wide scholarly and interdisciplinary literature has analyzed neoliberalism in various facets. Typically, this term is referred to as a new form of “political–economic governance premised on the extension of market relationships” (Larner 2000). On the public policy side, it has been also depicted as *Thatcherism* or *Reaganomics*, and it has been identified with a political manifesto in which privatization and liberalization were the essence of public policies, especially for those economic services—namely, those delivered in network industries—previously managed by state-owned monopolies.

While this *first wave of neoliberalism* clearly identifies an ideological divide, as these policies were almost exclusively promoted by right-wing, conservative governments, its later diffusion around the world, progressively lost this original ideological bias.

Some authors have recently identified the policy agenda launched by President Clinton’s “market globalism” and Prime Minister Tony Blair’s “third way” (Roy et al. 2006) as *second-wave neoliberalism*. As the first wave, this new form of neoliberalism encourages public policies aimed at promoting decentralization,

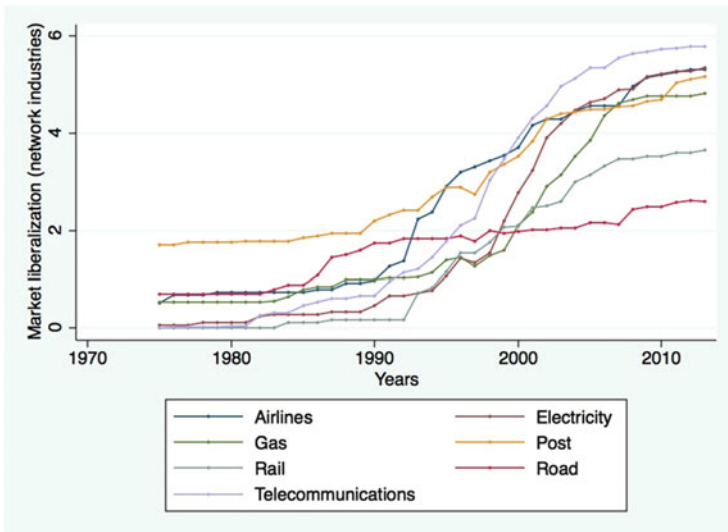
market competition, and private ownership in economic sectors previously reserved to monopoly. This second-wave neoliberalism is generally deemed to have started in the 1990s and to have pursued the principle of “strengthening social solidarity without dropping the neoliberal ideal of market-oriented entrepreneurship” (Steger and Roy 2010). Liberalization in network industries has been one of the main outcomes of both first- and second-wave neoliberalism.

As Geradin (2006) refers “this liberalization process, which was first observed in the USA in the late 1970s and in the UK in the early 1980s, became a central preoccupation of the European Commission at the end of the 1980s. Since then, the European Commission has initiated liberalization reforms in a range of sectors with some success. Some sectors, such as telecommunications and air transport, are now fully liberalized and are becoming increasingly competitive. Other sectors, such as energy (gas and electricity), postal services, and rail transport, are not yet fully liberalized, but the market opening dynamic is now well under way. The liberalization process has not been without difficulties, however, and many challenges still lie ahead.” One of the difficulties relies on the relationship between liberalization and privatization, which will be investigated in Chap. 2. Here, it is useful to anticipate that, in network industries, governments may choose two main forms of liberalization:

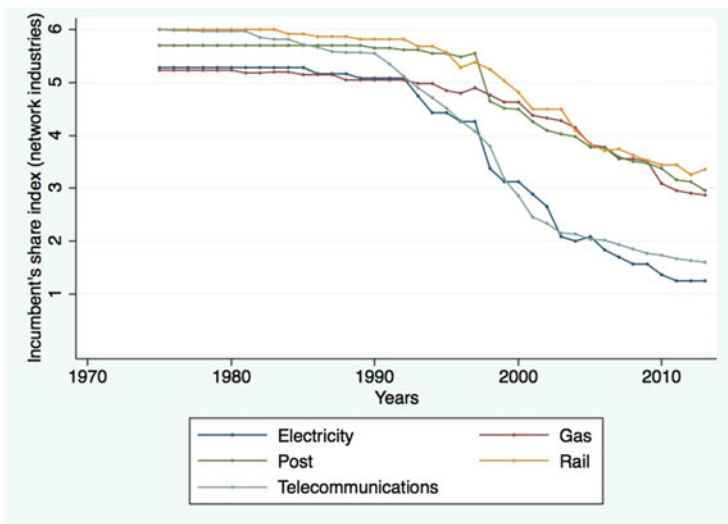
- (1) Introduction of *competition in the downstream market* by providing competitive access to the wholesale bottleneck or essential facilities (the “network”).
- (2) Introduction of *competition for the market*, thus maintaining the full monopolistic nature of the market, while liberalizing competition for selecting the unique firm that will manage the network (*concessions* and *franchise bidding*).

As a consequence, in model (1), competition is dynamic as new entrants compete among them (and against the incumbent in the case of vertical integration of bottleneck components) to gain final customers, while in model (2) it is static, as potential providers compete to gain access to the network and then deliver a monopolistic service to final customers. In both cases, as we will outline in Chap. 2, regulation plays a fundamental role in maintaining competition and reducing deadweight losses. Clearly, the choice between the two models largely depends on the specific characteristics of the network industry selected.

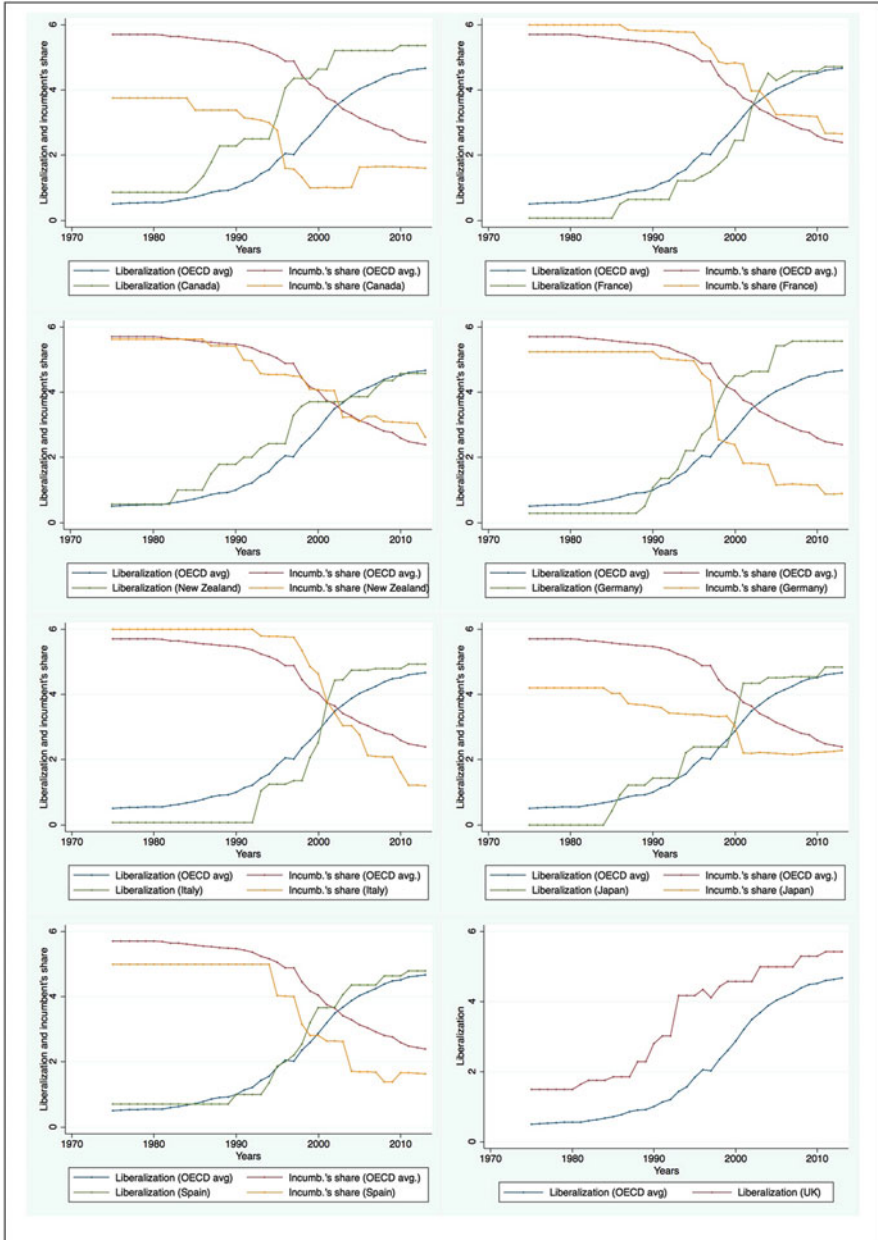
The intense reform process observed in OECD network industries has stimulated economists to collect a large amount of quantitative information, thus making rigorous data available for the empirical study of network industries’ evolution. Figures 1.8, 1.9, and 1.10 show different pictures of the evolution of network industries’ liberalizations from different points of view. In particular, Fig. 1.8 shows the average sectoral liberalization patterns in OECD countries, over the 1975–2013 period, for seven network sectors (telecommunications, rail, road, electricity, energy, post, and airlines), while Fig. 1.9 shows the evolution of average sectoral incumbents’ share patterns in OECD countries, over the same period. Figure 1.10 shows the average markets’ evolution at a country level for a sample of large economies. In the next chapters, we will focus on these trends and empirically analyze their sector- and country-specific evolution and determinants.



**Fig. 1.8** Average sectoral liberalization patterns in OECD countries, 1975–2013 period. Note: liberalization is measured by subtracting the OECD’s indicator of entry barriers from its maximum value [the liberalization index thus ranges from 0 (minimum liberalization) to 6 (maximum liberalization)]. Data are at a sectoral level and averaged over 35 developed countries. *Source:* authors’ elaboration of OECD’s (2015) data



**Fig. 1.9** Average sectoral incumbents’ share patterns in OECD countries, 1975–2013 period. Note: the incumbent’s share index is measured as a weighted average of the market share in the trunk telephony market, in the international telephony market, and in the mobile market [it ranges from 0 (minimum incumbent’s share) to 6 (maximum share)]. Data are at a sectoral level and averaged over 35 developed countries. *Source:* authors’ elaboration of OECD’s (2015) data



**Fig. 1.10** Average countries’ market evolution (sample of OECD members), 1975–2013 period. Note: liberalization is measured by subtracting the OECD’s indicator of entry barriers from its maximum value [the liberalization index thus ranges from 0 (min. liberalization) to 6 (max. liberalization)]. The incumbent’s share index is measured as a weighted average of the market share in the trunk telephony market, in the international telephony market, and in the mobile market [it ranges from 0 (min. incumbent’s share) to 6 (max. share)]. Values are expressed as averages over seven network industries: passenger air transport, telecommunications, electricity, gas, post, road, and rail. *Source:* authors’ elaboration of OECD’s (2015) data

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## Chapter 2

# Liberalizations, Privatizations, and Institutional Market Design

**Abstract** In this chapter, we investigate the economic relationship between liberalization and privatization policies, the content of pro-competitive regulation, and the institutional design associated with both liberalization and privatization. We investigate how countries' deregulation patterns have been characterized by both liberalization and privatization. Here, we introduce an important question: that is, whether there is an optimal sequencing of the reforms. In particular, we explain that there are four dimensions through which liberalization–privatization paths can be characterized (bias, balance, gradualism, and possible reversals). Finally, we analyze both countries' aggregate and sectoral data and identify the specific patterns that have been chosen by governments in network industries.

### 2.1 Introduction

As a recent OECD (2014) report outlines, “governments have long been engaged in providing goods or services to their citizens that could, in some form, be provided by the private sector. The trend over the past few decades, however, has been to transfer these functions, and the state-owned assets used to provide them, to private hands. The most common method, and the one usually preferred, is privatization or outright sale or transfer of ownership of the relevant assets to one or more private parties. The second one is concessions.”

In this respect, “regulatory reforms have had three, often concurrent, dimensions: *liberalization*, *state retrenchment*, and *new regulatory design*. In network industries, liberalization and state retrenchment were mainly concerned with liberalizing access to markets that had previously been restricted by legal and regulatory barriers and putting into the private sector activities that had been run directly by the government.” (OECD 2000).

Within the neoliberal approach, thus, an important distinction has to be made between two distinct policy options, at least when the focus is on network industries:

- (1) *Liberalization* (reducing barriers to entry and allowing competitors entering the retail market through granting access to the infrastructure)

(2) *Privatization* (reducing or eliminating public ownership of the infrastructure, i.e., liberalizing the market for control of State-owned firms)

The choice between liberalization and privatization or between a dichotomic approach (either liberalization or privatization) and a complementary approach towards the two policies has been less clear in the law and economics literature as well as in political agendas (Belloc et al. 2014).

## 2.2 Liberalization Versus Privatization

As Newbery (1997) pointed out, “to contrast state and market is not just a matter of public versus private ownership, but a contrast between modes of control—between political control exercised directly through ownership or indirectly through regulation compared with decentralized market forces.” We can thus distinguish four stylized cases as in Fig. 2.1.

### 2.2.1 Liberalization Without Privatization

In this case (model III in Fig. 2.1), State-owned firms compete in the downstream market against new entrants (downstream competition). Competitors enter the market by having wholesale access, on equal terms, to the built infrastructure. Downstream competition would provide enough incentives to set competitively retail prices on top of wholesale charges aimed at covering infrastructure’s costs of maintenance and investments. Monopoly deadweight loss would be reduced and regulation would focus only on the correct definition of wholesale prices. At the same time, public ownership would grant distributional purposes (including future investments). In this respect, additional disintegration or vertical separation of the State-owned firm, between the wholesale division (infrastructure) and the retail division, would grant a viable level playing field and prevent any hidden “internal” cross-subsidy on the incumbent’s side at the expenses of competitors. According to

**Fig. 2.1** Liberalization–privatization policy options in network industries

		Liberalisation	
		no	yes
Privatisation	no	(I) <i>Monopolistic State-owned Firm</i>	(III) <i>(vertically integrated) State-Owned Firm with downstream competition</i>
	yes	(II) <i>Monopolistic Private Firm</i>	(IV) <i>(vertically integrated) Private Firm with downstream competition</i>



Armstrong and Sappington (2006), “the greatest potential gains from competition tend to arise when (1) industry scale economies are limited relative to consumer demand; (2) the sectoral regulator has limited information, limited resources, and limited instruments with which to craft policy; (3) the regulator’s commitment powers are limited; and (4) subsidization of the consumption of some of the dominant supplier’s services either is not critical or can be achieved by means other than through distortions in the supplier’s price structure.”

However, in the absence of strict regulation by an independent authority, besides antitrust scrutiny, State ownership of the “incumbent” (especially when the firm is vertically integrated) may still negatively affect the process of competition through a series of indirect supports that may maintain asymmetric competitive advantages towards the incumbent. Furthermore, the wholesaler can degrade the quality of input it supplies (“sabotage”) to either of the retailers.

In this case, anticompetitive discrimination by the incumbent occurs, with the purpose of raising rivals’ costs (Salop and Scheffman 1983), if at least one of the retailers is supplied with an input of lower quality than its rival (Economides 1998; Mandy and Sappington 2001; Matsushima and Mizuno 2013). Thus, regulation and antitrust controls on the one side and vertical separation on the other may reduce the risk of exclusionary non-price discrimination behavior by the incumbent [for a critique, see Brito et al. (2012) and Fumitoshi and Shuji (2013)]. This is the reason why, “there are a wide variety of liberalization policies, and the merits of the different policies vary considerably. Therefore, it is generally more appropriate to inquire about the benefits and costs of specific liberalization policies than to ask whether liberalization per se is desirable or undesirable [ . . . ].” However, due to the fact that “state-owned enterprises (SOEs) can face softer budget constraints than their privately owned counterparts in the sense that the government may be more willing to tolerate losses by the firm and to finance the firm’s continued operation despite poor historic financial performance [ . . . ], liberalization may have greater potential to reduce industry costs when the incumbent monopoly supplier is owned primarily by the government than when it is owned primarily by private investors” (Armstrong and Sappington 2006).

In introducing liberalization in previously monopolistic markets, entry policies have to distinguish, as we have seen in Chap. 1, between competitive and noncompetitive segments of the market. As OECD (2000) outlines, complete liberalization of activities that are potentially competitive (e.g., the provision of telecommunications services) should be (gradually) encouraged, as “the introduction of competition in these activities enhances regulatory efficiency because it reveals to the regulator cost and demand patterns of both competitive and noncompetitive activities, which constitute useful information for regulating more effectively incumbent firms.” This means that a complex endogenous evolutionary relationship among *liberalization*, *regulation*, *competition*, and *deregulation* policies characterizes liberalized markets (Ménard and Ghertman 2009): “as competition eventually takes root, entry minimizes the regulatory burden by circumscribing the area over which regulation is required” (OECD 2000).

### 2.2.2 *Privatization Without Liberalization*

In case of privatization without liberalization (model II in Fig. 2.1), where State-owned enterprises (SOEs) are replaced by private ownership, all the risks generated by the “political capture” are deemed to be prevented and consequently the firm would be run exclusively under market profitability criteria. “Because of the corresponding diminished incentive to minimize production costs an SOE may operate with higher costs than a privately owned monopoly” (Armstrong and Sappington 2006). The critics of State-owned firms are furthermore based on the idea that these firms are exposed to corruption and/or regulatory capture, a feature conventionally deemed to be excluded in the case of a private firm. According to Stiglitz (2008), “especially after Ronald Reagan and Margaret Thatcher assumed office in the USA and in the UK, a conventional wisdom developed that private management and ownership was better, in some sense, than public ownership and management: enterprises would be run more efficiently and there would be less opportunity for corruption. [. . .] Privatization became not only one of the pillars of the ‘Washington Consensus’ but also a condition imposed on countries seeking assistance.”

The reason is that “there is one overriding advantage in private provision: the private sector is usually more efficient. Because private operators focus on profits, they have strong incentives to reduce their costs. This is true even of private monopolies as compared to public ones. (But of course, consumers do not benefit from these efficiencies unless the lower costs are somehow passed on to them.) Private providers also have incentives to innovate, which benefit consumers.” (OECD 2014).

A report on market functioning in network industries by the European Commission (2013) states that “the potential problems associated with public ownership include not only control issues but potentially also preferential access to capital and distortions of competition both for and in the market which can be exacerbated by regulatory capture. State participation can take various forms, which makes the assessment of its potential impact more complex.”

This theory contrasts, in Stiglitz’ words, with the circumstance that the principal-agent problem (and hence asymmetric information-based moral hazard) that characterizes public ownership still persists in private firms as “few modern large firms are run by owners,” while the typical capitalistic firm is run by a manager under the control of financiers (debt holders and/or shareholders). Thus, “there is little difference between this principal-agent problem and that facing the government, trying to motivate those entrusted to manage State-owned enterprise.” That is to say, “capture” is not an exclusive matter of the public nature of ownership or management, being a risk associated with conflicts of interest, asymmetric information, and opportunism that may well occur in (large) private firms. The real “comparative advantage” of privatization over public ownership and management, according to Laffont (2000), has to be found in the role that property rights play in enhancing incentives to invest when contracts are incomplete (Hart and Moore

1990). Under incomplete contracting, ex post decisions in unforeseeable states of the world are taken by the agent who has the residual rights to control proprietary assets. Thus, it is in the interest of the owner to make (specific) investments that maximize the value of the assets (Nicita and Pagano 2016).

Under complete contracts, there is no reason why the government could not regulate private monopolies by issuing appropriate incentive contracts in order to achieve socially desirable outcomes (Laffont and Tirole 1993). As Armstrong and Sappington (2006) highlighted, “in an economic paradise, where a regulator is omniscient, benevolent, and able to fulfill any promise he makes, competition cannot improve upon regulated monopoly. In such a paradise, the regulator will ensure that the firm produces the ideal range of services at the lowest possible cost and will set welfare-maximizing prices for these services. Consequently, industry performance would not improve if an additional firm operated in this setting. Of course, the real world differs markedly from this paradise.”

Thus, when contracts are incomplete, property matters (Hart 1995), as the nature—public or private—of ownership and the feature of liberalization processes affect the incentives towards competition and the nature (and degree) of investments.

As Roland recently pointed out (2008), “the government’s objectives are multiple and fuzzy and can change over time; this exacerbates the problem of managerial control in public enterprises. [. . .] A government must prevent monopoly pricing, control quality, reduce negative externalities, encourage sectoral policies and national independence, and concentrate on investment and employment in recessions. Thus, government ownership of firms is problematic when defining the goals of the firms. [. . .] the problem with many government objectives is that, unlike profit maximization, they are hard to contract upon.”

For the same reason, however, having privatization without liberalization, precisely because it generates private profit maximization, may generate, in Stiglitz (2008) view, an “abuse within the privatization process.” Indeed, according to Stiglitz, “failures of privatization arose when monopolies (especially natural monopolies) were privatized before regulatory and antitrust systems were put into place.” Thus, in the case of *privatization without liberalization*, “the private sector is better at exploiting monopoly power than the government.” Here, again, as a public monopoly is merely substituted by a private monopoly, in order to avoid that internal efficiencies are reached at the expenses of consumers and social welfare, strict regulation and antitrust controls (especially when associated with vertical separation) are needed. As an OECD (2014) report outlines, “there may be situations, however, in which a private provider can reduce costs by reducing quality, which harms consumers, and, importantly, government oversight cannot remedy the situation. It may not be possible for the government to observe and measure reductions in quality. In this situation, if competition is not feasible or is ineffective, if the opportunity for innovation is limited, and if gaining a reputation as an efficient service provider is unimportant in the sector, continued public provision could be preferable.”

### 2.2.3 *Liberalization with Privatization*

As Newbery (1997) pointed out, “competition is difficult to achieve within the public sector, so there is a natural complementarity between liberalization and privatization.” When *liberalization is coupled with privatization* (model IV in Fig. 2.1), a former reserved public monopoly gives way to a competitive downstream market, where private firms compete, after having had access, on equal basis, to the infrastructure. As a consequence, “when the incumbent supplier is owned (wholly or primarily) by the government rather than by private investors, privatization of the state-owned enterprise (SOE) can be an important element of a successful liberalization policy” (Armstrong and Sappington 2006). As competition is introduced after sunk investments have been made and the infrastructure has been built, access charge to the infrastructure is sustainable as they will cover only incremental and maintenance costs. For example, “by the time Britain came to privatize electricity in 1990, generation was separated from transmission in order to confine regulation to the network and allow competition in generation” (Newbery 1997).

In this model, the principal-agent problems associated with public and private ownership and the deadweight losses generated in the absence of competition are both minimized by market discipline. Competition for firm’s control further aligns managers’ incentives to run the firm under profitability criteria. Thus, “introducing competition into previously monopolized and regulated network utilities is the key to achieving the full benefits of privatization. Privatization is necessary but not sufficient. Regulation is inevitably inefficient. Replacing regulation by competition for network services can increase efficiency” (Newbery 1997).

However, one relevant issue behind the complementarity between liberalization and privatization is the design of the optimal timing and sequencing between the two policies, as well as the choice between *gradualism* and “*big bang*” (De Fraja 1991, 1994; Stiglitz 1999, 2008; Belloc et al. 2014).

As Armstrong and Sappington (2006) explained, “the decision to introduce competition into an industry is only the beginning of a journey down a long and winding road that can present many obstacles and detours. Furthermore, the best route from monopoly to competition can differ substantially in different settings. Therefore, there is no single set of directions that can guide the challenging journey from monopoly to competition in all settings.” In particular, there are four dimensions through which a liberalization–privatization path can be characterized. First, the “bias”: policy adoption may be biased towards liberalization versus privatization or vice versa; we may thus observe unbiased paths, liberalization-biased paths, and privatization-biased paths. Second, the “balance”: the two policies may be adopted to the same extent at the same time or the government may prefer to push one before the other: paths may thus be balanced, in the former case, or unbalanced (with privatizations following liberalizations or vice versa), in the latter. Third, the “gradualism”: policies may be adopted step-by-step, with small improvements each time, or with massive simultaneous interventions (a “big-bang” policy path). Fourth, finally, once

the two policy processes are launched, they may progressively tend to full liberalization and privatization of the market or we may observe “reversals” (new barriers to entry or further public ownerships are reintroduced in the market).

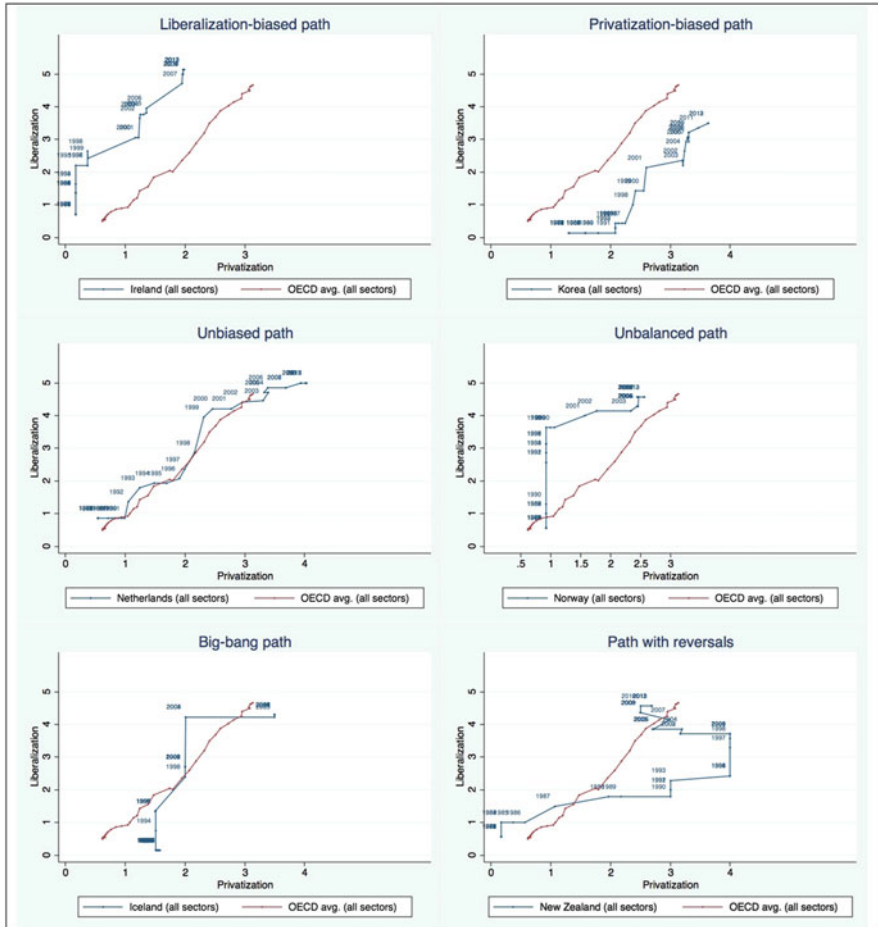
Whether an optimal sequencing, in terms of bias, balance, gradualism, and the presence/absence of reversals, does exist, it is an open question for both theoretical and applied economists.

That pro-market policies may be adopted according to different temporal sequences, given political and institutional constraints, is largely acknowledged in the theoretical literature [see, e.g., Harrington (1993), Martinelli and Tommasi (1997), and Cukierman and Tommasi (1998)]. Economic theory, in particular, has questioned whether liberalizations should be implemented only after a certain threshold of private ownership in the sector is reached or vice versa.

A first hypothesis is that a significant reduction of entry barriers to market before privatization should enable privatizations and hence inducing larger efficiency improvements (Wallsten 2001; Li and Xu 2004). Wallsten (2002, 2003) suggests that if network externalities in network industries cause a higher value of the network itself, the more people are connected to it: new entrants, therefore, have higher incentives to enter the market, and to invest, when they have the possibility to interact with the incumbent firm in order to reach its customers, and such interaction will be more difficult if the incumbent is a private monopolist. Newbery (1991, 2004), more generally, argued that to privatize monopolies could be problematic because the private monopolistic firm will have then all the incentives to maintain its monopoly profits; hence, breaking monopolies before their privatization should be preferable. Similar conclusions are discussed by Fink et al. (2002), presenting an empirical study on telecommunications reforms adopted in 86 developing countries over the 1985–1999 period.

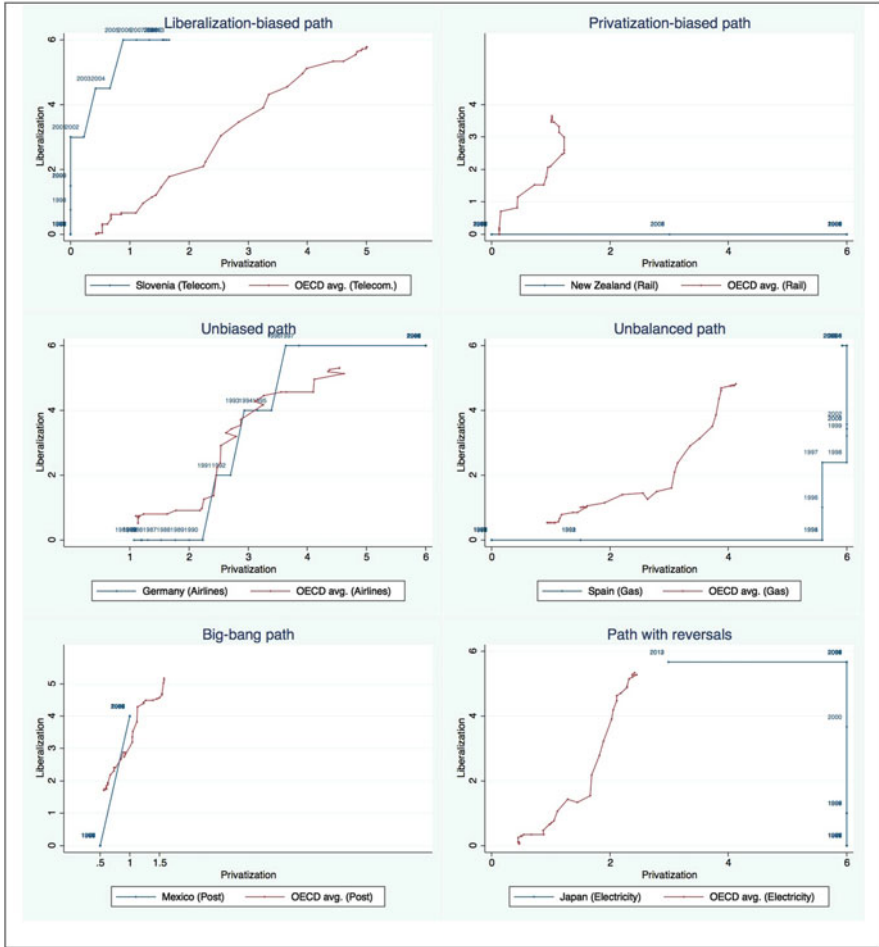
A second competing hypothesis proposes that, in network industries, privatization should precede liberalization because public ownership of the incumbent positively affects the regulated rates that new entrants must pay to access the network (Edwards and Waverman 2006). Moreover, it has been argued that to have a well-established competitive market at the moment of privatization reduces the value of the privatized firm to investors, and this could lead governments to adopt privatization before liberalization (Roland 2008), especially when they have public finance concerns (Belloc and Nicita 2012). Nevertheless, as Stiglitz (1999) has identified, if the market access conditions and the regulatory structure are already in place at the time of privatization, investors should face less uncertainty about possible future changes in the regulatory rules and could be willing, on average, to require a lower risk premium and to pay more for the incumbent firm.

Such heterogeneity of the conclusions proposed by the available literature seems to reflect into the heterogeneity of the actual liberalization–privatization patterns adopted by governments. Following the four dimensions mentioned above (bias, balance, gradualism, the presence of reversals), it can be observed that OECD countries have chosen various approaches, both at an aggregate and (to a larger extent) a sectoral level. Figure 2.2 shows some examples of stylized countries’ patterns, while Fig. 2.3 shows liberalization–privatization paths at a country and sector level.



**Fig. 2.2** Liberalization–privatization paths: country level examples, 1975–2013 period. *Note:* liberalization is measured by subtracting the OECD’s indicator of entry barriers from its maximum value [the liberalization index thus ranges from 0 (minimum liberalization) to 6 (maximum liberalization)]. Privatization is measured by subtracting the OECD’s indicator of public ownership from its maximum value [the privatization index thus ranges from 0 (minimum privatization) to 6 (maximum privatization)]. The all sectors’ average comprises six network industries: passenger air transport, telecommunications, electricity, gas, post, and rail. *Source:* authors’ elaboration of OECD’s (2015) data

As Ugur (2007) pointed out, in European network industries “the liberalization effort began in 1990 in the telecommunications sector, where the expansion of the product range and the level of technological change reduced the “public” nature of the services provided. Then, market opening was extended to other services such as gas and electricity in the second half of the 1990s. Finally, it was introduced into



**Fig. 2.3** Liberalization–privatization paths: country-sector level examples, 1975–2013 period. *Note:* liberalization is measured by subtracting the OECD’s indicator of entry barriers from its maximum value [the liberalization index thus ranges from 0 (minimum liberalization) to 6 (maximum liberalization)]. Privatization is measured by subtracting the OECD’s indicator of public ownership from its maximum value [the privatization index thus ranges from 0 (minimum privatization) to 6 (maximum privatization)]. Data are a country-sector level. Source: authors’ elaboration of OECD’s (2015) data

rail transport at the beginning of 2000s. The other dimension of gradualism was observable as sequencing. The liberalization effort began with unbundling, progressing through third-party access and culminating in the imposition of transparency rules and establishment of EU-level regulatory institutions” (see also Newbery 2001; Napolitano 2005; Geradin 2006) (Fig. 2.4).

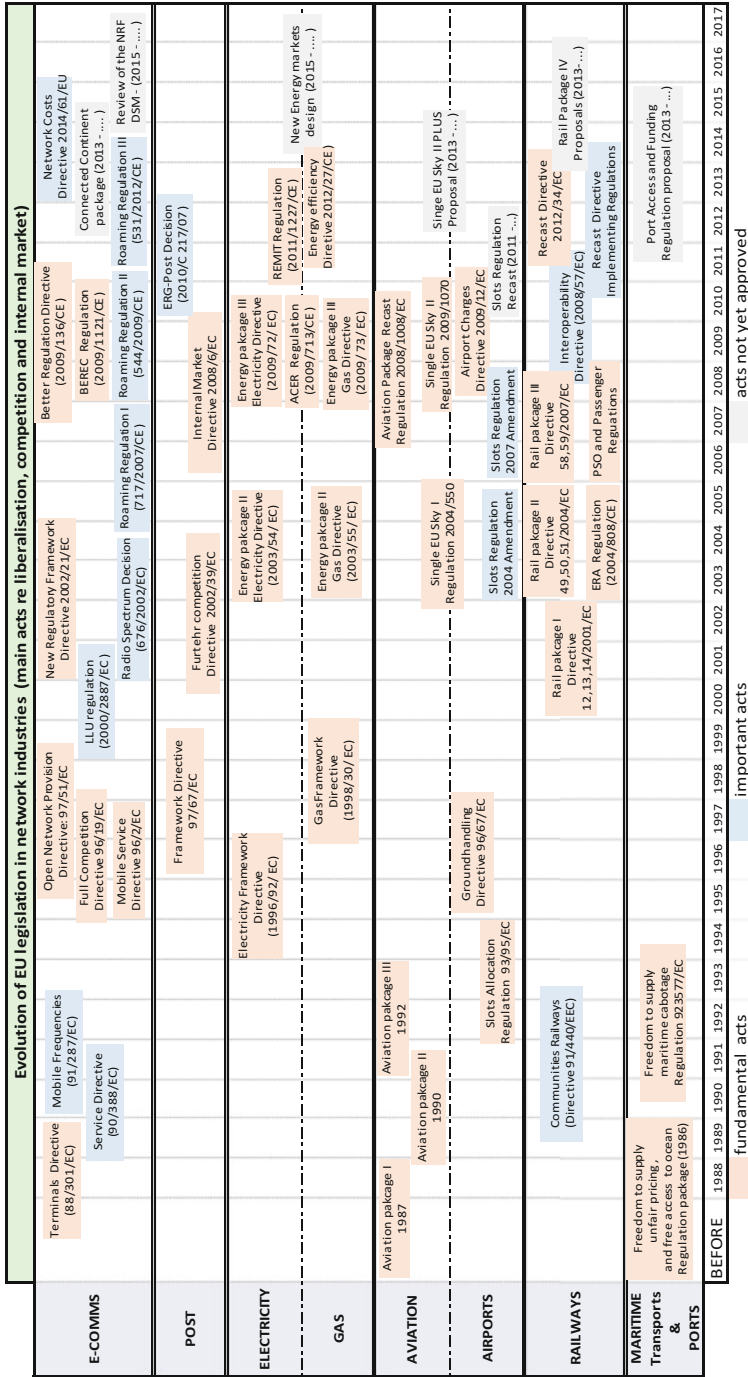


Fig. 2.4 Evolution of EU legislation in network industries



## 2.3 Liberalization and Organization Design of Network Industries

The liberalization of OECD network industries, as Ugur (2007) outlined, “has been guided by three simple principles”:

- (1) Unbundling of upstream and downstream operators
- (2) Nondiscriminatory third-party access (TPA) to the network
- (3) Supply of relevant information on access charges and different types of tariffs

*Unbundling* is considered as necessary to prevent cross-subsidization and to reduce the ability of the incumbents to control upstream and downstream markets. Nondiscriminatory third-party access is necessary to inject a degree of market contestability through new entry. Finally, transparency of prices and access charges is necessary to prevent discrimination against new entrants and/or in favor of the incumbents’ affiliates.”

Unbundling is referred to the monopolistic network components named as “essential facilities” (which will be discussed in Chap. 3). Mandatory access to a facility deemed as essential for competitors to enter downstream markets is one of the main regulatory measures as well as antitrust remedies implemented worldwide, and especially in Europe, as a result of the liberalization of markets in network industries previously covered by public-owned monopolists (Armstrong et al. 1994; Temple Lang 1994). Of course, the nature and the “level” of unbundling differ from one sector to the other.

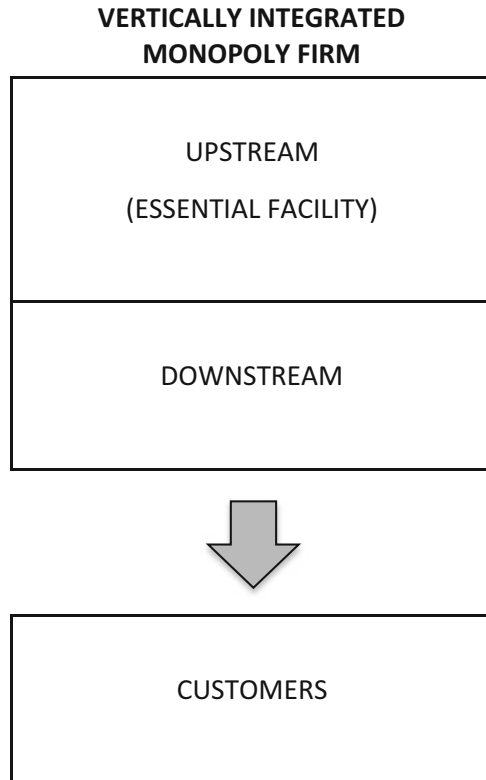
The creation of a wholesale market for the “essential facility” (whose sunk investments have been already carried out by the former vertically integrated public monopolist) is generally meant as having the purpose to improve the extent of competition in downstream markets (Areeda 1990). Generally, as the owner of the facility is vertically integrated, the upstream monopoly (in the market in which the facility is in place) may generate a monopolistic or dominant position in downstream markets, according to the degree to which the facility is somehow substitutable as an input by other assets (Fig. 2.5).

In the last 15 years, the European economies have been largely affected by regulatory reforms aimed at introducing competition in markets where the existence of essential facilities constituted an insuperable barrier to entry, such as telecommunications, electricity, gas, railways, and the postal sector (Shleifer 1998).

Consequently, this process has also induced European and national regulatory authorities to build systems of control over pricing access to an essential facility, often imposing accounting, company, or proprietary vertical separation to vertically integrated incumbents.

Liberalization processes in network industries, together with regulatory and competition policies, affect thus the nature of incumbents’ property rights (Vives 2009; Hellwig 2009; Brousseau and Nicita 2010). Incumbents are thus entitled with liability rules in the management of property rights over the “network”: competitors

**Fig. 2.5** Stylized description of a vertically integrated monopoly firm



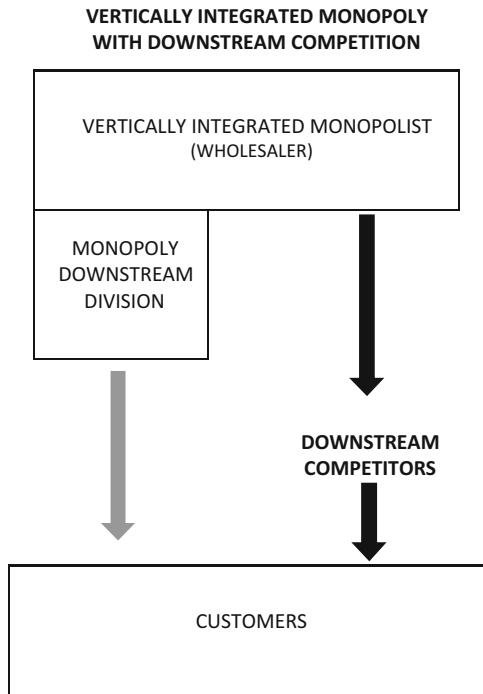
have a new right of access under equal and fair terms to the essential assets of the incumbent.

The “manipulation” of property rights over the network affects the market dynamics and, in turn, market dynamics shapes the content of property rights. This redefinition of dominant firm’s property rights—in terms of dominant firms losing their right to refusal to deal with competitors—may actually interfere with the efficient institutional response to “make or buy” decision (not only at the level of the dominant firm but also at the market level if this induce competitors to underinvest in vertical integration on their own, Fig. 2.6).

When a dominant firm is forced to deal with competitors, the associated regulatory obligation (such as accounting separation) undoubtedly raise new transaction costs, as the incumbent firm would be obliged to reintroduce the market inside the firm (Baker et al. 2001; Joskow 1991; Mènard 2005). This calls for a prudential attitude in applying strong antitrust remedies to vertical integration, even when enacted by a dominant firm in the market (Motta 2004; Rey and Verge 2005), including vertical separation, as in Fig. 2.7 (see Chap. 3).

When transaction costs affect entry or exit costs in a given market, the dynamic complementarity between property rights and market exchange could be distorted towards inefficient equilibria. While in a Schumpeterian world, it is the potential for

**Fig. 2.6** Stylized description of a vertically integrated monopoly with downstream competition

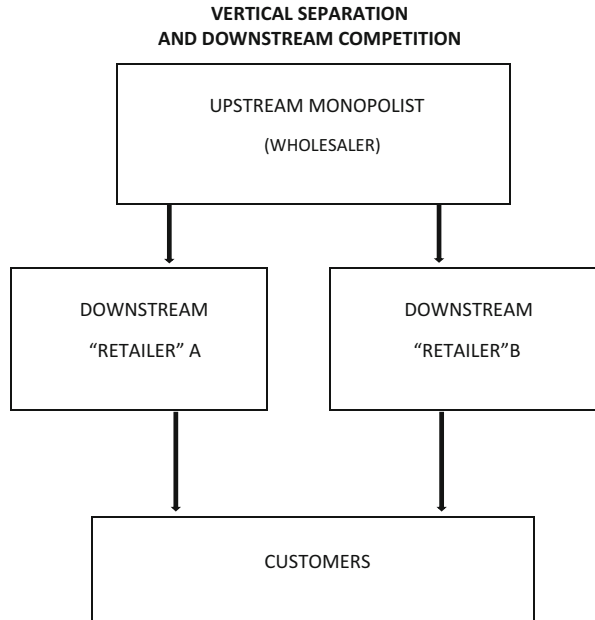


a monopolistic rent the same mechanism which induces monopoly to grow first and then to perish, due to rent erosion by new entrants, in the realm of economic societies, monopolistic rents could be used in order to enact anticompetitive practices in the form of cartels among competitors or in the form of endogenous barriers to entry by dominant firms. In this case, when the market equilibrium could generate persistent distortion on the optimal allocation of economic resources, reinforced by path-dependent phenomena, vertical separation, coupled with access regulation, could restore appropriate pro-competitive incentives and outcomes.

As a consequence, in some cases, market forces lead to inefficient anticompetitive outcome, breaking the virtues of the complementarity between property rights and market exchange, outlined above.

An institutional response to this market failure has been the creation of independent competition authorities in almost all advanced economies. Competition policy is generally deemed a legal instrument aimed at enhancing consumers' welfare by safeguarding the "institution of competition." In both the US and the EU competition laws, antitrust enforcement prevents competitors from conspiring to fix price or to restrain trade and individual firms from dominating markets. This action is extended also to mergers and other forms of horizontal property concentration that may create or enhance single or joint dominant positions in relevant markets. Since "property rights are central to the operation of any economy," the way in which antitrust law deals with ownership and property rights is central to

**Fig. 2.7** Stylized description of an upstream monopoly with vertical separation and downstream competition



understanding how the institution of competition affects and it is affected by property institutions (Brousseau and Nicita 2010). Not surprisingly, the way in which competition law approaches property rights has strictly paralleled the fundamental rhetoric that, from time to time, have accompanied antitrust action.

Mandatory access to a facility deemed as essential for doing a certain business in competition with the facility owner is one of the main regulatory measures and antitrust remedies that we observe around the world. This is especially true for Europe, as a result of the liberalization of markets in network industries previously covered by public-owned monopolists (Armstrong et al. 1994). The creation of a wholesale market for the essential facility implies a redefinition ex post of the content of the original property rights with that of improving the extent of competition in downstream markets. Generally, as the owner of the facility is vertically integrated, the upstream monopoly is reflected in a downstream monopolistic or dominant position, according to the degree to which the facility is somehow substitutable by other assets. Consequently, this process has also induced regulatory authorities to build systems of control over access pricing of an essential facility, often imposing to vertically integrated incumbents accounting, company, or proprietary vertical separation.

As the decision *Trinko*<sup>1</sup> in the USA has outlined (see Chap. 3), the application of the so-called essential facility doctrine (the doctrine imposing an obligation over

<sup>1</sup>*Verizon Communications Inc. v. Law Offices of Curtis V. Trinko*, 124 S. Ct. 872 (2004), rev'g 305 F.3d 89 (2d Cir. 2002).

the owner of an essential facility to provide access to competitors) by antitrust agencies often shows some contradictions and/or overlaps with the decisions taken by regulatory agencies. In this respect, “well-designed liberalization policies can facilitate a transition from stringent, detailed regulatory control to less intrusive antitrust oversight. However, during the transition process, heightened regulatory and antitrust scrutiny may be required” (Armstrong and Sappington 2006). Antitrust decisions which contrast with regulation, and vice versa, may generate, nonetheless, ambiguities, contradictions, or even some distortions over the competitive dynamics of markets.

Armstrong and Sappington (2006) compared the benefits of regulated monopoly with those associated with unregulated competition. Under *regulated monopoly*, “four potential advantages,” named as *the sampling benefit of competition*, do emerge: “(1) industry prices can be controlled directly; (2) transfer payments can be made to the firm to provide desired incentives; (3) the firm’s profit can be taxed to generate public funds, thereby reducing the deadweight losses associated with other sources of public funds; and (4) duplicative fixed costs of production can be avoided because there is only one industry supplier.” On the other side, under *unregulated competition*, three potential advantages, named *the rent-reducing benefit of competition*, refer to “(1) the likelihood that the industry producer has the low marginal cost is higher than under monopoly because even if one firm fails to secure the low cost, its rival may do so; (2) the presence of a rival with correlated costs reduces the information advantage of the industry producer; and (3) any direct, operational costs of regulation (e.g., the salaries of regulators and their staff) are avoided.”

The mechanisms designed for access regulation are thus generally aimed at enhancing the advantages associated with a regulated monopoly at the upstream level.

## 2.4 Access Liberalization and Access Regulation

In network industries, the process of market liberalization mainly refers to providing nondiscriminatory access, by new entrants, to the essential facility or bottleneck’s components owned by the monopolist (*unbundling*). Access regulation is clearly crucial to the effectiveness of a liberalization process, as alternative regulatory schemes of access obligations may have substantially different effects on static and dynamic efficiency, for example, affecting the investment in new infrastructures and influencing the incentives to undertake unnecessary duplication of networks (Cambini and Valletti 2005; Bourreau et al. 2012, 2014).

Of course, access price regulation is always open to false positive or negative outcomes, in terms of excessive monopoly power or excessive competition (see in Chap. 3 the discussion on “convenient facilities”). Excessive entry is determined by access prices providing a market equilibrium in which the number of entrants led to lower total welfare than if entry were restricted.

As OECD (2000) reports, in the past decades, several factors have changed the public policy approach towards the regulation of liberalized network industries: “the general trend in regulatory design has been towards (1) an increased reliance on incentives, above all those spurred by market forces, and the avoidance of potentially distorting mechanisms, notably for pricing access to integrated networks; (2) a preference for *structural over behavioral regulation*, such as measures aimed at separating vertically or horizontally formerly integrated utilities; (3) a reassessment of the scope for and the funding of noneconomic objectives; and (4) attention to the economic implications of the design of regulatory mechanisms and institutions.”

In particular, “the regulation of access” has been characterized by two main features: (a) constraining the monopolist market power at the upstream level (we are so far assuming that the essential facility is in the upstream side of the market) and (b) preventing distortion in prices due to incumbent’s anticompetitive conducts against new entrants.

In turn, the above features might be considered as avoiding excessive wholesale pricing (exploitation) and/or (retail) *predatory pricing* (exclusion). The latter being a conduct which may “evolve” towards a *margin squeeze* (see Chap. 3) when the incumbent is vertically integrated (i.e., owns the essential facility upstream while competing downstream against new entrants by selling the product/service at the retail level).

The vertically integrated nature of the owner of the network’s bottleneck components is crucial in determining the proper scope for regulation and the adequate pricing mechanisms.

Apparently, when the owner of the essential facility is only active at the “bottleneck” wholesale level (i.e., when he is not directly selling the service/product to final consumers), the introduction of competition at the downstream level does not, per se, increase social welfare, as the upstream monopolist can increase his market power precisely because he will face competition on the demand side (i.e., competition among new entrants at the downstream level allows the monopoly to extract all the monopolistic rent). Thus, liberalizing access to the essential facility or bottleneck, while inhibiting the monopolist to “distribute” at the downstream level, does not grant lower retail prices and hence higher “quantity” delivered for customers (as downstream operators will charge at most a retail prices equal to monopolistic access prices plus a competitive margin). In this respect, if the aim of the regulator (in Europe typically the national regulatory authority, NRA) is to constrain the monopolistic rent, it is necessary also to directly fix also the *price of access* or the *rate of return* for the owner of the facility. As a consequence, when the owner of the facility is not active at the downstream level, liberalizing access without introducing access regulation is not sufficient to increase competition and social welfare.

Hence, when the owner of the facility is not active at the downstream level, introducing downstream competition simply avoids *double mark up* (i.e., the double marginalization that will occur in case of a separated monopolistic downstream segment). On the opposite side, when the owner of the facility is vertically

integrated, downstream competition helps overcoming regulator's asymmetric information on incumbents' *avoidable costs* (i.e., the "distribution" costs that the monopolist avoids when she reaches final consumers *indirectly* through downstream competitors). This is the role played by the so-called *yardstick* or *benchmark competition*. When the owner of the essential facility is vertically integrated, introducing downstream competition thus targets three main policy purposes: (1) avoiding *double marginalization* (leading retail prices towards marginal costs of "distribution"); (2) revealing to the regulator real and efficient incumbents' avoidable costs at the downstream level and thus allowing a system of access prices that prevent margin squeeze or other exclusionary practices by the incumbent; and (3) generating incentives to innovation at the downstream level (with positive effects on prices and quality to the benefit of final consumers).

In this respect, when the incumbent is active also at the retail level (with his own subsidiary operating in the downstream market), vertical separation (proprietary or societary more than just accounting separation) will help in minimizing the informational role of yardstick competition.

As OECD (2000) pointed out, "vertical separation of the ownership of competitive activities from the noncompetitive component (supported by restrictions preventing reintegration into competitive activities) alleviates the regulatory burden and reduces the incentives of network owners to restrict access to rival firms in the upstream or downstream (potentially competitive) markets. Especially, when reliable information on costs and demand are difficult to obtain from the regulated firm, vertical separation reduces the opportunities and incentives for shifting costs and profits around within the firm for strategic purposes aimed at both rival firms and the regulator. Weaker forms of separation, including accounting separation and 'functional' separation, do not overcome the incentives of the incumbent to 'play games' with the regulator and restrict competition in the competitive activities, as it remains possible to strategically reallocate costs and engage in other anticompetitive behavior."

Absent vertical separation and access pricing mechanisms play thus a fundamental role in preventing anticompetitive distortions. Several approaches have been developed, such as *rate of return* regulation, *price cap*, *retail minus*, and *long run incremental cost-based access price* to cite just the main formulas adopted.

The so-called *rate of return* regulation (RoR) has been widely applied in the US utilities, as a remedy shaped by legislation and Courts' decisions (Newbery 2001) and hence in an economic and legal context sharply different than that designed to deal with the liberalization process of OECD network industries, where regulators define *ex ante* the pricing rules. RoR regulation was designed for contexts "where regulation has been in response to consumer concerns about excessive profits" and hence "the natural remedy has been to allow the utility to charge a price that just covers the cost of the service and so limits the profits" (Newbery 2001). RoR mechanism consists of a "cost plus" regulatory method that covers a network owner's "revenue requirement," i.e., the amount of revenue that the monopolist requires to cover expenses and provide the percentage of earnings approved by the regulator (allowed return) on a rate base defined according to the investment plan in

plant and facilities. Thus, under RoR mechanism, the regulator determines the rate of return that the firm (the utility) can earn on its assets and sets the price it can charge coherently with a specified rate of return. Accordingly, the regulated price can be adjusted upward, when a lower rate of return is gained by the firm, and downward in case of a higher rate. The advantage of having such a simple rule is, however, outweighed by the risk of opportunistic behavior and moral hazard on the utility's side (see, among others, Rondi and Cambini 2010). Indeed, under RoR regulation, the owner of the facility has no incentive to obtain higher returns especially through reaching higher efficiency by costs minimization, encouraging excessive capital intensity when the rate of return exceeds the cost of capital (Averch and Johson 1962; Baumol and Klevorick 1970). Moreover, a complex *regulatory contract* takes place between the regulator and the utility, with asymmetric information, in which strategic bargaining by both parties may lead the determination of the relevant parameters out of an efficient path (Spulber 1989; Ogus 1994; Baldwin and Cave 1999; Newbery 2001).

The above arguments have been raised to welcome, over the past decades, the new *price cap approach*, which has become increasingly common in OECD network industries (originally outlined in the 1983 Littlechild Report "Regulation of British Telecommunications' Profitability"). Under this pricing mechanism, the regulator determines a cap, including an adjustment factor  $X$ , for a specified period that the firm can charge for a defined set of goods and services and that, eventually, is subject to revision. During the period, the average price of the specified basket of goods and services should not exceed the price cap, while the firm can adjust internal prices within the basket. As a consequence, the firm has an incentive to reduce costs, and part of these cost reductions can be passed on to consumers via the adjustment factor  $X$ . The price-setting rule is called  $RPI - X$ , where  $RPI$  is the retail price index and  $X$  represents the expected annual gain in the utility's efficiency (this rule has been applied to gas and electricity sectors). A slight different case is given by the formula  $RPI + K$ , where  $K$  represents both expected productivity gains and a permitted annual increase in the real price of goods and services to allow for quality improvements (this rule has been applied to water services). Price caps have also been used to adjust the prices charged by the long-distance telephone companies.

While price cap regulation solves the incentive shortcomings of RoR regulation (as under price cap the firm has strong incentives to minimize costs), it still faces asymmetric information problems on the side of the regulator, raising incentives for strategic behavior on the part of regulated firms. Indeed, a crucial issue in price cap regulation is not only the determination of the caps but also the frequency of their adjustment (Acton and Vogelsang 1989). Another risk of the price cap mechanism is the incentive it provides to regulated firms to adopt cross-subsidization within the goods and services in the basket for anticompetitive purposes. This is the case when in the basket there are also goods and service that are sold in potentially competitive markets. Under this circumstance, the incumbent may find it profitable to bundle competitive and monopoly services, to the detriment of competition, in such a way to set aggressive prices for competitive goods/services through subsidization of monopolistic ones, as long as the average price is maintained below the cap.



*Regulatory accounting* may attempt to prevent this risk by determining top-down costing associated with fully distributed costs (FDC), which means that all costs, including joint and common costs, are fully allocated to all the operator's services/products according to a specified distribution/allocation criterion.

*Retail minus pricing* is another pricing mechanism which has been developed in order to avoid exclusionary strategies against new entrants. It is often described as "retail minus avoided retail costs," as the access price paid by new entrants ( $Pa$ ) at the downstream level is equal to the incumbent's retail price of the service,  $Pr$ , less its cost of retailing functions,  $Cr$ , avoided with resale:  $Pa = (Pr - Cr)$ . This mechanism recalls the Baumol–Willig *Efficient Component Pricing Rule* (ECPR).

When the new entrant's own retail costs (which are the incumbent's avoidable costs) are less than  $Cr$ , it can fairly compete with the incumbent. Moreover, as long as the entrant is more efficient than the incumbent in delivering the good or service, it is in the interest of the incumbent to provide access to competitors. However, retail minus and ECPR mechanisms may not guarantee that the incumbent does not adopt strategic exclusionary practices for *defensive leveraging* purposes (Feldman 1999), also in the form of a margin squeeze or predation (as we will discuss more thoughtfully in Chap. 3). This is one of the reasons why bottom-up costing based on the incremental costs sustained by an efficient operator have been indicated as least distortionary for competition purposes. In particular, *long-run incremental costs* (LRIC) have been defined as an access pricing mechanism in which the vertically integrated incumbent charges are such to cover only the incremental costs of the product/service. As a consequence, the sales of that product/service do not contribute to the firm's common costs. Long-run incremental cost modeling considers the costs over the economic lifetime of assets and the attribution of costs to specific services. In particular, the estimation of the economic costs will consider both the costs of installing, maintaining, and operating the non-duplicable network, as well as the cost to a new entrant of providing the same service as the existing network operator. The advantages of LRIC method is that it performs a good prediction of volume/cost movement, and represents an economically rational approach to pricing cost-based services over time. Moreover, it allows excluding sunk costs already sustained in the past by the network operator from being charged to new entrants.

## 2.5 Liberalization and Institutional Design of Market Transactions

Liberalization policies are often associated, especially in network industries, with the definition of a new institutional and organizational design regarding industries, the incumbent firm, and the system of regulation.

When liberalization requires the determination of mandatory access to the bottleneck or essential components of a network (see also Chap. 3) or even when this process is associated with privatization of the incumbent company, a

fundamental change occurs in the incumbent's property rights and in their management. Thus, the liberalization process entails not only changes in the market but also a redefinition of the scope of property rights (Brousseau and Nicita 2010; Nicita and Rizzolli 2012).

In fact, introducing competition in the (downstream) market through imposing mandatory access to (at least the non-duplicable portion of) the network strongly affects the incumbent scope of property rights on the assets of the firm. Property rights on the incumbent's assets subject to competitors' access and sharing, change their nature of protection, moving from a *property rule*, where paid access is subject to the owner's consent, to a *liability rule*, where paid access is granted independently of owner's consent, while the owner has only the right to receive an adequate compensation (Calabresi and Melamed 1972).

So far, we have discussed liberalization of network's access (including vertical separation of the incumbent firm) focusing on the efficiency gains associated with the introduction of downstream competition. However, these potential gains need to be compared with the opportunity costs of restructuring and reorganizing the vertical nature of the incumbent firm.

This requires, in turn, investigating the rationale for vertical integration. We may distinguish three main economic explanations for vertical integration (focusing our attention to the case of a dominant firm in upstream or downstream markets):

- (1) Industrial economics explanations
- (2) Institutional economics explanations
- (3) Antitrust law and economics explanations

In the first case, the main economic rationale for vertical integration is based on the efficiency outcomes associated with market dimension and economies of scale. As Stigler (1951) pointed out, in the early and innovative phases of an industry, firms choose to be vertically integrated when there are no markets for the relevant inputs. However, as the industry becomes larger, a market for inputs may develop and vertically disintegrated industries may appear. At the same time, the emergence of economies of scale, say, on the production's side of some inputs, may require that the downstream firm commits to buy all the needed inputs only from the same wholesaler, a circumstance that may lead to long-term exclusivity contracts or to vertical integration as well. Another reason for vertical integration may be found in the attempt to avoid the exercise of market power by another firm (say a supplier) along a vertical chain, the so-called *double marginalization problem*. When two monopolistic firms operate independently, along a vertical chain, each one exercises its monopoly power by pushing its price above marginal cost. This "double marginalization" effect pushes the final price, for consumers, above the "single marginalization" price of the integrated firm. This means that a portion of monopolistic rents could be efficiently invested in highest alternative uses through vertical integration. In this case, for example, in order to enhance overall efficiency the downstream firm may buy the upstream firm or even vertically integrate by starting production at the upstream level. In all these cases, as long as vertical integration does not restrain competition the social economic advantages of vertical integration

exceeds those associated with having two separate firms operating along a vertical chain.

Institutional economics explanations of vertical integration refer to the case in which alternative market transaction would have been associated with higher transaction costs (such as costs of coordination or contracting in the presence of uncertainty). The efficient decision of a firm to “buy” in the market or to vertically integrate (“make”) defines thus the boundaries between vertical integration and the market (Coase 1937; Williamson 1985). In particular, Coase (1937) outlined that in real world markets, two distinct mechanisms of coordination were observable at the same time: coordination through prices and coordination through “command and control” activities. The explanation given by Coase was based on the notion of the alternative costs in carrying out a market transaction: in Coase’s view, if market transactions are also organized through the vertical/hierarchical coordination mechanism in firms, it should be that there is a cost of using the price mechanism, namely, the search costs of discovering new price opportunities, the cost of negotiating, concluding a separate contract for each exchange transaction that takes place on the market, and the cost of adapting ex post existing contracts to new contingencies when they arise. High transaction costs in the use of the price mechanism induce the emergence of alternative forms of governance—including vertical integration—to coordinate market transactions under incomplete contracts (Nicita and Pagano 2005). Williamson’s focus is on the ex post transaction costs, that is, the enforcement costs that parties in a contract have to sustain in order to carry out transactions characterized by incomplete contracts and specific investments: “transaction cost analysis entails an examination of the comparative costs of planning, adapting, and monitoring task completion under alternative governance structures. [...] The principal dimensions on which transaction cost economics presently relies for purposes of describing transactions are (1) the frequency with which they recur, (2) the degree and type of uncertainty to which they are subject, and (3) the condition of asset specificity” (Williamson 1979).

According to this framework, Williamson’s analysis is mainly devoted at explaining alternative governance structures in terms of the comparative ability in minimizing transaction costs, including in this category not only all the ex ante alignment costs (agency costs) but also all the ex post enforcement costs due to the existence of incomplete contracts and to the risk of opportunistic renegotiation (hold-up) when specific investments are involved (Nicita 2001; Nicita and Scoppa 2005).

Williamson explores the case of incomplete contracts with specific investment as the paradigmatic case to be investigated in order to find a rationale for a transaction costs-based theory of vertical integration. When specific assets are involved in incomplete contracts, at least one agent in a contractual relationship might be isolated from ex post competition on her market side, whereas the owner of specific assets is locked-in by the fact that the degree of asset specificity acts as a “fundamental transformation” which reduces ex post the value of employing the assets in alternative uses (Nicita and Vatiello 2014). This lock-in effect, in turn, generates the risk of opportunistic behavior (hold-up) from contractual

counterparts, who may want to renegotiate contractual terms in order to earn additional gains, with regard to those contracted *ex ante*, due to the *ex post* contractual dependency of specific agents. According to Williamson, it is this feature of market transactions which calls for a governance structure alternative to that provided by market exchange. Vertical integration and “private orderings” then emerge in order to carry out those transactions characterized by a significant degree of incompleteness and specificity. In this respect, Williamson’s approach goes one step further, relative to Coase, in providing a normative theory of institutions: the analysis of transaction costs not only explains why vertical integration does emerge but it also suggests how institutions should be managed (Nicita and Pagano 2005; Nicita and Vatiello 2007). The optimal governance system is thus that which economizes on internal transaction costs. Hence, vertical integration is another solution for the management of incomplete contracts. This refers to the idea of generating appropriate incentives to invest in specific assets by assigning to the investing party the right to be a residual claimant on the surplus generated. This could be done by transferring to the investing party the property rights on assets involved in the contract. Vertical integration thus induces optimal incentives to invest by assigning to the investing party the right to the residual income generated, once other factors of production have been accounted for. This explanation has also provided an incomplete contract-based theory of the (vertically integrated) firm along the original intuition of Coase (1937): when the *ex post* transaction costs involved in incomplete contracts make it convenient to internalize market transactions into an integrated governance structure, a second-best solution to incomplete contracts is provided by vertical integration within a single firm (Williamson 1985). Indeed, vertical integration is based on the idea that assigning residual income to the investing party is a viable way to induce efficient levels of investments. However, as Hart (1995) pointed out, in many contexts “residual income is not well defined.” For instance, in profit-sharing contracts each party is a residual claimant, but this does not imply that parties maintain appropriate incentives to invest. Moreover, the notion of residual income outlines only one of the features characterizing a property right. As a consequence, in order to understand the role played by vertical integration in enforcing incomplete contracts, it is necessary to investigate the functions performed by a property right. The reason why property rights assignment matters in a world of incomplete contracts is thus provided by the fact that a property right gives the assets’ owner the residual control rights over that asset, that is, “the right to decide all usages of the assets in any way” (Hart 1995). Having residual control rights confers to the owner the power to take care of unspecified contingencies and to organize the production process in the most efficient way.

Both industrial and institutional economics explanations of vertical integration outline alternative efficiency reasons for vertical integration. These motivations should thus be taken into account and the benefits of having vertical integration need to be compared with the benefits of vertical separation or liberalization of access to a (dominant) firm’s assets.

A final rationale for vertical integration relies on anticompetitive conducts, such as *leveraging* or *defensive leveraging*. In these cases, vertical integration by a dominant firm (upstream or downstream) has the purpose of excluding competitors from the market or to foreclose the market. In the case of *anticompetitive leveraging*, a dominant firm in a given market vertically integrates into another competitive market, along the vertical chain, in order to “bundle” complementary products with the aim of extending the original dominant position from one market to the other to the detriment of competitors and final consumers in the adjacent competitive market. In the case of *defensive leveraging* (Feldman 1999), a monopolist in one market vertically integrates into another market along the value chain, not as an attempt to reap additional monopoly profit from a second market, but as an attempt to prevent erosion of the primary monopoly when a threat of entry occurs in that market. In these cases, vertical integration is mainly driven by anticompetitive intent, and the efficiency gains derived from vertical integration may be lower than the efficiency lost by inhibiting competitive challenge (see also Chap. 3).

## 2.6 Liberalization and Innovation

In the previous sections, we have analyzed the impact of liberalization on market design and on the organization of the incumbent firm, for any given level of technological development (i.e., innovation), outlining the pros and cons of vertical integration as well as the complementarity nature between liberalization and privatization policies (i.e., the governance design in markets and in firms). However, the design of liberalizations may also affect incentives on innovation. This is a crucial point for the design of efficient pro-market policies and for their distinct features across network industries. The relationship between competition and innovation is not exogenously given and well defined once for all and, moreover, it follows different patterns in different sectors, as it occurred in electronic communications, electricity, gas, and rail transports. Even the nature and extent of the network’s essential components may change over time, in each sector, as *infrastructure-based competition* prevails over *service-based competition* (Laffont 2000) at least for some entrants in the market. For instance, in the European electronic communications sector, for some services (fixed line telecommunications), service-based competition has been just the first step of entry along a *ladder of investments* strategy (Cave 2006) that has further increased, dynamically, the infrastructural independence of competitors (from *Local Loop Unbundling* to *Sub-loop Unbundling*) from the incumbent’s facility. Under the ladder investment regulation, the design of access prices charged at different levels of the incumbent’s facility encourages competitors to progressively make investments in network assets which are less and less easily replicable, thus climbing “the ladder of investment” promoting competition. A regulatory strategic choice between service-based and facility-based competition may thus occur (Cambini and Valletti 2005; Bourreau et al. 2010). As Hellwig (2009) pointed out, “there is a trade-off

between the promotion of competition in downstream activities through access regulation upstream and the promotion of competition in upstream activities themselves. The stricter the access regulation is, the smaller are companies' incentives to invest upstream on their own. Assessments of this trade-off are likely to differ across industries, with more weight given to the promotion of upstream competition in telecommunications and less weight in the electricity sector."

These trade-offs and side effects are likely to be different depending on whether liberalizing reforms are implemented in competitive or noncompetitive segments of the market. It is interesting, therefore, to understand what the existing empirical evidence says about the relationship between liberalizations (i.e., mainly in the form of entry barriers abatement) and technological development in the different components of a network industry's vertical structure.

## 2.7 Liberalizing Industry's Noncompetitive Components

A number of studies support the argument of a reduction in innovation activity at a firm level after liberalization initiatives, to the extent that liberalization implies a reduction in firm size. Focusing on electric utilities, Stansell and Wilder (1974), Delaney and Honeycutt (1976), Flynn and Mayo (1988), and Cohen and Sanyal (2009) found that greater firm size is positively related with R&D spending. In particular, Stansell and Wilder (1974) use data on about 200 US utility firms observed in the 1968–1970 period and show that R&D outlays are relatively elastic with respect to firm size. Delaney and Honeycutt (1976) use the same data of Stansell and Wilder (1974) and adjust their sample in order to take into account dependencies between companies due to joint venture and holding. They then confirm the existence of a positive relationship between R&D and firm size for the 1970–1972 period. Flynn and Mayo (1988) found similar results from data on 90 electric utilities observed in the year 1975 and 124 utilities observed in 1983. Cohen and Sanyal (2009) propose more recent evidence about 195 US utilities over the period 1990–2000. Again, a positive impact of size on R&D is found. With the exception of Cohen and Sanyal (2009), all the mentioned studies estimate an elasticity of R&D spending to firm size higher than one.

These results are corroborated also by a study by Joskow and Rose (1990) based on 144 utilities that built steam-generating units between 1950 and 1980 and showing that larger firms tend to adopt new technologies earlier than do their smaller counterparts.

### 2.7.1 *Economies of Integration*

In network industries, innovative firms may find advantages in a vertically integrated structure because technological innovation may need investments in

activities vertically integrated (Lazonick 1993). For example, innovative technologies may be complementary across the upstream/downstream and network infrastructure level, and they may require to be developed simultaneously at the different levels. Vertical integration should enable the firm to coordinate efficiently such complementary activities.

One of the first studies sustaining a positive relationship between vertical integration and innovation activity is the analysis by Armour and Teece (1980). They found a statistically significant relationship between vertical integration and R&D spending in the US petroleum industry for the period 1954–1975. Later studies have proposed similar conclusions. Kaserman and Mayo (1991) show the existence of economies of vertical integration between the generation and transmission/distribution stages of electricity supply using data on 74 US electric utilities observed in 1981. Some evidence on integration economies is reported also by Gilsdorf (1995), with data on 72 US electric utilities in 1985. Similarly, a positive technological efficiency loss in the event of disintegration of the electricity industry is estimated by Lee (1995), using a sample of 70 US electric utility firms, by Hayashi et al. (1997), using information on 50 electric utilities in the 1983–1987 period, and by Nemoto and Goto (2004), which analyzed a panel of 9 Japanese firms over the years from 1981 to 1998.

Sanyal and Ghosh (2008) model upstream innovation behavior as a function of downstream competitive forces and analyze the effects of the Energy Policy Act introduced in the USA in 1992. They suggest that innovation rates depend on the relative magnitude of three opposing forces induced by liberalization: a pure competition effect that should lead to a reduction in the profits of the downstream utilities, which in turn negatively affects the innovation incentives of the upstream sector because the upstream sector may participate in downstream profits; an escape competition effect that implies a positive effect on innovation through an increase of post-innovation rents relative to the pre-innovation rents; and an appropriation effect that, improving competition downstream, determines an increase of the outside options and so of the bargaining power of upstream companies, with the result of raising the value of innovations at the upstream level.

While vertical integration may affect R&D activity, it has been argued that also R&D activity in its turn may influence the degree of vertical integration. Indeed, the costs of transacting over the market tend to outweigh internal costs of management, when investments at different stages of the industry chain are transaction specific. This is due to the risk of opportunistic actions by a party of the transaction in the presence of incomplete contracts (Williamson 1979, 1985). Recalling this argument, Levy (1985) shows that the intensity of R&D expenditures has a statistically significant causal effect on vertical integration in manufacturing firms. Although in network industries the degree of vertical integration is likely to be exogenously determined by policy makers, the possibility of a two-way relationship between R&D and vertical integration should caution on the interpretation of empirical results on this issue, also with reference to the financial structure of the firm (Nicita and Pagano 2016).

### 2.7.2 *Market Structure Uncertainty*

Liberalization reforms aimed at opening the market to new potential competitors introduce a source of uncertainty about market structure. If the degree uncertainty is sufficiently large, then firms should delay investments. This is a traditional result of the real options literature (McDonald and Siegel 1986). R&D activities, that are generally costly and that rarely have guaranteed success, might be the first to be delayed (Jamash and Pollitt 2008).

Lomi and Larsen (1999) analyze the restructuring process of the electricity industry. They explain that, under deregulation, electricity companies experience increasing complexity, the market being organized through new rules and populated by new competitors. This increasing market complexity then is likely to make technological learning more difficult. For example, Gandal (2002) argues that when standardization is left to market forces, adopters of incompatible standards might be compelled to abandon superior technology.

Calderini and Garrone (2001, 2003) investigate R&D activities of 17 European former monopolists in the telecommunications sector between 1980 and 1999. They find that coincidental with or in anticipation of the institutional discontinuity determined by market liberalization, the incumbents on an average reduce basic (long term) and increase applied (short term) R&D activities. Thus, a static–dynamic efficiency trade-off should emerge, according to which—under a process of market restructuring—utility firms may favor shorter term objectives at the expense of next-generation research.

A similar conclusion is reached by Jamash and Pollitt (2011). They show that liberalization of the UK electricity industry has depressed R&D effort, with the result of a reduction of patenting activity in the long run. Examining the R&D patterns throughout the 1990s in the energy markets of the main industrialized nations, Dooley (1998) detects that a shift of R&D efforts towards short-term projects is common to all the observed countries. In particular, he affirms that utilities systematically reduced their participation in collaborative research organizations after deregulation and that then they proved to be unwilling to bear the full cost and full risk of developing new technology systems.

## 2.8 Liberalizing Industry's Competitive Components

While traditional studies model network industries as full natural monopolies and propose empirical evidence based on a technological age dominated by economies of scale, as we have already argued, in recent years technological progress has actually reduced the extent of natural monopolies in network industries and has changed the nature of potential competition in these sectors. In particular, as technology changes, new forms of efficient small-scale production have emerged, and new entrants have been allowed to provide services in areas previously reserved



for incumbents. Even if parts of a network continue to show increasing returns to scale, the current policy approach is now to unbundle these parts from the competitive segments of the industry (European Commission 1999). As a result, competition has been introduced where it was previously unfeasible, with the effect of changing the expected impact of liberalization reforms on innovations.

Technological developments have dramatically changed the market structure in the most important network industries. For example, in the electronic communications industry, new technologies have been introduced such as wireless telephony, the internet, glass fiber networks, and Wi-Fi, allowing for the development of competing communications media and novel services. In the energy sector, electronic meters are now widely used even for private households. This enables distant metering at a very short time basis, allowing a precise balancing of the production and consumption of electricity, and it lowers the necessary standby electricity production reserve capacity that is only used to satisfy peak demand and that is more easily available to large incumbents. Also in road infrastructures, new devices allow electronic registering of all passing vehicles, and this makes private investments more likely for specific parts of the roads (Kunneke et al. 2009). In general, information and communications technologies (ICT) allow diffused functionalities within a web-based network. Therefore, critical control functions do not longer need to be concentrated in very few nodes or links and they can be distributed throughout the system with a final positive impact on system efficiency and investment opportunities by new entrants. It emerges that, in an advanced technology stage, in some parts of a network industry competition could be actually introduced.

Once potentially competitive segments are insulated from noncompetitive ones, the well-known body of literature on market concentration and innovation, which has been developed originally with reference to competitive environments, can be then usefully applied also to network sectors.<sup>2</sup> The classical Schumpeterian argument is that large incumbent firms have a higher capability to appropriate the future rents from successful innovation because they can exploit a greater demand in the market (Schumpeter 1942). This appropriability issue is strongly related to the free-riding problem in the production of a quasi-public good as innovative research: competitors might use the new knowledge produced by the incumbent without bearing the costs; hence, a low number of competitors should induce the (incumbent) firm to larger investments in R&D. However, free riding can be eliminated ex ante by intellectual property rights that allow intellectual monopoly—and monopoly profits—over the innovative technology, neutralizing competitors' threats. In this context, competition stimulates innovation because the winner of the patent race can consequently exploit a leading position in the market, independently from its previous market power. Following the intuition of Arrow (1962), several

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<sup>2</sup>For a survey on market structure and innovation, see Cohen and Levin (1989) and Van Cayseele (1998).

contributions have then showed how market competition levels can stimulate technological innovation.

For example, Aghion and Howitt (1998) explain the positive effects of competition recalling the market discipline argument, according to which market competition determines a disciplining effect for non-profit-maximizing firms, and the notion of neck-to-neck competition, in which firms increase their investments in R&D in order to avoid tough price competition. In particular, an expected increase in innovation after an industry restructuring process, aimed at enhancing competition, has been explained by the fact that restructuring makes the demand curve relatively more elastic.

As a consequence, a small price decrease induced by a cost-saving technological innovation should imply a relatively large gain in number of new customers for the innovative firm (Reinganum 1989).

With specific respect to the case of network industries, some recent empirical evidence seems to suggest that market liberalization has in fact stimulated greater innovation in the potentially competitive components of the sector. Payson and Jankowski (2000) report that, in correspondence of the market restructuring led by liberalization reforms, the US industry experienced unprecedented growth rates in R&D over the 1990s, and Calderini and Garrone (2003) explain that this positive trend is actually due to the expansion of R&D activities in the downstream industries' components. Jacquire-Roux and Bourgeois (2002) analyze the 15 world largest companies on both sides of operators and equipment suppliers for the two industries of oil production and electric power generation. They argue that liberalization has stimulated corporate firms to increase their internationalization in order to establish higher financial returns on equity standards and so to cope successfully with the increased competition. In their framework, changes in the firm network, on the one hand, and in the role and modalities of the interactions between users and suppliers, on the other, have shaped the evolution of technological innovation. In both the oil and electric industries, equipment suppliers developed specific knowledge of markets and improved their internationalization in response to the new environment of competitive selection. Jacquire-Roux and Bourgeois observe that, as a result, suppliers were able to enhance R&D efficiency and their accumulation of granted patents even reducing R&D expenditure levels.

Markard et al. (2004) examine how electricity market liberalization has influenced innovation processes of single electric utilities and of the electricity sector as a whole. In particular, they focus on two advanced technologies such as green power and fuel cells. Markard et al. (2004) found that innovation activity has increased thanks to liberalization; moreover, innovation projects have become more differentiated and innovation networks more specific. More recently, Markard and Truffer (2006) have defined market liberalization as an external driver of innovation in the electricity supply system. They analyze the value chain of nuclear power, combined cycle gas turbines, wind power, and fuel cell and observe that liberalization has strongly stimulated radical innovation rather than incremental innovation. This is due—the authors argue—to the introduction of a variety of institutional changes led by liberalization in grid access, network pricing, power trading, risk

management, market transparency, and consumer protection. Consequently, formerly integrated business units have been unbundled and more room for experimenting with radically new technologies has emerged. Markard and Truffer (2006) notice also that, after liberalization, cooperations and strategic alliances between utilities and manufacturing companies were strengthened.

With reference to the telecommunications industry, finally, Belloc et al. (2012) report that liberalization enhances the diffusion of advanced telecommunications technologies, namely, fixed lines for broadband services. Specifically, the authors estimate the effect of liberalization and competition levels on the degree of broadband penetration, using country level data on 30 countries over the period 1995–2010, and find a positive and statistically significant parameter, which is relatively higher in correspondence of an advanced stage of market development. They explain this result arguing that the scope for price competition strategies is likely to be exhausted when the market is highly developed, and firms thus may need to compete for the acquisition of new customers through the expansion of the new technology coverage over the territory. Also inter-platform competition in a liberalized telecommunications market (i.e., competition between different technological platforms able to offer the same service) has been detected as an important stimulus of broadband technology diffusion [see, for example, among many others, Distaso et al. (2006) and Bouckaert et al. (2010)].

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## Chapter 3

# Liberalization, Antitrust, and Pro-Consumer Policies

**Abstract** This chapter focuses on the role that competition and pro-consumer policies play in enhancing the impact of liberalization. Concerning antitrust law, the analysis will be devoted in particular to the so-called essential facility doctrine and to the enforcement of antitrust law against margin squeeze abuses of a dominant position. Recent cases have raised the question of how to define the proper boundary between regulation and competition policy in this respect. We then analyze the so-called “demand side” liberalization policy, i.e., policies and regulation aimed at empowering the final consumer in order to enhance freedom to choose among providers, to reduce switching costs, and to increase churn rates.

### 3.1 Introduction

Liberalization is not only the result of governmental or regulatory policy design. It could also be the result of competition policy or antitrust remedy on the one side and pro-consumer policy on the other.

Concerning competition policy, the main focus of antitrust law covers three areas:

- (1) Price fixing in which competitors agree to restrict output or raise price
- (2) Horizontal mergers in which competitors agree to merge their operations
- (3) Exclusionary vertical contracts in which a competitor seeks to exclude a rival
- (4) Monitoring the evolution of a firm’s (present or potential) market power (in coordination with regulatory authorities in regulated markets)

Market power is the ability of a firm to set the price over the marginal cost (a common measure is given by the *Lerner index*). The notion of a firm’s *dominance* in given relevant market is strictly related to the notion of market power and is generally meant as “a position of economic strength enjoyed by an undertaking, which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers, and ultimately the consumers. Such a position does not preclude some competition, which it does where there is a monopoly or



quasi-monopoly, but enables the undertaking, which profits by it, if not to determine, at least to have an appreciable influence on the conditions under which that competition will develop, and in any case to act largely in disregard of it so long as such conduct does not operate to its detriment.”<sup>1</sup>

The traditional evaluation of a firm’s market power is made through a firm’s market share (however, if entry barriers are absent, a firm with a large market share might not be able to make significant changes in the price). Dynamics aspects refer to how and to which extent the firm is able to defend its market share, which include:

- (a) The firm’s access to essential facilities or bottlenecks
- (b) The firm’s technology advancements
- (c) The capacity to meet additional demand
- (d) The presence of barriers to entry
- (e) Consumers’ lock-in

Consumers’ behavior is, of course, crucial for the competition process to work well. Policies aimed at reducing switching costs and encouraging freedom to choose among alternative providers are thus complementary to liberalization policies focused on encouraging competitors’ entry on the supply side. This is the reason why pro-consumers policies are often labeled “demand side” liberalizations.

In this chapter, we focus, in the first part, on two main competition policy issues: (1) mandatory access to an essential facility and (2) margin squeeze abuses as a constructive refusal to deal. In the second part, we analyze the main issues behind “demand side” liberalization.

## 3.2 The Essential Facility Doctrine

In both US and European antitrust law, the *essential facility doctrine* (EFD) has been developed as an antitrust remedy: it imposes to a dominant firm to allow competitors’ access to its own facilities when these are deemed to be essential in order to enter the downstream market. This antitrust-based liberalization of access to a fundamental (tangible or intangible) infrastructure may occur in several markets, besides the typical case of network industries.

The wave of liberalization and privatization processes that deeply characterized European countries in the last 30 years has been accompanied and sustained by competition policies enacted by independent authorities such as regulatory bodies and antitrust agencies, both at the national and at the European level (Geradin 2006; Vives 2009).

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<sup>1</sup>Judgment of the European Court of Justice 13 February 1979. Hoffmann-La Roche & Co., AG v Commission of the European Communities. Dominant position. Case 85/76. European Court Reports 1979-00461.

Since most of the network industries (telecommunications, media, electricity, railways, postal service, etc.) in European countries are still characterized by dominant firms, competition policies against abuse of dominance and dominant positions have been pervasive in Europe. Regulatory and antitrust interventions have been, and still are, crucial in determining and maintaining competitive dynamics against abuse of dominance by firm controlling essential facilities.

Understanding the economic rationale behind the essential facility doctrine may thus provide important insights on the expected impact of liberalization processes in industries characterized by monopolistic networks and the associated trade-offs in terms of competition and innovation.

As Hellwig (2009) pointed out, the paradigm change that has occurred in network industries “should not lead to a belief that the ‘old problem’ of controlling monopoly power altogether disappeared. In those industries where networks serve as essential facilities for downstream activities, the monopoly problem has merely been shifted to the treatment of these facilities themselves. In part, this is the problem of enforcing access to make sure that control over the network is not used to foreclose downstream competition. Even if access is granted freely, on a nondiscriminatory basis, access prices can be used to earn monopoly rents [. . .] and to foreclose competition.”

Antitrust authorities play thus an important complementary role in liberalization policies as they not only enforce pro-market legislation but also may further increase market openness. In this chapter, we outline the main legal and economic criteria applied by antitrust authorities to liberalize access to essential facilities.

The essential facility doctrine has been long debated both in the USA and in EU<sup>2</sup> as an application, respectively, of section 2 of the Sherman Act and article 82 of the EU Treaty, to abuse of dominance related.

The general principle of the EFD has been defined in the following way: “the owner of a properly defined ‘essential facility’ has a duty to share it with others, and [. . .] a refusal to do so violates article 2 of the Sherman Act” (Hovenkamp 1994, p. 273).

The essential facility doctrine is thus a particular case of abuse of dominance in the form of illegitimate refusal to deal a dominant firm, often denoted also as “bottleneck monopolist,” with the purpose of excluding competitors from the market. Refusal to deal here applies also to a behavior imposing unfair, excessive, or discriminatory conditions on access (such as pricing, tying, margin squeeze, and so on), which in fact reduce or eliminate competition (so-called “constructive refusal to deal”).

When essential facilities are at stake, the application of EFD implies that competitors gain the right to access to essential facilities even without the consent of the owner, provided an appropriate compensation is transferred.

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<sup>2</sup>According to the Commission of the European Communities (1996), the question posed by the essential facility doctrine is that of “defining what is legitimate competition in the context of companies’ duties to supply competitors and to grant access to essential facilities” in OECD (1996).

However, if the general principle is clear, the conditions that should be verified in order to transform a property into a liability rule are quite nebulous.

As Hovenkamp (1994) outlines, the EFD is “one of the most troublesome, incoherent, and unmanageable of bases” for cases of monopolization or abuse of dominance.

The EFD basically raises two main questions:

- (1) How to define the qualifying features of an essential facility.
- (2) How to balance the mandatory access to an essential facility with the protection of the exclusive use of property rights by dominant firms which induces the efficient alignment of private incentives to invest and to innovate.

The problem here is that the above questions result to be very difficult to assess with certainty, placing competition policy at the boundaries between antitrust law and regulatory design. The need to identify clear conditions for the application of the essential facility doctrine has been motivated (Lipsky and Sidak 1999) by the high risk faced by an antitrust authority to take wrong or inappropriate decisions with the effect of increasing the number of competitors at the disadvantage of incentives to invest and, ultimately, of consumers' welfare.

This is mainly the reason why Areeda and Hovenkamp (2002) have recently argued that “the essential facility doctrine is both harmful and unnecessary and should be abandoned,” especially when the attributes of essential facility are uncritically attached to intellectual property rights or to force competitors' entry in aftermarkets (Pitofsky et al. 2002).

In the USA as in EU antitrust law tradition, dominant firms are charged with a “special responsibility” which imposes them a special duty to abstain from taking any decision which may—directly or indirectly—adversely affect the “normal” competitive structure of the market in which the dominant position is held. Refusals to deal with competitors by dominant firms may constitute, under special circumstances, anticompetitive practices when the effect of the refusal is undoubtedly that of seriously harming market competition (Castaldo and Nicita 2007).

Generally, refusal to deal has been judged as an infringement to section 2 of US Sherman Act or to art. 82 of the EU Treaty only when it has been coupled with other anticompetitive practices, such as tying and leveraging, or when it generated a discriminatory and selective boycott towards a “dangerous” competitor.

Antitrust laws generally recognize a presumptive right, upon dominant firm, to refuse to deal with competitors, even if they believe that “such a right is not absolute; it exists only if there are legitimate competitive reasons for the refusal.”<sup>3</sup> The European Court of First Instance (CFI) declared “under article [82] refusal to supply, even where it is total, is prohibited only if it constitutes an abuse,”<sup>4</sup>

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<sup>3</sup>*Eastman Kodak Co., v. Image Technical Servs., Inc.*, 504 U.S. 451, 483 n. 32 (1992).

<sup>4</sup>Case T-41/96 *Bayer A.G. v. Commission*, Judgement 26 October 2000.

recognizing besides “the importance of safeguarding free enterprise when applying the competition rules.”<sup>5</sup>

Accordingly, a refusal to supply oil to occasional customers has been evaluated by the European Court of Justice as a legitimate refusal to deal due to the shortage imposed by the 1973 OPEC oil boycott.<sup>6</sup>

### 3.2.1 *The US Approach*

Following Hovenkamp (1994), we can group three main categories of refusal to deal under the US antitrust law: (a) refusal to supply directed at competitors; (b) refusal involving vertical integration, tying, and price squeeze; and (c) refusal involving denied access to an essential facility.

The two main principles emerging from the US approach are the following: (1) “a monopolist does not have a general obligation to cooperate with rivals”; however, (2) “some refusals to deal may have ‘evidentiary significance’ and may produce liability in certain decisions” (Hovenkamp 1994, p. 264).

The first principle is also known as the *Colgate*<sup>7</sup> principle and refers to the general idea that antitrust law should never be concerned against a monopoly in itself but only to abuse of dominant position. Accordingly, since the pursuing of a monopolistic position should not be contrasted in itself by antitrust law, unless specific conditions of markets monopolization apply, competition rather than cooperation with rivals should be the general mechanism which increases consumers’ welfare.

The exception to this general rule regards the special circumstances according to which the refusal to deal affects market competition in an “abusive” way. One of these circumstances, outlined by US antitrust decisions, refers to refusals to deals aimed at attempting to monopolize a downstream market through leveraging strategies and vertical integration, as in the famous *Kodak* (1927)<sup>8</sup> case.

In *Kodak*, the defendant was a dominant firm manufacturing camera film and photographic materials. Kodak was used to sell its products to all independent distributors. After the decision to vertically integrate with several distributors, Kodak refused to continue to sell also to independent distributors, thus generating a serious harm to them in the retail market, given that for them Kodak was a “must have” brand. This conduct has been classified as an illegal attempt to monopolize under the Sherman Act. The *Kodak* case raised, however, an articulated debate concerning the extension of the “special responsibility” of dominant firms also to aftermarkets (see Hovenkamp (1994) for a summary of this debate).

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<sup>5</sup>Ibidem.

<sup>6</sup>Case 77/77, *BP v. Commission* (1978) ECR 1513, (1978) 3 CLMR 174.

<sup>7</sup>*United States v. Colgate & Co.*, 250 US, 300, 307, 39 S. Ct. 465, 468 (1919).

<sup>8</sup>*Eastman Kodak Co., v. Southern Photo Materials Co.*, 273 US 359, S. Ct. 400 (1927).

The first case explicitly involving a refusal to provide access to an “essential facility” in the USA was a case of a concerted collective boycott, *United States v. Terminal Railroad Association*.<sup>9</sup> In that case, the Court considered an association by a group of railroads controlling all the bridges and connections from and towards St. Louis as an illegal restraint of trade and as an attempt to monopolize against competing railroad services. A concerted refusal to provide access to an essential facility has also been investigated in *Associated Press*,<sup>10</sup> where the limitation by an association to provide its copyrighted news service only to its members has been interpreted as an anticompetitive refusal to deal in. Another milestone case of assessed anticompetitive refusal to provide access to indispensable assets is the *Lorain*<sup>11</sup> case. There, a local dominant newspaper, which was the only collector of advertisement in newspapers, refused to accept advertising from firms, which were also placing advertisement in radio station.

In *Otter Tail Power*,<sup>12</sup> the Supreme Court condemned the refusal by a public utility to distribute power for municipal utilities companies who were also acquiring power from other alternative sources. In some case, the anticompetitive refusal to deal by a dominant firm has been referred to commercial choices reducing competitors’ residual demand as in *Aspen skiing*,<sup>13</sup> where the “dominant” firm refused to agree with a competitor on continuing to provide customers with a comprehensive ticket that would have induced the right incentive to ski also in the competitor’s skiing plants.<sup>14</sup>

The most important case for the definition of the notion of essential facility and for the application of the essential facility doctrine is *MCI*<sup>15</sup> case.

In this case, a monopolist telecommunications provider was forced to provide access to its local service network to competitors in long-distance calls. In that case, four elements for delineating the essential facility doctrine have been outlined:

1. The essential facility is controlled by a monopolist.
2. There is a competitor’s inability practically or reasonably to duplicate the essential facility.
3. Access to the facility is denied to a competitor (including also the case in which access is provided but conditionally to the imposition of unjustified high and/or discriminatory prices).
4. The access is technically and economically feasible.

<sup>9</sup>*United States v. Terminal Railroad Association*, 224 US, 383 (1912).

<sup>10</sup>*Associated Press v. United States*, 326 US 1 (1945).

<sup>11</sup>*Lorain Journal Co., v. United States*, 342 US, 143, 146–149, 156 (1951).

<sup>12</sup>*Otter Tail Power Co., v. United States*, 410 US 366, 93 S. Ct 1022 (1973).

<sup>13</sup>*Aspen skiing* 472 US.

<sup>14</sup>As Pitofsky et al. (2002) have outlined, a central issue in *Aspen* was that the circumstance that the refusal to deal constituted a sudden change in previous practices followed by the dominant firm.

<sup>15</sup>*MCI Communications v. At&T Co.*, 708 F.2d 1081, 1132–1133 (7th Cir. 1983).

### 3.2.2 *The European Approach*

As Temple Lang (1994) has recently outlined, the European antitrust approach is characterized by a consistently greater number of interventions regarding abuse of dominance than those registered in the USA. In Temple Lang's view, this is the tangible result of the different paths of economic, legal, and institutional evolution between the USA and European states, the latter being characterized in the past decades by a pervasive role of public governance and ownership of monopolistic firms in network industries. Several authors [in particular, Picker and Carlton (2006)] have critically argued against what they define a "regulatory" attitude of European antitrust in disciplining dominant positions by setting remedies aimed at encouraging entry and competitors rather than exclusively focusing on consumers' welfare.

This continuous debate has been further stimulated by the circumstance that European institutions (the Commission, the Court of First Instance, the Court of Justice) seemed to have followed over time a quite erratic approach to the question of the abusive qualification of a refusal to share an essential asset by a dominant firm and to the consequent definition of the conditions which call for mandatory access to an essential facility. From one side, there has been an attempt to rigorously define the "exceptional" circumstances which impose limits on the ownership rights possessed by a dominant firm, confirming the general principle that even a dominant firm should not be obliged to share its property rights with its competitors; from the other, the question of imposing mandatory access to assets owned by a dominant firm has been often extended beyond the "exceptional circumstances" principle, being interpreted as a general remedy against dominance when technological or economic constraints from supply or demand side inhibit a short-term credible threat by competitors to established dominant positions.

As Ridyard (1994) has outlined, the latter approach could be defined as one promoting competitors' access to "convenient" rather than to "essential" facilities, defining a convenient facility "an asset without access to which it would be jolly inconvenient for rivals because they would need to offer customers a better product in order to overcome the advantages of the incumbent." Convenient facilities are assets which even being potentially duplicable by rivals generate a short-term insuperable barrier to entry due to network effects or large minimum efficient scale in the industry, such as a standard technology (interface information in the *Microsoft* case) or popular TV programs (broadcasting packages as in the *NewsCorp/Telepiù* merger).

The European Commission has been also very active in adopting a convenient facility approach in anticompetitive mergers regarding network industries and intellectual property rights or joint venture,<sup>16</sup> and in several cases the Commission authorized clearance only after undertakings were assumed by merging firms to

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<sup>16</sup>For a survey of the main merger cases concerning essential facilities in media markets, see Nicita and Ramello (2005).

provide nondiscriminatory access to the existing or newly created convenient facilities. In the last section, we will analyze in detail the implications of the “convenient facility doctrine.” In this section, we summarize four recent cases which contain very different formulations of the essential facility concept and thus of the notion of abuse of dominance through a refusal to concede access to competitors. In the next section, we will propose a unified framework to test the existence of an essential facility and the associated abuse of dominance in case of access denial.

### 3.2.2.1 The Magill Case<sup>17</sup>

Magill TV Guides Ltd was an Irish publisher which started a weekly TV guide containing the programs of RTE, BBC, and ITP. Until then, each broadcasting company used to publish its own TV weekly magazine reporting information relating only to their own channels listings. The three “publishers” RTE, BBC, and ITP obtained an injunction from the Irish High Court to prevent Magill’s publication on the legal basis that the information published were covered by copyright, as “literary works.” The Irish High Court decided in favor of the plaintiffs, while Magill complained to the European Commission that the refusal to deal opposed by the TV broadcaster was, in fact, an abuse of dominance in violation of the art. 86 (now art. 82) of the EC Treaty. The Commission built on its decision along the lines developed in the *Volvo* case, applying the concept of essential facility also to intellectual property rights, when particular circumstances are verified. The Commission argued that TV companies were dominant each on the market for their weekly listings and that their opposition to *Magill*’s publication of a comprehensive TV guide was an abuse of dominance because (1) it prevented the introduction of a new product for which there was a significant consumer demand; (2) dominant firms used their power—through a litigation strategy based on the presumptive infringement of a copyright—to retain for themselves the derivative market from weekly guides, thus “limiting production or markets to the prejudice of consumers”; and (3) the mere existence of a legal protection to existing rights—such as copyright—was not a sufficient argument to avoid the application of art. 82 of the Treaty, when the intellectual property right constitutes an essential facility for entering the TV guide market, and it is used to stop a rival introducing a new and improved product in that market. Consequently, the Commission ordered RTE, BBC, and ITP to end the infringement of antitrust law by providing on request and on a nondiscriminatory basis TV listings information to interested third parties for their publication. Both the Court of First Instance (CFI) and the Court of Justice confirmed the Commission’s decision. The CFI clarified that the improper exercise of an intellectual property may “pervert the rules governing competition within the Community,” going beyond the “essential

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<sup>17</sup>*RTE&ITP v. Commission* [1995] ECR I-743.

function” of copyright “to protect the moral rights in the work and ensure a reward for creative effort.” Under the appeal to the Court of Justice, the Advocate General Gulman argued against the previous decisions because they would have generated a strong contrast between antitrust and intellectual property laws, being the aim of a copyright precisely that “to give the proprietor the possibility or restricting competition and that possibility must also be afforded to a dominant undertaking.”<sup>18</sup> Interestingly, Gulman argued that an abuse would have occurred if the refusal had the effect to limit entry of a new product not in direct competition with the ones commercialized by dominant firms. The European Court of Justice (ECJ) upheld the Commission and the CFI decisions, outlining that “the exercise of an exclusive right by the proprietor may, in exceptional circumstances, involve abusive conduct.” These special circumstances are identified in the following six facts findings: (1) the absence of actual or potential substitutes for a weekly television guide; (2) the existence of a “specific, constant, and regular potential demand on the part of customers”; (3) the circumstance that RTE, BBC, and ITP were “the only source of the basic information on program scheduling” which was the “indispensable raw material for compiling a weekly television guide”; (4) the refusal by RTE, BBC, and ITP “to provide basic information by relying on national copyright provisions prevented the appearance of a new product”; (5) “there was no justification for such a refusal either in the activity of television broadcasting or in that of publishing television magazines”; and (6) RTE, BBC, and ITP “by their conduct reserved to themselves the secondary market of weekly television guides by excluding competition on that market since they denied access to the basic information which is the raw material indispensable for the compilation of such a guide.” These facts findings could be translated in the following six conditions: (1) new product at the retail level; (2) actual and/or potential demand for that product; (3) indispensability and non-duplicability of the “raw material” to which access is needed and denied; (4) denial of access to the raw material; (5) no justification for the refusal to deal; and (6) effective exclusion of competition in the retail market coupled with anticompetitive intent by dominant firms to retain the market for themselves.

### 3.2.2.2 The Bronner Case<sup>19</sup>

*Oscar Bronner* constituted, after the *Magill* judgment, another path-breaking case in which the European Court of Justice (ECJ) defined and applied the essential facilities doctrine. The case arose before the ECJ on an article 234 reference. It regarded a refusal to deal by Mediaprint, a dominant publisher of newspapers in Austria, which established a nationwide system for newspapers home delivery. The refusal was related to Mediaprint’s denial of distributing also the newspaper published by Bronner (a newspaper with only local diffusion and minor audience).

<sup>18</sup>[1995] ECR I-743, par. 63.

<sup>19</sup>Case C-7/97 *Oscar Bronner GMBH & Co., KG v. Mediaprint* [1998] ECR I-7791.



Mediaprint was actually distributing not only its own newspapers but also an independent newspaper, for which, however, it was also providing the whole service of printing, distribution, and home delivery. Oscar Bronner published a daily newspaper that in Austria reached a 3.6% of newspaper market share and more or less a 6% of total newspaper advertising revenue. On the other side, Mediaprint, at that time the largest daily newspaper provider group in Austria, published two daily newspapers and represented 47% of newspaper market share and 42% of advertising revenue. Moreover, Mediaprint provided the only home delivery system for newspapers in Austria. Mediaprint opposed to Bronner a refusal to provide home delivery of Bronner's daily newspapers through Mediaprint's distribution system on the basis of a market price remuneration. Bronner claimed that Mediaprint's refusal represented an abuse of a dominant position, since Bronner was unable, considering its small circulation, to arrange and provide its own home delivery service through alternative economically sustainable delivery systems.

In its opinion to the Court, the Advocate General Jacobs clarified that "the right to choose one's trading partners and freely to dispose of one's property are generally recognized principles in the law of the Member States, in some cases with constitutional status. Incursions on those rights require careful justification." Moreover, according to Jacobs, "the purpose of article [82] is to prevent distortion of competition [...] rather than to protect the position of particular competitors." Consequently, refusal of access may entail an abuse of dominance only when there is a serious risk of "permanent exclusion" from the market in which "dominant undertaking has a genuine stranglehold" so that "access to a facility is a precondition for competition on a related market for goods or services for which there is a limited degree of interchangeability." These are the circumstances in which "duplication of the facility is impossible or extremely difficult owing to physical, geographical, or legal constraints [...]. It is not sufficient that the undertaking's control over a facility should give it a competitive advantage." On the other hand, "if the cost of duplicating the facility alone is the barrier to entry, it must be such as to deter any prudent undertaking from entering the market." Finally, Jacobs outlines that when access is forced by antitrust decision "the undertaking [...] must be fully compensated by allowing it to allocate an appropriate proportion of its investment costs to the supply and to make an appropriate return on investments having regard to the level of the risk involved." Applying these conditions to the Bronner case induced Jacobs to conclude against the claimant in that case on the basis that many alternatives, even if less convenient, were available to Bronner to deliver its product.

The Court upheld Jacobs' opinion, following the Opinion of the Advocate General, stated that access to a facility could only be granted if, integrating Magill's "exceptional circumstances," two specific conditions were satisfied: (1) the refusal to deal should have the ability to foreclose competition in the relevant market and (2) the facility should be "indispensable to the carrying on of the business of the person requesting the service." On the condition of indispensability, the Court further specified that it occurs (a) when there are no plausible alternatives to the facility, even considering the inferior quality ones and (b) when the impossibility of duplicating the facility is objective due to "technical, legal, or economic obstacles"

of a representative operator and not due to the limited capacities of the specific of the new potential new entrant. As a result, a mere economic disadvantage or less convenient input alternatives with respect to position held by the dominant firm is not sufficient to identify an essential facility. In determining whether a facility is essential or not, the antitrust agency should not tailor the cost of building an alternative facility or search for alternative facilities to the specific capacity of the particular competitor that is currently requiring access; rather, it should refer to the “equilibrium” situation of a “representative” efficient competitor who has the “normal” abilities (economic, commercial, technological) required for carrying that business in an efficient way. In other words, the Court seems to suggest that the cost of procuring alternative facilities should be tailored on a competitor who already reached the minimum efficient scale to enter the relevant market. Otherwise, any new entrant in any market could maintain the right to have access to incumbents’ inputs when it is too small to cover the start-up costs. Only when a facility is essential, the mere fact of denying access to it would result in a total elimination of actual and potential competition.<sup>20</sup>

Summarizing, the ECJ decision listed four factors according to which the refusal to share a facility would result in an abuse [see Jones and Sufrin (2001, p. 416)]: (1) the refusal should produce the effect of eliminating all competition in downstream markets; (2) the refusal should lack an economic justification; (3) access must be indispensable in order to enter downstream market for any representative competing firm; and (4) there must be no actual or potential substitute for the asset to which access is required.

### 3.2.2.3 The GVG Case<sup>21</sup>

The *GVG* case started on the 25 October 1999 with the complaint lodged by *George Verkehrsorganisation GmbH* (from now on “GVG”), a German railway undertaking, against *Ferrovie dello Stato S.p.A.* (from now on “FS”). The complaint concerned the repeated refusal by FS to provide to GVG access to the Italian railway infrastructure, to constitute an international grouping with it, and to guarantee traction services. FS was the principal Italian railway operator, publicly owned, that from the 13th of July was restructured into a Holding, *FS-Holding S.p.A.*, controlling, in particular, two companies: *Rete Ferroviaria Italiana S.p.A.* (RFI), the firm that controls and operates the network infrastructure and *Trenitalia S.p.A.*, the firm that carries on the transport service.<sup>22</sup> GVG had the project to access

<sup>20</sup>The *Bronner* decision has been criticized for being too restrictive in some respects (Treacy 1998).

<sup>21</sup>Commission Decision of the 27.08.2003 (COMP/37.685 GVG/FS).

<sup>22</sup>The transformation from public to private entity (100% publicly owned) took place between 1992 and 1993; the new organizational form in Holding with the separation between the company that operates the network (RFI S.p.A.) and the one that operates the transportation services (Trenitalia S.p.A.) took place in 2001.

to the Italian railway market in order to provide an international railway passenger service from various points in the south of Germany to Milan via Basle. In particular, the service would have transported the passengers to Basle and then to Milan through Domodossola, a small city on the Italian-Swiss border, offering a service that would have competed with Cisalpino—a joint venture entity between FS and Swiss railway operators. On this segment, GVG's service was direct to attract business customers by offering a nonstop Basle–Milan connection that would have been 1 h faster than any other existing offered links. On 29 October 1991, GVG lodged the complaint that FS had abused of its dominant position by refusing to negotiate the constitution of an international grouping with GVG<sup>23</sup>, to grant access to the Italian railway infrastructure, and to grant to provide traction services.

GVG claimed that FS was abusing of its dominant position, violating art. 82 of the Treaty and the principal norms of Directive 91/440, by refusing to provide access to the Italian railway market.

With particular reference to the refusal to provide traction services, GVG claimed that the provision of traction services by FS (now Trenitalia) was indispensable for rail transport service on the downstream market. In order to carry out the service, GVG requested FS to negotiate the traction service (e.g., locomotive, drivers), including all the necessary backup that was necessary to grant punctuality, reliability, and continuity of the service.<sup>24</sup> GVG claimed that at least since 1998, FS had news about the request of the provision of the traction service and that it abused its dominant position, eliminating any competition in the downstream market when it refused to provide the requested services. FS argued that some of the requests advanced by GVG were not legitimate even under the regulatory framework provided by European Directives.<sup>25</sup> In particular, concerning the request of providing traction services, FS opposed that it had not a specific obligation to enter in an international grouping with GVG for that purpose. FS argued that defining

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<sup>23</sup>An international grouping is defined by Council Directive 91/440/EEC on the development of the Community's railway as an association of at least two railway undertakings established in different member states.

<sup>24</sup>The locomotive to be used must ensure a certain quality requirement and has to be fully operational. In that particular case, GVG required to FS an electric locomotive "Sprinter" capable of at least 160 km/h.

<sup>25</sup>FS, while recognizing that it could have provided the technical information requested by GVG, also argued that, due to the massive company reorganization occurring during GVG requests, it was not ready to satisfy GVG's demand. In particular, considering the unstable governance and organizational structure of the Italian railway system and the evolution of the regulatory framework, FS had no certainty at the time of GVG's request about the extent to which the competition rules designed by the Directive 91/440/EEC should have been applied to the Italian case. Under the uncertain regulatory environment that has characterized the 1990s, FS decided that it would have been more appropriate to "wait and see" rather than applying in a discretionary way the general rules contained in European Directives.

traction assets and services as essential facilities would be economically inappropriate as it may generate inefficient incentives to invest upon the incumbent in the longer run. Moreover, FS underlined that when some shortage occurs in the incumbent's capacity to provide traction service, the obligation to provide a wholesale offer to competitor, and thus to share with them existing capacity, would have been equivalent to impose a constraint of the incumbent's ability to satisfy consumers' demand. In conclusion, FS argued, on one side, that the traction assets were not an essential facility given that alternative sources of supply were available for new entrants.

In its final decision, the Commission recognized three different forms of abuse of dominant position by FS: the refusal to grant access to the Italian infrastructure network; the refusal to join in an international grouping; and the refusal to provide traction. The Commission has examined if any European railway undertaking would have had concrete and feasible alternatives to rent the traction from undertakings that differ from FS on the segment between Domodossola and Milan. As a result of its analysis, the Commission stated that no feasible alternatives were possible due to the high costs necessary to buy new locomotives for a new entrant. Since at that time and that FS (Trenitalia S.p.A.) was the only railway undertaking able to provide GVG with such kind of a traction service, the refusal to provide it resulted in an unjustified abuse of its dominant position, foreclosing competition in the downstream passenger transportation market. Before the Decision was adopted, FS (Trenitalia S.p.A.) and FS (RFI S.p.A.) submitted undertakings aimed at settling a traction contract with GVG.

#### 3.2.2.4 The IMS Case<sup>26</sup>

The IMS case constitutes somehow an attempt to merge the lessons coming from *Magill* and *Bronner*, further elaborating on the concept of essential facility even if it remains an open issue whether the approach followed in IMS by the Commission and the ECJ should be considered applicable to every property right or whether it is specifically referred to intellectual property. IMS Health is a pharmaceutical database company, holding a copyright over a specific data format. IMS collects the data from pharmaceutical companies in a way that specifically fits the technical requirements of its format. As a consequence, the IMS format has very soon constituted a sort of standard in the pharmaceutical industry. In particular, IMS provides data on regional sales of pharmaceutical products in Germany to pharmaceutical laboratories formatted according to a brick structure consisting of 1860 bricks corresponding to a designated geographical area and containing several codes. Since IMS not only marketed its brick structures but also distributed them free of charges to pharmacies and doctors, these brick structures become the normal

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<sup>26</sup>*NDC Health/IMS Health*: Interim measures (COMP D3/38.044—Antitrust) [2003] EComm 61 (13 August 2003).

standard of the industries. Some competitors of IMS in Germany, namely, NDC and AnZyx, asked for a license to enter the market for the sale of pharmaceutical data. Upon refusal by IMS, competitors started producing a database with a slightly modified format, inducing IMS to sue NDC and AnZyx for violation of copyright law,<sup>27</sup> obtaining by the Frankfurt District Court an injunction against competitors and also a decision by the Court to referring some questions to the ECJ. Meanwhile, NDC complained to the Commission that the refusal opposed by IMS constituted in fact an abuse of dominance. The Commission in 2001 decided in favor of NDC against IMS,<sup>28</sup> ordering—due to the evidence of “exceptional circumstances”—interim measures such as to grant a license to use the 1860 brick structure to all the undertakings present on the market for the provision of German regional sales data. The Commission concluded that the IMS format became the industry standard for the relevant market and that the refusal to deal was from one side lacking objective justifications and from the other it was likely to eliminate all competition in the market since without access to the standard it was impossible to compete against IMS. IMS appealed to the CFI. While the case was still on appeal, a German Court ruled that IMS competitors could create their own system of analysis using the underlying administrative and postal data that was the basis of the IMS format. Accordingly, the CFI suspended the Commission’s order<sup>29</sup> on the basis that there were actual and potential substitutes for the copyrighted format and that the access to it was not indispensable. The ECJ confirmed CFI’s decision,<sup>30</sup> inducing a final withdrawal decision by the Commission.<sup>31</sup> Parallel to the case started before the European Commission, another process was activated by the Frankfurt Court which referred questions to the European Court of Justice<sup>32</sup> on the application of article 82. The opinion delivered by Advocate General Tizzano and the final judgment of the Court further elaborated with respect to *Magill* and *Bronner*. First, the Court established that network effects and switching costs from demand side (“the degree of participation by users in the development of [the brick] structure” and “the outlay, particularly in terms of costs, on the part of potential users”) matter for defining indispensable—in terms of the alternative available to competitors from the supply side—the license in order to enter the relevant market. Secondly, the Court outlines four conditions—in addition to the precondition that the asset or the license need to be indispensable—that should be fulfilled in order for the refusal to grant the license by IMS to be an abuse of dominance in violation of art. 82: (1) the undertaking which requested the license intends to offer on the downstream market

<sup>27</sup>Case C-418/01, ECR 2004, p. I-5039.

<sup>28</sup>European Commission Decision 2001/165/EC, COMP D3/38.044, OJ L. %), 28.02.2002, pp. 18–49.

<sup>29</sup>Court of First Instance, Case T-184/01 R ECR 2001 II-03 193, 26 October 2001.

<sup>30</sup>Case C-481/01 P(R) ECR 2002 I-03401. This case was thus parallel to the case C-418/01.

<sup>31</sup>Decision 2003/7417EC, OJ L 268, 18.10.2003, pp. 69–72.

<sup>32</sup>Case C-418/01, ECR 2004, p. I-5039.

new products or services not offered by the (copy)right owner; (2) there is a potential consumer demand for this new product; (3) the refusal is not justified by objective considerations; and (4) the refusal is such as to reserve to the (copy)right owner the downstream market by eliminating all competition in that market.

### 3.2.3 *Competition Policy Trade-Offs*

The four cases summarized above shows a quite erratic approach of European antitrust in defining the cumulative conditions which need to be verified in order to qualify an abuse of dominance in the form of a refusal to share access to a facility deemed as essential to enter downstream market. While the *IMS* case seems to trace a very restrictive view for defining an essential facility, the access to which is indispensable for entering downstream markets, the *GVG* case substantially defined essential facility (the locomotives) in terms of a short term “convenient” facility, the access to which is necessary to encourage short-term entry in downstream market.

If the new entrant is able to break even by replicating the asset, there can be no issue of an essential facility: any entrant who was able to break even will find entry attractive and strategically refusing access would not effectively protect the incumbent from competition.

More generally, an “essential facility” can only arise if it is socially less costly to provide the service on the existing asset than to invest in duplicating the asset. This will occur in one of two cases: either because the asset has certain natural monopoly characteristics, arising from economies of scale and scope, or because the investment cost of the asset has already been sunk, and therefore the ex post avoidable cost of the input is much lower than the incremental cost of providing it. But there can never be an essential facility when the new entrant is able to cover the incremental cost of setting up the service (and in these circumstances there is an incentive for the incumbent firm to trade and come to an agreement on access to the asset).

The above argument coupled with that on the potential shortage imposed on the incumbent leads to the following conclusion: if the entrant could not directly meet the incremental cost of the investment in the new asset, it would also be unable to break even when it is charged the correct opportunity cost by the incumbent. In other words, the social opportunity cost of the incumbent dedicating an asset for use by the entrant would be the cost of a new locomotive. However, if that is too high for the entrant to break even in the first place, then he should not be able to break, even also if the asset is sourced from the incumbent—his scale of entry is just inefficient, as clearly stated by the Court in the *Bronner* case—and/or the expected performance of the business to be started by the new entrant is not so attractive in the first place. The risk here is that the essential facility doctrine would result in the incumbent subsidization of inefficient entry.

A better possibility is to condition forced access here to a specific short-term temporal dimension of the excess of capacity of the incumbent in order to encourage immediate entry. The relevant notion here is that of “convenient facility” defined as “an asset without access to which it would be jolly inconvenient for rivals because they would need to offer customers a better product in order to overcome the advantages of the incumbent” (Ridyard 1994). Here, the facility is not essential in an absolute sense but is necessary in order to compete on an equal or equivalent basis against the incumbent. That means that access to the facility is temporarily limited and implicitly finalized at allowing rivals, once entry has occurred, to reach a market share sufficient to autonomously build an alternative facility. Typically, this is the approach followed by the Commission as a remedy in merger cases, with the explicit aim of disciplining dominant positions of vertically integrated firms controlling an essential facility. In some cases, an artificial wholesale market has been created for a limited time horizon in order to allow competitors to face the incumbent’s competitive advantage and to enter the market offering the same retail product to customers even when it was potentially feasible for the rivals to build autonomously those products (*NewsCorp/Telepiù*). On this point, see Nicita and Ramello (2005).

While traditional approach, especially in the US antitrust tradition, considered vertical mergers and vertical restraints involving upstream or downstream dominant firm as potentially anticompetitive per se (Hovenkamp 1994; Mueller 1996), additional arguments have been raised by the Chicago School (Posner 1976; Bork 1978; Easterbrook 1984) to show the pro-competitive role of vertical restraints such as intra-brand competition to control quality, franchising agreements to promote efficient risk sharing, and exclusive territories clause and general exclusivity clause to protect specific investments under incomplete contracts (Williamson 1985).

Similarly, the role of transaction costs in applying the *essential facility doctrine* has been outlined, defining narrow tests for its application (Baker et al. 2001; Castaldo and Nicita 2007). In this respect, the general lesson is that competition policy should always balance the anticompetitive impact of a given organizational form in the market with the increase in transaction costs emerging as a consequence of the adoption of an antitrust remedy. This implies a paradigmatic shift from per se rules (to be applied only in hard core violations such as cartels and predatory pricing) towards *rules of reason* in applying antitrust law (Amato 1997; Kovacic and Shapiro 2000) and to revert the burden of proof for vertical restraints.

The evolution of antitrust law in Europe and in the USA has registered recently an increased converge towards the essential policy aim performed by competition policy: that of protecting the process and the mechanism of competition to foster and enhance consumers’ welfare and not merely to protect or “assist” new entrants against incumbent in liberalized markets (Motta and Vasconcelos 2005). Assisted entry would result in decreased incentives to innovate to the detriment of consumers’ welfare (Crandall and Winston 2003). However, the problem is how to measure “the true consumer welfare standard” (Salop 2005). The answer to this question is far to be easily addressed, since it re-proposes the trade-off between the

Schumpeterian approach focusing on dynamic competition and the Barzel/North approach stressing the role of secure property rights to efficiently align investments. Many exclusionary practices adopted by incumbent firms generate, in fact, immediate benefits to actual customers under the threat of potential competition. The question is whether today's exclusion would result in higher price or in reduced quality tomorrow. In order to set an appropriate enforcement, the antitrust authority should clearly separate inefficient entrant from efficient ones. Since even efficient entrants may face high fixed entry costs, exclusionary practices may reduce consumer welfare in the longer term, even if actual customers "receive" an immediate short-term benefit thanks to incumbent's deterrence strategy. In this case, even above cost price matching could result in consumer welfare reduction, when more efficient competitors are deterred to enter a market requiring high fixed entry costs. The same argument applies to industries characterized by relevant network effects (Calzada and Valletti 2008). The European approach has been less restrictive to this point, in comparison with the US one. The economic reason has to probably to be found in the institutional specificity faced by European industries, which experienced in the last 20 years, a strong wave of liberalization policies in network industries previously reserved to public monopolies. In those industries, incumbent firms (public owned or privatized) still maintain a strong comparative advantage, reflected in enduring large market shares, notwithstanding the implementation of a pro-competitive regulation. Compared to USA, European antitrust registered a higher rate of cases dealing with unilateral conducts referred to exclusionary practices by dominant firms, inducing some scholar to attribute a de facto "regulatory" role to European antitrust in liberalized industries (Neven 2006).

In this respect, an important role is exerted by the design of the powers, mission, and organization of antitrust and regulatory authorities, especially in connection to governmental policies. Concerning powers, in order to limit political bias in the enforcement of antitrust law, the general legislative approach followed by advanced industrialized countries has been that of delegating to a specialized independent authority and/or to Courts the application of the law (Deporter and Parisi 2006). Both in the USA and in Europe, a multilevel system of competition policy has evolved, which couples Courts' decisions with investigation by specialized agencies. The existence of a multilevel governance system responds not only to a subsidiarity principle but also to the purpose of avoiding regulatory capture and to promote some degree of regulatory competition among the institutions devoted to competition policy. With respect to the USA, the European organization of competition has evolved with the following features (Manganelli et al. 2014): a high degree of centralization of lawmaking, which does not exclude the existence of national laws that can be applied in specific circumstances; a high degree of decentralization of enforcement mitigated by a strong unifying role played by the European Commission; the adoption of formal rules of coordination meant to smooth the vertical relationships among actors placed at different levels in the system [particularly the Commission and national competition Authorities (NCAs)]; a very limited role for formal rules of coordination in the context of



horizontal relationships among NCAs and among NCAs and national regulatory authorities; and the complementarity between public and private enforcement.

The governance of the above-mentioned interdependencies is crucial for incentives to innovate, as we have outlined in Chap. 2. Once incentives to innovate are taken into account, especially in network industries, “the picture of a well-defined essential facility upstream and a well-defined set of services downstream is misleading because it neglects the complexity of the vertical chain of value creation. In [network] industries, a key question concerns the definition of bottlenecks to which access needs to be granted. In practice, this question is not at all easy to answer, and different answers tend to involve conflicting visions of where the industry is going” (Hellwig 2009).

### 3.3 Constructive Refusal to Deal and the Margin Squeeze Abuse

In some circumstance, the vertically integrated dominant firm holding an essential facility does not deny access to downstream competitors, rather it fixes a combination of wholesale and retail prices so as to generate a competitive disadvantage to competitors. When this happens, a *constructive refusal to deal*, that it is tantamount to a refusal to deal, occurs in the form of a *margin squeeze*. According to Jullien et al. (2013), a margin squeeze may occur when the dominant provider of an input, that is vertically integrated in retail activities that compete with its downstream customers, combines retail and wholesale prices in such a way to make downstream competitors unprofitable, “even though their services are socially valuable.”. According to the incidence of wholesale and retail prices levels, margin squeeze can be viewed, respectively, as an exclusionary abuse, targeting downstream competitors, or as an exploitative abuse by dominant firms.

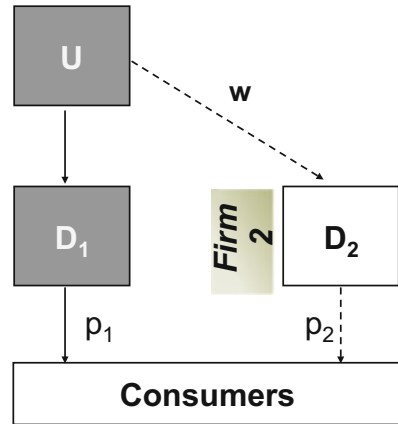
According to the European Commission, “a dominant undertaking may charge a price for the product on the upstream market which, compared to the price it charges on the downstream market, does not allow even an equally efficient competitor to trade profitably in the downstream market on a lasting basis (the so-called ‘margin squeeze’)”.<sup>33</sup>

The “margin” to be squeezed is given by the difference between the *Retail Price* ( $p_2$ ) and the *Wholesale Price* ( $w$ ). When this margin is below the *Downstream Costs* carried out by competitors, then a margin squeeze occurs. When there is enough competition (so that  $p_2 = p_1$ ), it is indifferent whether the retail price to be taken into account is the incumbent’s or the entrant’s one. However, in order to avoid opportunistic behavior on both sides, the retail price could be that of an

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<sup>33</sup>Communication from the Commission—Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings (2009/C 45/02).

**Fig. 3.1** Constructive refusal to deal framework



Source: Padilla (2004)

efficient downstream operator who has to cover efficient “avoidable costs” plus the wholesale charge  $w$ . See Fig. 3.1.

Three cases might be distinguished: *predation* (based on incumbent’s retail price, given the wholesale price), *vertical foreclosure* (based on incumbents’ wholesale price, given the retail price), and *substantial foreclosure* (based on movements, upward and downward, respectively, of both incumbent’s wholesale and retail prices).

In the case of *predation*, the incumbent charges a downstream price ( $p_1$ ) that is too low relative to the input price  $w$ , with the result of driving out some or all downstream rivals, or at least significantly weakening their competitive positions. In the case of *vertical foreclosure*, the incumbent can charge a wholesale price  $w$  that is too high relative to the downstream price  $p_2$ , with the result of driving out some or all downstream rivals, or at least significantly weakening their competitive positions (Padilla 2004).

Finally, in the case of *substantial foreclosure*, the incumbent combines the two prices in such a way that the margin for competitors is below the cost of delivery, the service, or product to the final consumer.

Margin squeeze tests have often been used in industries where the integrated firm is subject to some form of access regulation; thus, a complex interdependence has been raised, especially in Europe, between antitrust and regulatory authorities. Two milestone antitrust cases, respectively, in the USA and in Europe, provide two opposite approaches about antitrust scrutiny of a margin squeeze practice adopted by a regulated firm.

In the US Supreme Court decision *Trinko*,<sup>34</sup> an alleged margin squeeze (constructive refusal to deal) by the vertically integrated incumbent in electronic communications incumbent has been cleared with the argument that the

<sup>34</sup>*Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko*, 540 U.S. 398 (2004).

existence of a regulatory structure designed to deter and remedy anticompetitive harm implies that the additional benefit to competition provided by antitrust enforcement will tend to be small, and it will be less plausible that the antitrust laws contemplate such additional scrutiny. In other words, under the *Trinko* doctrine, if a margin squeeze occurs in a regulatory environment it should call, at most, for an ex ante regulatory revision (due to the regulator's asymmetric information) rather than for an ex post antitrust decision. On the other side, the Court stated that if a firm has no duty to deal with its competitors at the wholesale level, it has no duty to make a wholesale offer to rivals only at the conditions they find advantageous.

A quite different perspective has been followed in the European antitrust law in the *Deutsche Telekom*<sup>35</sup> case. Here, the Court of first Instance argued that a margin squeeze abuse may well occur, as a stand-alone antitrust infringement, even when the incumbent's input is regulated as an essential facility, provided that the incumbent's discretion allowed by regulation has been used for exclusionary purposes.

As Jullien et al. (2013) have pointed out, "in practice regulation can be imperfect, which raises a number of issues. For instance, the regulator may have limited information on the costs of the integrated firm; incentive schemes can alleviate the problem, without eliminating it completely. [...] Most margin squeeze cases have involved regulated industries, such as telecoms or postal services. Adopting access regulation is a direct way to deal with vertical foreclosure and the potential distortions stemming from market power in the upstream market. But in response to such regulation, the integrated firm may become tempted to engage in predatory pricing in the downstream market; that is, access regulation is a good way to address the concerns identified above but restores some ground for predation concerns."

This is a complex and unsolved issue. As Hellwig (2009) pointed out, "given that the problem of cost attribution is central to network pricing and given that this problem has no one "appropriate" solution, judicial review of any one individual price will hinge on who has the authority to choose the cost attribution method." Undoubtedly, overlapping actions by regulatory and competition authorities, when taken without reciprocal coordination, may generate uncertainty on firms decisions. Rather than defining exclusive domains of actions, mechanisms of coordination between authorities (such as transparent, reciprocal mandatory advice before a decision is taken) may increase the effectiveness of the institutional environment.

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<sup>35</sup>*Deutsche Telekom AG v Commission of the European Communities*, Case T271/03 (2008).

### 3.4 Competition Policy and Regulation under the European Approach

As the above cases *Trinko* and *Deutsche Telekom* reveal, the EU policy framework envisages the coexistence of competition policy and sectoral regulation, interpreting them as complementary tools.<sup>36</sup> On the contrary, in the USA, competition policy and sectoral regulation are perceived as substitutes so that competition policy intervention is ruled out in regulated sectors (Geradin 2006; Hellwig 2009; Maresca 2013; Manganelli et al. 2014).

Within this framework of coexistence, thus of competence overlapping between Competition law enforcement and sector-specific regulation, a recent trend, in Europe, is increasing the degree of substitutability of the two activities. This trend, falling under the label of “convergence” of antitrust and sectoral regulation, implies that, although national regulatory authorities (NRAs) do not enjoy formal competence on competition law enforcement,<sup>37</sup> they should be included within the competition policy system since they are explicitly attributed by recent EU directives, a competition-enhancing role. Let us consider, as an example, the case of the Electronic Communications<sup>38</sup> sector, where attribution to NRAs of competition-enhancing aims and competition law-inspired powers is more advanced and clear.

In the Electronic Communications sector, the extent of substitutability characterizing the action of enforcers belonging to the parallel domains of antitrust and regulation has increased from two angles. On the one side, European competition law allows public enforcement bodies (both at the supranational and at the national level) to adopt decisions, which can be classified as regulatory, in that they prescribe behavioral obligations. On the other side, NRAs’ decisional practice, whose main aims are, by statute, the promotion of competition and the enhancement of consumer welfare tends to be based to a significant extent on concepts and categories drawn from competition policy.

As for the first aspect of the convergence—competition policy enforcers’ regulatory powers—(a) the vagueness of art. 7 REG leaves the Commission, in applying art. 101 and 102, the possibility to impose on dominant undertakings, in particular in recently liberalized industries, behavioral or structural remedies that not only bring infringement to an end but also design a more competitive market where that

<sup>36</sup>Commission decision of 04 July 2007, case COMP/38.784—Wanadoo Espana versus Telefonica; General Court decision of 10 April 2008, *Deutsche Telekom versus Commission*, confirming the appealed Commission decision 2003/707/CE of 21 May 2003. As a matter of fact, the legal basis of those decisions is represented by the primacy of competition law (primary law) over sector-specific regulation (secondary law).

<sup>37</sup>Important exceptions are represented by UK national Regulators (Ofcom, Ofgem, ORR), which have formal competence of competition law enforcement, concurrent to the national competition authority, OFT.

<sup>38</sup>In Electronic Communications sectors, a very complex regulatory system has emerged in Europe, after the 2002. The main act is represented by the Directive 2002/21/EC on a common regulatory framework (FD), recently amended by the “Better Regulation Directive” 2009/140/EC.

infringement will not be possible; (b) art. 9 REG gives the Commission the power to render binding commitments “formally” proposed by undertakings; (c) art. 101 (3) states the possibility for the Commission to exempt illicit agreements from the application of art. 101(1) when these could imply productive or dynamic efficiency gains. Similar regulatory powers are assigned to national competition authorities (NCAs) by art. 5 REG when they apply EU competition law. Moreover, NCAs—when acting as European administrative bodies—can “disapply” national rules, substantially deregulating.<sup>39</sup> As for the second aspect—regulators’ use of competition policy tools—*ex ante* obligations can be imposed by NRAs only on operators having significant market power (SMP), a concept stated to be equivalent to a dominant position in antitrust analysis. Furthermore, besides basic interconnection and interoperability obligations, NRAs can impose on firms with SMP obligations that correspond to typical antitrust remedies against abuse of dominant position.<sup>40</sup>

Thus, the actions by the Commission and NCAs, on one side, and by NRAs, on the other, generally overlap, as they affect the same relevant markets. Moreover, since they pursue the same public interest—“a competitive market”—and adopt similar policy tools, they are increasingly designed as substitute tools for the pursuit of a competitive EU market. Yet, they still coexist.

This policy framework entails both benefits and costs. The benefits follow from the elements of complementarity that competition law enforcement and regulation still maintain and that justify their coexistence. In fact, *ex ante* regulation and *ex post* antitrust intervention would be perfect substitutes if either (a) *ex ante* regulation was perfectly effective (i.e., no regulatory failures are possible) or (b) *ex post* competition law enforcement had the same probability to fail as *ex ante* regulation. These circumstances, however, do not seem to hold, since the effectiveness of regulation is necessarily limited by imperfect and incomplete information, higher *ex ante*—before abusive conducts actually materialize—than *ex post*.

Thus, regulation, restricting, and specifying the set of dominant firms’ licit behaviors increase the likelihood of their compliance with competition law in markets where otherwise the probability of their abusive behavior is very high. However, competition law still plays a role (being complementary to regulation) when regulation is not effective, i.e., when *ex post* it turns out that regulation has not restricted or specified enough the set of dominant firm’s licit behaviors.

The costs of the current institutional solution derive from coordination problems analogous to those relative to the optimal degree of decentralization of enforcement, namely: (a) the possible duplication of enforcement costs; (b) externalities; and (c) legal uncertainty.

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<sup>39</sup>In several circumstances, the European Court of Justice confirmed the duty of each national body enforcing European law to “disapply” national law contrasting with art. 101(1) and art. 102 of the Treaty in combination with art. 10 and 86. For example, ECJ C-198/01.

<sup>40</sup>More specifically, Art 8(1) Access Directive (Directive 2002/19/EC) give NRAs powers to impose: transparency obligations (art. 9), nondiscrimination obligations (art. 10), obligation of accounting separation (art. 11), obligations of access to, and use of, specific network facilities (art. 12), and price control and cost accounting obligations (art. 13).

The issue of cost duplication appears, in this specific context, a second-order problem. This is because, strictly speaking, cost duplication would ensue if Commission/NCAs' and NRAs' actions were perfect substitutes, i.e., they were alternative means to achieve exactly the same outcome while, for the reasons mentioned above, they should rather be considered complementary to some extent.

As for externalities, the analysis developed with reference to the competence overlaps among different NCAs in section 2 offers useful insights also in the present context. In particular, the nature of the externalities and strategic interactions varies according to whether we assume that authorities' actions are characterized more by complementary or substitute features. Moreover, the final outcome of the interaction among different authorities may be influenced by the fact that the two authorities may include in their objective functions different notions of social welfare (e.g., NCAs' objective function may have a pro-consumer bias while NRAs' a pro-companies one). In both cases, we should expect to observe a level of enforcement different from the optimal level, with the most likely outcome being an empirical question (Barros and Hoernig 2004).

The issue of the legal uncertainty associated with the possibility of the adoption of inconsistent decisions is likely to constitute a more serious problem, as the multilevel system does not incorporate explicit rules or mechanisms aimed at ensuring full coordination. Moreover, the occurrence of inconsistencies resides in the substitutability characterizing the action of NRAs and competition law enforcers (Commission and NCAs) and in particular in the possibility that the latter choose to intervene *ex post*, modifying the market outcome determined by regulation, not just because regulation failed but rather because they intend to pursue a different regulatory outcome for idiosyncratic, eventually country-specific, reasons.<sup>41</sup>

The risk of such strategic interactions is particularly high with regard to the interactions between the Commission and NRAs, although it exists also for interactions between NCAs and NRAs. Indeed, this sort of issues has emerged within recent margin squeeze cases under regulated wholesale and retail prices.<sup>42</sup> This is because of the regulatory design of Electronic Communications, where enforcement is decentralized (through NRAs) and the Commission manages mechanisms of harmonization, similarly to the competition policy domain.<sup>43</sup> Differently from

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<sup>41</sup>A limit to substitutability and thus legal uncertainty in this context is represented by the ECJ statement affirming that it is possible to enforce competition law when the illicit behavior depends on autonomous decentralized private choice, yet it is somehow constrained by specific regulation. See, for instance, the General Court decision of 10 April 2008, *Deutsche Telekom versus Commission*, confirming the appealed Commission decision 2003/707/CE of 21 May 2003.

<sup>42</sup>Case T-271/03, *Deutsche Telekom AG v. Commission*. Case COMP/38.784, *Wanadoo España versus Telefónica*.

<sup>43</sup>Also horizontal mechanisms of coordination between NRAs are defined by the framework directive. That is (a) the exchange of relevant information (art. 3.5) and (b) the possibility for a NRA to raise comments about a market analysis held by another NRA (art. 7.3). However, those mechanisms have been extremely scarcely used. On the contrary, institutional coordination

the competition policy domain, however, the Commission cannot directly intervene to change regulatory choices made at the national level.<sup>44</sup> The rationale of this different institutional design could be found in the greater discretion necessary to positively prescribe behaviors and the greater importance in this procedure of dispersed information and dynamic adaptation of regulation to market changes. Given this institutional design, competition policy intervention may be improperly used to modify regulatory choices adopted at the national level. However, in these cases it is particularly hard to detect strategic behavior, as it may be difficult to assess whether *ex post* intervention is motivated by the perception of a failure of regulation or by the pursuit of idiosyncratic objectives.

The previous analysis suggests that some modifications are needed to the current system to increase institutional efficiency. First, in order to avoid the highlighted risks of legal uncertainty, the Commission should adopt a different legal tool to modify an undesired national regulatory outcome. Rather than recurring to competition policy intervention (enforcement of art.102 TFEU), the Commission should initiate an infringement proceeding against a Member State under article 226. Second, formal and more effective mechanisms of coordination between NCAs and NRAs are necessary, while at present, from the perspective of both competition and regulatory substantive law, NCAs and NRAs activities are basically independent and characterized by mere obligations of reciprocal consultation (often not binding). This very much contrasts with the substantial interdependences previously described.

An enduring tension thus exists in Europe between institutional actors who tend to attribute greater weight to industries' long-term constraints (i.e., regulators) and actors who tend to be more short-termist and consumer oriented (i.e., antitrust authorities). This tension can be easily explained by two complementary observations. On one side, because of the necessity to build the internal market, deeply ingrained into the founding documents of the Community, the Commission had, over the years, the opportunity to develop a strong antitrust capability and legitimacy, relatively well coordinated in a multilevel perspective with the NCAs. On the other side, the historical heterogeneity across industries and across countries of market conditions, resources, constraints, and national interests that affect regulatory choices has prevented the full development of a truly harmonized regulatory environment. Addressing these shortcomings to "solve" the above tension constitutes an important challenge for European decision makers.

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mechanisms, as the establishment of ERG (European Regulators Group, Decision 2002/627/EC) and recently substituted by BEREC (Body of European Regulators of Electronic Communications, Regulation 1211/2009/EC) have been more effective. Actually, these mechanisms have envisaged both vertical and horizontal coordination dimensions.

<sup>44</sup>The EU Commission covers a fundamental role in the regulatory procedures, *ex ante* generally defining relevant market subject to national regulation and *ex post* controlling the national regulatory procedure, whose outcome cannot though be substituted but only partially inhibited.

### 3.5 Demand-Side Liberalizations

Besides competition and regulatory policies trade-offs, another important policy domain to be considered concerns pro-consumer policy.

Successful liberalization do not occur only when, on the supply side, new firms enter the market, but also when, on the demand side, consumers are able to easily identify convenient offer by new entrants and to easily switch towards the best deals. Hence, “liberalization policies that help to ensure consumers are well informed and are able to switch their service provider easily can stimulate vibrant, enduring competition that may ultimately substitute for regulatory oversight.” (Armstrong and Sappington 2006). In the last 20 years, the liberalization process of network industries that took place in most OECD countries, focused almost entirely on supply-side policies. This process is based on the assumption that by removing obstacles that reduce supply-side competition, greater freedom of choice for the supposedly rational consumers would sustain a pro-competitive process. For some time now, however, the data available show, on the one hand, that dominant positions are difficult to overcome and, on the other, that only part of the consumers are keen to replace their incumbent suppliers with a new one (Armstrong 2008).

The last release of OECD’s indicators of entry barriers reduction, as we will show in the next chapters, provides evidence that, on average, and in almost all network industries, OECD countries are today aligned towards the highest value of the indicator measuring the removal of barriers to entry (Belloc and Nicita 2011). This result was driven by a regulatory framework based on independent authorities and on a pervasive role of antitrust law, which have successfully liberalized access to essential facilities (Castaldo and Nicita 2007), enhancing downstream competition.

As Cseres (2008) pointed out, “recent evaluations of the liberalization process show that opening up markets to more competition has not yet resulted in either expected levels of competitiveness or in envisaged consumer benefits. Many consumer-related failures were little anticipated; legislation to protect and assist consumers was either late coming or inadequate and often lacked effective enforcement.” There are thus several market failures primarily related to the demand side such as “information asymmetries, unfair trade practices, unfair standard contract terms, high search and switching costs, and imperfect decision-making processes” also due to “incoherent regulation and ineffective competition law enforcement and shows how poor coordination between these regulatory fields leads to suboptimal outcome.”

Thus, while the supply side of liberalization policies registered a remarkable success in terms of entry barriers reduction, the demand side of market openness is still in its infancy. Focusing on “demand-side elements can yield substantial benefits to consumers, especially by changing the elasticity of residual demand faced by individual firms. Small changes in switching costs, search costs, or the



number of “elastic” consumers can have large beneficial impacts on equilibrium outcomes.”

These emerging evidences prompted regulators to address the problem of demand-side competition, paying particular attention to those factors that hamper consumers’ switching rate. As a recent BEREC (2010) report outlines, “for competition to be able to fully deliver effective outcomes for consumers, two other important elements are necessary: (a) consumers need to be empowered with the information, skills, and confidence necessary to engage effectively with the competitive process. This requires that consumers are aware of the choices available to them, of the features, capabilities, prices, advantages and disadvantages of new services and technologies (so that they are able to properly assess the potential benefits), and also of the existence and ways of using some functionalities (e.g., number portability) that strengthen their ability to switch; (b) where consumers have found a good deal, they need to be able to switch between service providers without undue effort, disruption, and anxiety. Where this is not the case, consumers who switch may suffer harm. Further, it may result in a lack of consumer confidence in switching processes and, as a consequence, result in consumers choosing not to switch. This could dampen the competitive process and consumers may not receive the benefits from competition they should be able to expect.”

The last release of the *10th Consumer Scoreboard* by the European Commission (2014) on consumers’ satisfaction shows that contract conditions and the affordability of the services’ price in European network industries still show large variations across countries. In particular, “some key services sectors—such as banking, telecoms, and energy—continue to fail consumers. Despite improvements since 2012, utilities markets, in particular electricity and gas, continue to score poorly on comparability of offers, choice of providers, ease of switching, and actual switching” (the 10th Consumer Scoreboard 2014). This suggests that consumers are not yet able to actively participate in the market and benefit from market liberalization. Moreover, network industries rank in the lowest positions in terms of consumers’ satisfaction. This result suggests that the removal of entry barriers is only a necessary but not a sufficient condition for reaching substantial market openness. Thus, supply-side liberalizations should be coupled also with demand-side consumer-based regulatory policies in order to provide consumers with an actual empowerment. By enhancing consumers’ mobility and switch options among providers and by enabling consumers to access and interpret complete information, the effective mechanism of competition may then improve, on the demand side, the result of liberalization processes.

The first single cause that reduces switching is consumers’ bounded rationality, in other words the inability to understand own preferences, and in particular the inter-temporal ones. In addition, consumers fail to calculate in advance the consequences of their choices, and finally consumers (often) fail to maximize their utility. Consequently, when consumers are not able to switch to the best available offer, market competition results lessened.

## 3.6 Consumer Protection and Competition

The crucial question that the law and economics approach proposes with respect to consumer protection is whether do we need a specific legislation in favor of consumers or if we should refer to standard remedies in contract law, property law and tort law, or antitrust law (Cafaggi and Nicita 2012).

The starting point for a specific rationale in protecting “the consumer” traditionally relies on the “subjective conditions” under which a contractual decision is made. Subjective conditions may refer to the circumstance in which the consumption decision is made (for instance, door-to-door selling) and also to the “identity” of the consumer (i.e., vulnerable or even “credulous” consumer). Under these circumstances, the consumer could be forced to make a choice she would not be willing to take under different initial conditions, for example, when a sufficient time elapsed between the seller’s proposal and the buyer’s final decision (so as to prevent seller’s undue pressure on buyer’s freedom to choose) or when the buyer has had the opportunity to have access to the relevant information needed in order to make the “correct” choice.

A common mistake in this argument, that has been traditionally raised in the legal realm, is that of considering the consumer to be protected as the “weak” party in an “unequal bargaining” situation. As the economic literature as outlined, the “weaker” party in a bargaining situation does not need any particular form of protection from the point of view of the economic efficiency, as even under unequal bargaining, any surplus sharing is efficient, being a Nash equilibrium. Any form of protection would thus be driven by distributive concerns, rather than by the purpose of enhancing efficiency. The notion of the weaker bargaining party is indeed rather different under the economic perspective as the weaker party is simply the one obtaining a smaller share of the bargaining surplus due to a number of features, such as parties’ degree of impatience and the level of outside options. Moreover, the final outcome will also depend on the structure of the bargaining procedure, as in many situations being a proponent or a responder may affect the surplus sharing. However, it should be noticed that the weaker party in a bargaining game will always get at least her outside option and the “loss” is always an “opportunity” loss which refers to the potential gains from trade. Suppose that a seller and a buyer are involved in a bargaining situation in which they have to set a price  $p$  in order to split the gains from trade ( $v-c$ ), where  $v$  is the consumer willingness to pay and  $c$  is the cost of delivery (Nicita 2013; Nicita and Vatiello 2014). Let us assume that some asymmetry (degree of patience, outside options) characterizes parties’ bargaining power. If the “winner” is the buyer the price set will approach the cost of delivery,  $p \geq c$  and the “rent” extracted by the buyer will be equal to  $v-p > 0$ . The seller will be then the weaker party, but he will never obtain less than  $c$ , i.e., he will take the minimum amount of the potential gains from trade, but will never incur in a loss (as it would be the case, should the seller be forced to sell at a price lower than the delivery costs). From an economic perspective, whatever is the price set by the parties’ bargaining—provided it falls in the range of value between the maximum

willingness to pay of the buyer and the seller's delivery costs—the bargaining will be efficient, even when “unequal.”

Furthermore, this is an economic argument, which is independent of the structure of the market (monopolistic, oligopolistic, or competitive). The structure of the market may certainly affect parties' bargaining power, but as long as the price falls within the range of values denying the gains from trade it will not affect the efficiency feature of the economic exchange. Thus, a monopolistic seller may well fix a price equal to the consumer's maximum willingness to pay, extracting all the potential rent from that exchange, and still perform an efficient contract, relative to that buyer. The efficiency consequences of a monopoly on the market are independent from that single bargaining. The monopoly inefficiency refers to the “other” potential contracts, involving customers with a willingness to pay higher than the cost of delivery, that are truncated by the monopoly pricing. Thus, one thing is the “contractual efficiency” of the single bargaining between a monopolistic seller and a buyer; another is the “market efficiency” of the monopoly configuration, which refers to the contracts that the monopolist will not sign, rather than to those signed. Indeed, in the extreme case of a perfect discriminating monopoly, each single buyer will be a “weak” party, paying a price equal to her willingness to pay, but, nonetheless, each contract will be efficient and the market configuration will be efficient as well (as there will be no buyer, having a willingness to pay higher or equal to the cost of delivery, who will not have the opportunity to sign a contract with the monopolist).

That said, from an economic perspective, the problem of consumer protection shall refer to “initial conditions” of exchange that are somewhat “vitiating” and that induce the consumer to behave under a “regret” assumption. However, what the consumer should regret is not the outcome of an efficient contract, i.e., the final split of the gains from trade, but rather the fact of having been forced to sign an inefficient contract. Protecting a consumer against his initially “wrong” decision is then efficient, as long as his ex post, “correct” valuation,  $v^*$ , of the received economic proposal falls below the price initially paid  $p^\circ$ . This means that at the price paid,  $p^\circ$ , there was not a potential gain on the buyer's side, being  $(v^* - p^\circ) \leq 0$ . Thus, in this situation, a gain from trade is efficient only if the price paid falls within the range of values  $[v^* - c]$ , being  $c$  the marginal cost of delivery.

Then the traditional legal justification for consumer protection, which relies on the idea that the monopoly power of huge companies should be restricted, as consumers are (always) economically inferior to producers and traders should be rejected on strictly economic grounds. The economic approach would suggest to apply a rule of reason to specific circumstances in which the “initial conditions” are vitiating due to some subjective feature affective the consumer's choice. This means departing from the mainstream notion of perfectly rational agents and investigating the specific circumstances which affect individual behavior. First of all, the relevance of informational asymmetries, but also the way in which information is framed, as well as agents' ability to fully understand, independently on the amount of information received, the consequences of their choices. This might be due to consumers' limited knowledge, as in the case of many financial choices or to the

limited time to evaluate experience or credence goods. In these cases, standard-form contracts, mandatory legal warranties, and cooling-off periods may correct, under given conditions, contractual failures.

Within the above framework, an interesting case refers to information that normally is available only after the contract is signed and that raises lock-in situations. The latter are sometimes referred in the economic literature as “after-market” outcomes: once a contract is signed and eventually a product or service is delivered, the consumer is locked-in for all the supplementary needs that may rise (i.e., repairing, maintenance, assistance and so on). These may constitute a set of ex post supplementary purchases that the consumer was not able to foresee, or fully consider or even expect at the moment of the original purchase. As the consumer is locked-in, his outside options are reduced ex post and consequently the seller may impose a take-it-or-leave-it offer in the “secondary market” of the supplementary services tied with the original product or service. In a sense, the seller will be a monopolist in the aftermarket and may extract the full quasi-rent to the buyer (hold-up). In our view, in this situation, and only in this, the traditional correspondence between the consumer’s weaker bargaining power on the one side and the seller’s “monopolistic” power on the other may hold. But this is only because a “fundamental transformation” (Williamson 1985) has occurred, from the ex ante market exchange to the ex post aftermarket hold-up. As a consequence, when the ex post quasi-rent lost by the consumer in the aftermarket is large enough to outweigh the ex ante gains from trade, an inefficient contract will result. This leads us back to the case of the “regret” assumption (analyzed in Chap. 2), as the full ex ante consideration of overall prices would have induced the buyer not to sign the contract in the first instance.

Two crucial questions then arise (Cafaggi and Nicita 2012): should there be a “specific” regulation needed to cope with these “contractual failures” or may the market mechanism “autonomously” solve it? Should any form of regulation be applied to any consumer, even sophisticated ones, or shall we distinguish among groups of consumers on the one side and according to the specific content of the contract, on the other?

The answer to the first question depends on the point at which we start our analysis. Several scholars argued that learning, reputation, and word-of-mouth in the long term will correct the inefficient outcomes, under any market structure, as “good sellers” will be willing to signal their superior quality and buyers would be willing to pay for it. The Smithian “invisible hand” will thus correct short-term inefficiencies, without any regulatory intervention. However, the paradox with the assumption of self-correcting markets is that some parties have to be damaged in the first instance in order to induce virtuous behavior on the other side of the contract. In the absence of any safeguard, some “efficient consumers” (i.e., those having a willingness to pay higher or equal to the potential contractual price) may simply decide not to start a bargaining in the first instance, due to a lack of protection. Indeed, this will be a standard market failure, calling for “some” regulation.

On the other side, regulation could lead to a false positive, when sophisticated consumers receive “too much” protection. This would mean interfering with a

potential efficient bargaining, affecting the default option of the protected party *vis-à-vis* the counterpart. In turn, this may adversely affect the incentives of the non-protected party to even start a bargaining process. In this case, we will have the opposite result of a “regulatory failure” due to an excess of protection.

### 3.7 Empowerment Versus Protection

Mandatory disclosure of information<sup>45</sup> may play a crucial role in some areas (consumer credits,<sup>46</sup> insurance,<sup>47</sup> time-sharing,<sup>48</sup> distance contracts<sup>49</sup>). However, disclosure law might be superfluous when unfavorable information is easily available or when private informed sellers maintain strong incentives to reveal it. - Standard-form contracts may serve well in some circumstance, when search costs are prohibitive, when there is bounded rationality, or even when there is a risk of *consumer confusion* due to *information overload* (Samuelson and Zeckhauser 1988; Schwartz 2004; Basili and Vannucci 2015). Standardization of contracts may encourage competition and simplify consumer’s choice. However, it also inhibits efficiency enhancing contractual autonomy for those sophisticated consumers who are able to autonomously select the information they need. On the other side, in oligopolistic markets, standardization may adversely enforce collusion among competitors, acting as a facilitating practice. Finally, mandatory cooling-off periods, as those granted by the doorstep selling directive<sup>50</sup> and the distant selling directive,<sup>51</sup> may increase incentives for the purchasing of *credence and experience*

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<sup>45</sup>See for instance, Council Resolution of 14 April 1975 on a preliminary program of the European Economic Community for a consumer protection and information policy, O.J. EC 1975 C 92/1; Council Resolution of 19 May 1981 on a second program of the European Economic Community for a consumer protection and information policy O.J. EC 1981 C 133/1; Council Resolution of 23 June 1986 concerning the future orientation of the policy of the European Economic Community for the protection and promotion of consumer interests, O.J. EC 1986 C 167/1.

<sup>46</sup>EC Directive 87/102 relating to the approximation of the laws, regulations, and administrative provisions of the Member States concerning consumer credit, O.J. 1987 L 42/48, amended by EC Directive 90/88, O.J. 1990 L 61/14 and in O.J. 1998 L 101/17.

<sup>47</sup>EC Directive 92/96 of 10 November 1992 on the coordination of laws, regulations, and administrative provisions relating to direct life assurance and amending EC Directives 79/267 and 90/619 (third life assurance Directive), O.J. 1992 L 360/1.

<sup>48</sup>EC Directive 94/47 on the protection of purchasers in respect of certain aspects of contracts relating to the purchase of the right to use immovable properties on a timeshare basis, O.J. 1994 L 280/83.

<sup>49</sup>EC Directive 97/7 on the protection of consumers in respect of distance contracts, O.J. 1997 L 166/19.

<sup>50</sup>EC Directive 85/577 to protect the consumer in respect of contracts negotiated away from business premises, O.J. 1985 L 372/31.

<sup>51</sup>EC Directive 97/7 on the protection of consumers in respect of distance contracts, O.J. 1997 L 166/19.

*goods*, but they may raise ex post opportunistic behavior by hit-and-run consumers, decreasing sellers' incentives to invest.

As a consequence, from a law and economics perspective, it seems that the question of consumer protection always should be addressed under a narrow path neighboring on two opposite risks: market failure and regulatory failure.

The evolution of consumer law, especially in Europe, has revealed how this dichotomic distinction between regulatory and market solutions to consumer protection became rather misleading in the last decades.

One of the reasons relies in what has been defined the “consumer activism,” i.e., an active consumer's behavior which, by affecting market outcomes, may positively align agents' incentives in such a way to reduce “inefficient contracts,” increasing consumers welfare. The surrounding idea is that the market mechanism can correct “contractual failures” also through consumer empowerment, i.e., through a “light” regulatory design aimed at enhancing the market discipline device provided by consumer's choice. An “active” consumer is the one able to gain access to the relevant information, to sanction inefficiencies through exerting “exit” choices, and to coordinate collective actions so as to faster reach socially desired outcomes. The empowerment of consumers is pursued in the European Union through a progressive regulatory shift from standards to a new regulatory function of contractual rules and remedies and through a complementary role of public and private enforcement.

This process is particularly appreciable in sector-specific legislations, especially in Europe, ranging from financial to telecom, from energy and gas to transport, from payment systems to media, and so on.

### 3.8 The Libertarian Paternalistic Approach

Recent econometric analysis and experimental and behavioral economics demonstrate the existence of yet another factor, the so-called “status quo” bias or inertia: even when potential gains are available in the market, consumers' tend to overestimate the existing position and typically are inclined to give up change.

As Cass Sunstein (2013) pointed out, “both private and public institutions often establish “default rules”—rules that determine the result if people make no affirmative choice at all. In part, because of the power of inertia, default rules can be extremely important. In the domain of retirement savings, for example, the default rule has significant consequences. When people are asked whether they want to opt in to a retirement plan, the level of participation is far lower than if they are asked whether they want to opt out. Automatic enrolment significantly increases participation. More generally, people may decline to change from the status quo even if the costs of change are low and the benefits are substantial”. See also Thaler and Sunstein (2003).

These factors therefore reduce consumers' mobility over and above the traditional transaction (or switch) costs and are related to cognitive characteristics,

individual attitudes towards risk and uncertainty, the diffuse tendency in postponing indefinitely time-consuming tedious practices, such as switching supplier, and even distraction (which makes us forgetting to send alerts or cancelations in due time).

Departing from these behavioral features of consumers' choice, several authors (Thaler and Sunstein 2003; Camerer et al. 2003; Bar-Gill 2012) have recently suggested a new policy approach towards consumer protections based on the "libertarian paternalism" or "nudging" theory and "debiasing through law" advanced by Thaler and Sunstein (2008). This theory consists of "soft" interventions that push boundedly rational consumers to move towards their preferred choice without constraining their contractual freedom. According to this approach, the regulator makes the architectural design of economic choices available to consumers and can, accordingly, manipulate features of consumers' choice set through:

- (1) The specification of a default option
- (2) User-friendly disclosure requirements
- (3) Reduction of information-processing effort
- (4) The minimization of consumer's confusion

Choice architecture, disclosure, and reduction of ambiguities are thus the main features of the "nudging" approach.

Confronted with this new and more articulated behavioral dimension of the demand side, regulators and policy makers face new challenges when called to define the rules apt to protect or empower consumers in network industries. Certainly, simplified switching procedure and an enhanced transparency of the contractual terms related to commercial offers, including more and detailed information about consumption profile, provide a significant encouragement for switching. However, when it comes to the identification of regulatory measures on individual "rights" protection, in situations when changes in the contractual condition materialize, it is certainly more complex to define a unique way to proceed.

What is to be done when a consumer, especially if engaged in long-term contracts, experience changes in terms of prices, volumes, or quality supplied? Would it be more efficient to set opt-in rules (consensus is necessary to be transferred to a new contract) or opt-out rules (no consensus is need to be transferred to a new contract, while consumers have the right to exit at no cost)? Furthermore, would it be efficient to define a set of dynamic default thresholds, beyond which the option selected will be automatically triggered (opt in or opt out)?

The answer to the above questions is not clear once for all, as consumers' attitude towards *inertia* (status-quo bias) can prevent them to "get out" from inconvenient offers, as well as to "enter" in better deals. It follows that rulemaking in these circumstances is not straightforward, as it might favor some individuals but not necessarily others. There is such a thing as a unique consumer. Thus, having a unique rule for heterogeneous consumers may generate inefficiencies.

The choice made by regulators must then be carefully weighed against the possibility of discrimination between different types of consumers, also keeping

in mind that companies might (and arguably will) react strategically to new regulatory constraints.

Thaler and Sunstein suggest a realistic answer, with their formulation of “liberal paternalism” concept. Not an oxymoron, but the definition of regulatory practices designed to nudge the average (inactive) consumer, that consists of providing information transparency, simplified and flexible offers that include the combination of several options (mixed default).

A case in point is represented by liberalized electricity markets. Even the most mature, such as those in the UK and USA, are showing a declining switching rate. Consumers seem to be less inclined to undertake burdensome procedures, although faster and safer than ever, in exchange to uncertain savings (if any). While saving few quid per year does not constitute a powerful incentive to activate electricity end-users (in most cases), other determinants seem to penetrate customers’ decision-making process. Specifically, imitation, the desire to align to the energy usage prevailing among the most efficient neighbors with similarly sized households, and persuasion, employing behavioral science techniques to suggest how to employ most energy-efficient devices, appear to be powerful triggers.

Ten “nudging” strategies have been outlined (Sunstein 2014):

1. Default rules (e.g., automatic enrollment in programs, including education, health, savings)
2. Simplification (in part to promote take-up of existing programs)
3. Uses of social norms (emphasizing what most people do, e.g., “most people plan to vote” or “most people pay their taxes on time” or “nine out of ten hotel guests reuse their towels”)
4. Increases in ease and convenience (e.g., making low-cost options or healthy foods visible)
5. Disclosure (e.g., the economic or environmental costs associated with energy use, or the full cost of certain credit cards—or large amounts of data, as in the cases of data.gov and the Open Government Partnership)
6. Warnings, graphic, or otherwise (as for cigarettes)
7. Precommitment strategies (by which people commit to a certain course of action)
8. Reminders (e.g., by email or text message, as for overdue bills and coming obligations or appointments)
9. Eliciting implementation intentions (“do you plan to vote?”)
10. Informing people of the nature and consequences of their own past choices (“smart disclosure” in the USA and the “midata project” in the UK)

Therefore, not a single (optimal) default rule, but rather a set of measures to be applied and checked gradually, case by case, that look at the same time at different and particular types of consumption and consumers.

In Europe, recent years, consumer empowerment received a growing attention by the European Commission in several domains. Sectoral regulation, also at the national level, has increasingly recurred to contractual law provisions as the privileged means by which implementing consumer empowerment.



This is not to say that standard consumer protection measures, such as those against duress and undue pressure, prepurchase information, undue post-purchase surprise, misleading advertising, and so on, lose their centrality and function. Rather, they are increasingly coupled with policies based on the regulatory function of contract law in order to enhance consumers' welfare through consumers' activism and the discipline device of the resulting competitive mechanism.

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## Chapter 4

# Liberalization Patterns: The Case of Electronic Communications

**Abstract** This chapter offers a specific focus on the liberalization patterns in the telecommunications sector, which has been steadily at the heart of national and international debates about industrial policy in Europe in the last decades. With reference to the telecommunications market, we discuss the role of institutional complementarities and show that the removal of entry barriers to market before the establishment of a regulatory authority has reduced, in some countries, the positive impact of liberalizations on the telecommunications market structure.

### 4.1 Introduction

As we have already explained, since the 1980s, the majority of OECD countries experienced an intensive and extensive wave of entry liberalization and market deregulation in network industries. In particular, the sector of electronic communications has undertaken a process of restructuring that deeply changed its nature and organization.

In this chapter, we analyze some aspects of the timing and effects of the liberalization process in European network industries, focusing specifically on the telecommunications sector. The telecommunications are an interesting case for exploring reforms' evolution, as this industry has been at the core of the interest of European regulators due to its strategic role for economic growth.

To observe and explore how the reform process evolved in the telecommunications can therefore contribute to a better understanding of the main features of market liberalizations.

In this chapter, firstly (Sect. 4.2), we introduce two important characteristics of telecommunications liberalizations: path dependency and the role of institutional complementarities. Then, we explore more in detail these dimensions, focusing on the institutional factors that have determined path dependency in the reforms' dynamics (Sect. 4.3), and discuss how institutional complementarities between formal entry barriers reduction and the establishment of complementary regulatory authorities have influenced the final outcome of the liberalization process (Sect. 4.4).

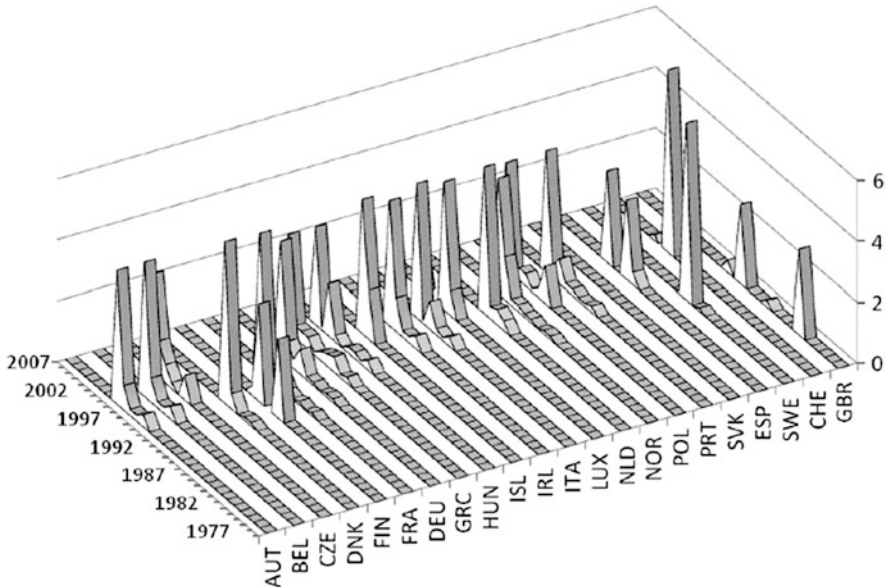
The main conclusion we propose in this chapter is that liberalizations tend to follow a path-dependent process locking-in regulators' actions to a delimited line of intervention and therefore making significant policy shifts difficult. Thus, if regulators fail to implement and undertake complementary measures and to establish complementary frameworks and institutions (such as regulatory authorities), the progressive removal of entry barriers may be insufficient to introduce substantial competition in the market, with the result of generating an "incomplete" market restructuring. Being the telecommunications one of the first network industries that have undertaken the liberalization process in industrialized economies, its experience (including successes and failures) may be of some help for the future policy making also in other sectors still waiting for substantial liberalization.

## 4.2 Liberalization, Path Dependency, and Institutional Complementarities

The liberalization process of the European telecommunications industry has attracted significant attention from public policy scholars, as it is commonly considered among the most ambitious reforms implemented by the European Commission (EC). This is the reason why debates on the optimal design of industrial policies have often focused on the telecommunications sector in the last three decades, and why both the academic and the policy debates about rationales and directions of the reform of public intervention strategies (Schmidt 1996, 2002) tended to look at the telecommunications industry as the favored case study. As Fig. 4.1 shows, most European countries experienced a deep wave of telecommunications liberalization, characterized by a progressive entry barriers reduction in the 1990s—with a peak around the last years of the century—and then a sharp reduction of liberalization initiatives after 2000. In the intentions of its promoters, this great effort aimed at a full removal of the existing entry barriers in the telecommunications market was conducted in order to establish a single and unified telecommunications market in Europe, both in the interests of consumers and for boosting market competition and investments.

The establishment of a fully competitive open market, however, has remained incomplete (European Commission 2000), and the intense liberalization process so far has not determined a fully competitive market. Several scholars have noted and analyzed this partial incompleteness of the reform process and have argued that the full removal of entry barriers does not necessarily imply in fact full competition (Cave 2002; Schneider 2002).

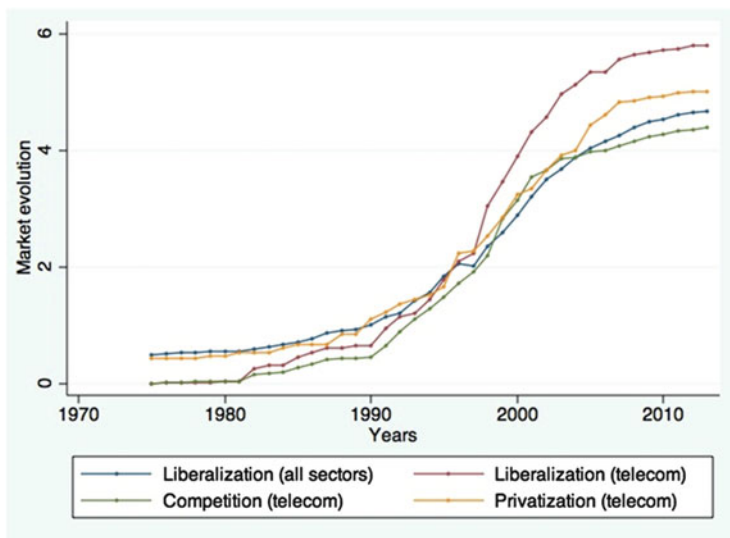
This gap between the "formal" (liberalization initiatives) and the "substantial" (market outcomes) liberalization processes emerges clearly in Fig. 4.2. The figure shows how the process of entry barriers abatement was much more intense in the telecommunications sector than in the other network industries (Fig. 4.2 considers electricity, passenger air transport, post, gas, and rail besides telecommunications).



**Fig. 4.1** The liberalization wave in European telecommunications, 1975–2007 period. *Note:* telecommunications liberalization initiatives' intensity (Y axis) is calculated as 1-year variations of a liberalization index elaborated from OECD data on product market regulation. Specifically, the liberalization index is obtained by subtracting the OECD's indicator of entry barriers to the telecommunications' market from its maximum value (the liberalization index thus ranges from 0—minimum liberalization—to 6—maximum liberalization). *Source:* Belloc et al. (2013)

Nonetheless, the figure also reveals that the level of market competition, as measured by the new entrants' shares, tends to grow slowly and with a weaker intensity than the formal reform process. Phrased differently, Fig. 4.2 suggests that the success of liberalizations is unlikely to depend only on the intensity of the reforms directly affecting entry barriers, while it may be linked also to other institutional dimensions (complementary to formal liberalizations) whose importance was partially ignored by policy makers and regulators when they started the liberalization process.

That liberalizations alone are not sufficient to completely change market structures towards full competition is well known in related economic and institutional literature. Sancho (2002), among others, has explained that country-specific factors and institutional infrastructures contribute significantly to shape the actual effectiveness of entry barriers regulation, especially in network industries and in the telecommunications sector. Similarly, Tsatsou (2011) has analyzed the outcome of liberalization policies, showing that it is likely to depend also on past policy choices, according to a path-dependent process. The concept of path dependency is particularly relevant in the analysis of telecommunications liberalizations. According to David (1985), path dependency refers to those economic or institutional processes in which an initial shock alters the course of subsequent actions,



**Fig. 4.2** The evolution of the European telecommunications’ market, 1975–2013 period. *Note:* liberalization is measured by subtracting the OECD’s indicator of entry barriers from its maximum value (the liberalization index thus ranges from 0—minimum liberalization—to 6—maximum liberalization). Privatization is measured by subtracting the OECD’s indicator of public ownership from its maximum value (the privatization index thus ranges from 0—minimum privatization—to 6—maximum privatization). Competition is measured as a weighted average of the market share of new entrants in the trunk telephony market, in the international telephony market, and in the mobile market, and it is obtained by subtracting the OECD’s indicator of incumbent’s share from its maximum value (the competition index we use thus ranges from 0—minimum entrants’ share—to 6—maximum entrants’ share). The all sectors’ average comprises six network industries: passenger air transport, telecommunications, electricity, gas, post, and rail. *Source:* authors’ elaboration of OECD’s (2015) data

with the consequence of locking-in policy making to a specific path virtually impossible to reverse or to change substantially. Specifically, in industrial policy making, path dependency can be explained as the persistence of a certain chosen form of institutional governance, which persists over time by increasing the likelihood that the original policy choice will be repeated over time, in some sort of self-enforcing dynamics (Bennett and Elman 2006). The main consequence of path dependency in a market restructuring is that a specific pattern of policy timing crucially influences the regulators’ capability to select and govern the outcomes of the process itself. In the end, if the issue of path dependency is ignored at the beginning of a reform process, then the capacity of policy makers to design and to implement optimal solutions may be strongly altered (Pierson 2000).

There are two main facets under which the path dependency phenomenon is relevant in the liberalization process of European telecommunications. First, path dependency in telecommunications liberalization might have determined an

irreversible process of entry barriers removal, locking-in policy choices to a delimited path, so as to make them difficult for governments to shift towards alternative policy models. Second, the snowball progress of liberalization measures could have forced the adoption of the policies regardless of the creation of complementary institutions. In particular, the removal of entry barriers to market before the establishment of a regulatory authority might have reduced, in some countries, the positive impact of liberalizations on the telecommunications' market structure.

In a recent paper (Belloc et al. 2013), we developed a systematic econometric analysis of these issues using data on telecommunications reforms and national regulatory authorities, over the 1975–2007 period, covering 22 European countries. We employed the sector-relative methodology proposed by Rajan and Zingales (1998) in order to overcome the omitted variable bias, commonly present in empirical studies of regulatory reforms in telecommunications (Bartle 2002) and estimated the magnitude of the inter-temporal relationship that links the relative intensity of telecommunications' liberalization actions to sectoral reforms adopted in the past. In the same study, we have also estimated the impact of liberalizations on the telecommunications' market competition, in the presence of institutional complementarities, and showed that the mere adoption of liberalizations alone has not been sufficient to fully manifest the expected benefits of substantially liberalized markets, to the extent that independent regulatory authorities were not yet established.

### **4.3 Path Dependency in Telecommunications Liberalizations**

In general, path dependency is present when each stage of a temporal sequence influences subsequent stages (Pierson 2000). In an institutional context, a path-dependent reform process can be characterized by four main properties (Liebowitz and Margolis 1995; Arthur 1989, 1994; David 1985): coordination effects (if the adoption of a given policy initiative entails positive network externalities, then economic actors involved in that process tend to be encouraged to adopt the same policy option over time), high fixed costs in the process start-up (if setup costs of a reform are high, then regulators tend to prefer the option chosen at the beginning of the process also in subsequent stages), adaptive expectations (individuals tend to reinforce their beliefs on the expected returns of option chosen, as the process evolves), and learning effects (regulators' knowledge of a certain policy may increase as the process goes further, consequently they may tend to continue on the same policy-making path to take advantage of a positive knowledge gap with respect to alternative solutions). These elements generate locking-in, increasing returns and self-reinforcement, which are the distinguishing features of path dependency. Coherently with this description of institutional path dependency, North

(1990) has affirmed that the analysis of path-dependent processes—which is traditionally focused on the dynamics of technological evolutions—can be applied to institutions as well. More recently, Pierson (2000) has explicitly linked the concept of path dependence to the nature of public policy making.

Let us now explain why all the four elements defining a path-dependent process can be detected in the European telecommunications liberalization.

### ***4.3.1 Coordination Effects***

Coordination effects have strongly affected the liberalization process of European telecommunications. In particular, in the 1990s, business actors tended to expand and reorganize their economic activities, adapting their productive structure to the increased supply of telecommunications services made possible by the market liberalization. Thatcher (2002) reported that a growing pressure for liberalization was motivated by the difficulties that PTOs experienced, between the 1980s and 1990s, in expanding the supply sufficiently rapidly for coping with an increasing demand, as it was the case—for example—of Deutsche Telekom in Germany after the reunification and of Teletel in France that in the 1980s proved itself to be unable to meet the increased demand of new international services by business users (Humphreys 1990; Thatcher 1999). In some large European countries (such as UK, Italy, France, and Germany), many liberalization initiatives were encouraged in fact by the pressure of influential business users interested to the access to high-quality telecommunications services. This pressure was particularly strong in Germany, where computer manufacturers, corporate users, and the confederation of German industry played a leading role in supporting liberalization (Schneider and Werle 1991). In the 1980s, in UK, small and large business users in the city of London were concerned about the quality of data transmission services and relied upon liberalization of advanced telecommunications services in order to maintain their leading position as a global financial center (Hulsink 1999). In addition, international alliances were made possible by liberalization in many countries: for instance, qualified support to liberalization was led by the need to internationalize France Télécom and Alcatel between the late 1980s and early 1990s (Sally 1993); liberalization of alternative infrastructure was necessary for Deutsche Telekom to gain the approval for its alliance with France Télécom in 1996 (Bartle 2002), and the liberalization of international lines in the UK was specified by US regulators as a condition on British Telecom operating in the US market (Thatcher 1999). In the last few years, public institutions and administrations as well took advantage of high-quality telecommunications services made available by liberalization, as the early experiences of e-government, e-health, and e-education became widespread instruments for interacting with citizens (Jaeger and Thompson 2003).



### ***4.3.2 Fixed Costs***

High fixed costs in the start-up of the telecommunications liberalization process are of a political nature and can be linked to the strong opposition to liberalizations led by trade unions representing PTO employees. Witte (1989) and Prévot (1989), for example, have affirmed that in France and Germany—among other countries—during the 1980s official commissions showed some resistance against competition in network operation because of the hostility to reforms by trade unions. In particular, workers' representatives feared that liberalizations could generate short-term negative adjustments and unemployment in the PTO's work force, as a consequence of the restructuring of the former legal monopoly. In Germany, opposition to liberalization was strengthened also by the Deutsche Bundespost and postal unions (Bartle 2002). Only after the mid-1990s, when the process appeared inevitable and sustained by a large part of the social actors in the economy as well as by EC regulation, the opposition driven by trade unions ceased to act on the liberalization side and moved to PTOs privatization issues. In this tension, the action of the European Commission had a strong impact, presenting liberalization as a necessary policy, and so weakening the position of those opposing entry barriers to market reduction (Thatcher 2002).

### ***4.3.3 Adaptive Expectation***

Another key feature of the telecommunications' liberalization process refers to the adaptive expectations that have sustained policy-makers efforts. European policy attitudes were strongly influenced by the policy strategies adopted in the USA, and this contributed to the generation of a neoliberal approach to electronic communications regulation, also limiting the emergence and the elaboration of possible alternative policy models for governing the evolution of the telecommunications market in Europe (Bauer 2002). Besides, the pressure by multinational and powerful domestic firms favored the expectation and then the acknowledgment of the benefits deriving from competition for the society as a whole. As a consequence, after the liberalization process was launched, the common view was that to maintain restrictions to competition would have resulted in a disadvantage for the relatively less liberalized countries.

### ***4.3.4 Learning***

Finally, as for the learning element of path dependency, an increasing accumulation of knowledge by policy makers has characterized the deployment of telecommunications liberalization since its beginning, as industrial economists, on the one

hand, and regulators, on the other, after the launch of the liberalization programs in the European countries progressively enhanced their understanding of the existing inefficiencies in the sector, the directions of technological developments, and the regulatory solutions potentially improving welfare. Thus, while first moves towards liberalization were rather small in the 1980s, the establishment of new public institutions for market regulation boosted the rapid progress of liberalizations because policy makers were able to gather more and more information in a relatively short time and quickly became highly specialized in the industry regulation (Davies 1994; Brock 1994; Hulsink 1999). Learning acted, furthermore, through a cross-national dimension. The early liberalization experiences of the USA and UK, indeed, were followed in the 1990s by virtually all the European countries, which engaged in an alignment of their frameworks with the successful policy strategies adopted by Anglo-Saxon economies, in what has been called policy diffusion (Schneider 2001; Simmons and Elkins 2004).

From an empirical point of view, the direct evidence of path dependency is a statistically significant causal effect linking past and current liberalization initiatives, with the consequence of limiting the government's ability to manage the timing of the liberalization process. Belloc et al. (2013) performed an econometric analysis using panel regression techniques in order to estimate the magnitude and the statistical relevance of the coefficient expressing the inter-temporal relationship between the policy interventions by using data over the 1975–2007 period and covering 22 countries. In particular, we have used the indicator of entry barriers to market provided by OECD (2009), which is based on the OECD Regulatory Indicators Questionnaire and that collects information on the ranking of explicit policy settings at an industry level [see Conway and Nicoletti (2006)]. We have then calculated the intensity of liberalization reforms at sector and year level and finally used a modified version of this variable as the dependent variable of a panel regression model, where the main explanatory regressors refer to previous liberalization reforms, State-ownership levels in the market, and average liberalizations in European countries. In a more intuitive way, our aim was to investigate if and to which extent the sector-relative liberalization effort in the telecommunications industry exerted by policy makers is explained by the past sectoral reform initiatives adopted both in the domain of liberalization and in that of privatization, relative to the other network industries and European countries. Specifically, our econometric model allowed us to answer the question: were the decisions to liberalize telecommunications rather than the other sectors in a given year affected by the relative intensity with which telecommunications were liberalized in the past?

The econometric results have shown strong evidence in favor of a path dependency argument affecting European telecommunications liberalizations. Our estimation, indeed, has revealed that the relative intensity with which liberalization initiatives were adopted in telecommunications with respect to the other industries has been positively affected in a statistically significant way by the past sectoral liberalization measures in telecommunications. Moreover, according to our estimates, this inter-temporal sequence has shown a 3-year memory (non-ergodicity),

since we have obtained statistically significant parameters for the 1-year, 2-year, and 3-year lagged telecommunications liberalization intensity variable. The magnitude of these parameters is also shown to decrease in the number of lags, with the 4-year lag being statistically insignificant. From these findings, European telecommunications liberalizations emerge therefore as a path-dependent process in which incremental policy adoption constitutes a defining feature. Although uncertainty characterized the early reforms at the beginning of the 1980s—when exogenous forces due to technological developments, political turnarounds, and new business needs pressured policy makers to open the telecommunications market [also to a greater extent than the other network industries (Levi-Faur 2000)] without a clear awareness of the long-term direction—elements such as the high fixed costs faced in the process start-up, learning, coordination dynamics, and adaptive expectations have determined a rapid and cumulative progression of the reforms' intensity. This highlights the sticky nature of the liberalization path in which initial (exogenous) choices have then shaped the pace and timing of the future changes, increasingly reinforcing the liberalization policy option (Bartle 2002).

As a secondary estimation result, we have also found that the relative level of liberalization in telecommunications is shown to negatively affect the intensity of subsequent sectoral policies. This finding has revealed how the effort exerted by policy makers in the telecommunications liberalization tends to decrease when entry barriers to market are already largely removed.

As a third result, the empirical analysis of data has also suggested that the relative intensity of liberalizations in telecommunications tends to be lower when entry barrier levels in a country's telecommunications market are relatively higher than the European average. This estimated relationship between national and European liberalizations has confirmed that liberalizations in telecommunications are linked across European countries, in such a way that each country reduces the intensity of its sectoral liberalization in telecommunications if the other nations are liberalizing relatively less. Thus, besides EC provisions, cross-relationships between European countries has emerged as one of the statistically relevant dimensions of telecommunications liberalization in Europe (Schneider 2001). Mutual adjustments, joint decision-making, and intergovernmental negotiations (Scharpf 1997), as well as a multilevel governance design of competition policies (Marks 1993; Marks et al. 1996), have acted as an alignment mechanism that prevents individual countries from the adoption of outlying patterns.

Fourth, finally, the same estimation analysis also showed that telecommunications liberalizations were not independent of the level of public ownership in the industry. More precisely, we have obtained from the estimation a positive and statistically significant parameter for the variable expressing the level of sector-relative privatization in telecommunications, suggesting that the intensity of liberalization measures is likely to increase when the level of private ownership in the industry is relatively higher. This latter result shows how policy makers avoid maintaining relevant legal barriers at the entrance of a largely privatized telecommunications industry.

## 4.4 Complementarities Between Liberalization and Regulatory Design

Liberalization does not lead to competition automatically. The mere abolishment of exclusive rights and formally allowing free entry to the market do not ensure per se effective entry of new competitors. The incumbent, especially if it holds a vertically integrated monopoly position, enjoys a first-mover advantage over the (potential) entrants' ability to compete and can consequently maintain its dominant position even after legal barriers to entry are eliminated. In this context, at least in the early stages of liberalization, regulation and ex ante intervention can play a major role in governing the transition to effective competition (Gual and Jodar-Rosell 2009). If the liberalization process follows a rapid and cumulative pace, then the presence of such complementary institutions might become crucial even to the success of the entire reforms course. This is the issue of institutional complementarities in path-dependent policy making: i.e., the economic implications of path dependence are most powerful not at the level of the individual policy but at a larger level involving complementary configurations of other policy options (Hall and Soskice 2001; Pierson 2000). The concept of institutional complementarities identifies the situation in which the presence of one policy raises the returns that can be obtained from the adoption of another (thus complementary) institution. While the notion of complementarity is generally used with reference to purely economic and productive activities [e.g., Milgrom and Roberts (1990)], its application to policy and institutional settings is now largely acknowledged (Aoki 2001; Amable 2000; Hall and Gingerich 2004). In simple words, the argument of institutional complementarities between formal entry barriers removal and national regulatory authorities (NRAs) in path-dependent telecommunications liberalizations goes as follows: the timely establishment of a regulatory authority is the first and most important condition for minimizing first-mover advantages of incumbents (Wallsten 2003; Estache et al. 2006); as a consequence, the delays of several countries in creating NRAs might explain why the progressive market liberalization has registered only a partial success, in terms of competition levels, and heterogeneous results across countries.

National regulatory agencies are one of the distinctive entities of what has been called the "regulatory state" (Majone 1997) or "regulatory capitalism" (Levi-Faur 2005a, 2006). They are governmental bodies with regulatory powers (and hence public authority), but they are neither elected nor directly managed by elected people. Regulatory authorities therefore constitute a new form of market governance and are a key tool for policy makers, being, however, at arm's length from the government (Verhoest et al. 2004). In the last two decades, NRAs for the telecommunications industry have rapidly taken place in Europe. The establishment of these independent authorities has been justified as a channel both for introducing technocratic Pareto-improving regulation (Majone 1994) and for prioritizing technical expertise in regulation policy (Bawn 1995). Their rapid spread has been then explained through institution diffusion mechanisms, in particular competition and

emulation of best practices across countries (Levi-Faur 2005b; Jordana et al. 2009), and through political uncertainty and credibility matters, i.e. policy makers tend to set up independent agencies when they fear being replaced by the elections and when they need to increase the credibility of their regulatory policies (Gilardi 2008). As Gilardi (2008) and Levi-Faur (2011) affirm, the rise of NRAs is a part of the agencification trend that characterized Europe and western countries during the 1990s.

NRAs can have a relevant impact on market structures. For example, Thatcher (1994) shows how the different institutional aspects of regulation between France and UK explain their differences in telecommunications' competition levels in the early 1990s. If NRAs can actually enable effective entry of new competitors to the market once legal barriers are abolished, we should observe that liberalization has a larger success when NRAs have already been created. To investigate this issue empirically means to estimate the joint effect of entry barriers removal and NRAs on market competition, i.e., to detect the (possible) presence of institutional complementarities between regulatory authorities and cumulative liberalization reforms.

Belloc et al. (2013) have also analyzed the complementarity relationship between liberalization and NRAs in the European telecommunications market. We have combined information on telecommunications liberalization and on the establishment of sectoral regulatory authorities and constructed an econometric model in which the annual variation in the telecommunications market structure is the dependent variable. In particular, we have measured the telecommunications' market structure through a composite index which expresses a weighted average of the market share of new entrants in the trunk telephony market, in the international telephony market, and in the mobile market (this index has been obtained by subtracting the OECD's indicator of incumbent's market share to its maximum value, then we have used the 1-year differences of this index as the dependent variable in the econometric model). As explanatory variables, we have considered an index of liberalization intensity and privatization intensity, a dummy variable recording the presence of an independent regulatory authority for the telecommunications market (NRA) and an interaction term between the liberalization intensity and the regulatory authority variable (also controls capturing the effect of the government's law-making capacity and political ideology, EU membership, and economic openness have been included).

The estimation results have suggested that, on the one hand, the intensity of sectoral liberalizations taken in isolation seems to have a positive but statistically insignificant effect on the 1-year variation of the telecommunications' market competition levels once the control for the presence of the regulatory authority (NRA) is included in the model and that, on the other hand, the presence of NRAs has a positive and statistically significant impact on competition improvements. Moreover, and more importantly, we have also found that the variable measuring complementarity effects between the intensity of sectoral liberalization and the presence of NRAs is associated with a positive and statistically significant parameter. These results unveil that, while sectoral liberalizations may play a positive

effect on the telecommunications market competition, such effect is likely to be very low if independent regulatory authorities are not established: i.e., liberalization reforms alone are not sufficient for having substantially liberalized markets. Rather, liberalization initiatives and the presence of regulatory authorities are in a complementarity relationship.

The reason why liberalization measures in the absence of NRAs are likely to be ineffective lies in the fact that new entrants need to access network infrastructures usually owned by the incumbents. Thus, without the adoption of regulatory requirements designed to prevent abuses by the incumbent, the mere removal of legal entry barriers might be of a limited efficacy. Such risk highlights how the core of NRAs' activity in the initial phase of liberalization should be to create the conditions for actual competition to exist by imposing obligations on incumbent network operators to provide interconnection to other operators in line with the principles of cost orientation, transparency, and nondiscrimination. This is what Prosser (1997) identifies as regulation for competition, according to which regulation should maximize competition levels by acting on the incumbent's market power. It follows that pro-competition rules set by NRAs in the early stages of liberalization need to be of an asymmetrical nature since they should tend to bear more heavily on specific (dominant) operators. This task of NRAs involves a wide range of interventions, such as fixing the conditions for interconnection between interdependent networks in order to allow users of one network to communicate with users of another network, the enforcement of accounting separation, financial transparency, and cost allocation principles in order to prevent cross-subsidization, number portability and dialing parity in order to facilitate the customers' leaving the incumbent for a new operator, or to set resolution procedures for disputes (Geradin 2000). The control of interconnection negotiations, in particular, is an important function of NRAs. In fact, as Kiessling and Blondeel (1998) explain, it is unrealistic to expect dominant operators to lead interconnection negotiations with a newcomer to a socially optimal outcome. The incumbent operator has the ability and the incentives to force the negotiations in its favor, thanks to better information and larger resources to lobby. The NRAs' activity therefore assumes a crucial role, setting *ex ante* the rules for such negotiations. NRAs can also require changes to be made in relation to a single interconnection agreement already concluded. Although, in the empirical study, we could not directly observe the data and the specific actions carried out by NRAs, the econometric analysis has suggested that regulatory authorities have actually played an active role, as their presence when liberalization initiatives are implemented is associated with a statistically significant level to effective improvements of market competition.

Besides unveiling the active role of NRAs in creating a competitive environment, these findings contribute to explain why the success of the liberalization process in telecommunications was only partial. While liberalizations proceeded with a path dependent and cumulative pace, this forcing the timing of the reforms adoption both within countries and at a European level, the establishment of national regulatory authorities was much more heterogeneous across European states. As we have discussed in the previous paragraph, pressures for removing

the market entry barriers grew rapidly in the 1980s, and already in the early 1990s liberalization initiatives were undertaken by a large number of European countries. Differently, NRAs were created later, in the period 1996–1998 (with few exceptions). This asynchronous adoption of liberalization reforms and regulatory authorities can be explained by the fact that in Europe the traditional control of monopolies by governments has restrained until recently the feeling that independent mechanisms of regulation could have been necessary (Geradin 2000). Moreover, the reorganization of the telecommunications industry was to a certain extent an experimentation process in which best institutional practices tended to be adopted at first by a few countries and in which such practices spread across jurisdictions only after they have proved to be successful in the first mover states (McCahery et al. 1996; Gual and Jodar-Rosell 2009). As a result, competitive market structures in European telecommunications emerged, on average, with a slower pace than that at which liberalization initiatives were implemented.

That NRAs exercised their tasks independently from business forces have been questioned by new entrants, since dominant telecommunications operators have the resources and the ability to exert undue influence on NRAs (European Commission 2000). These fears have also stimulated an empirical literature on agency independence [see, e.g., Hanretty and Koop (2011)], aimed at understanding whether the lack of independence could have undermined the efficacy of NRAs actions [see, among others, Bortolotti et al. (2013)]. It is noteworthy to observe that, even if in Belloc et al. (2013) we have looked at the establishment of regulatory authorities regardless of their substantial independence, it emerges empirically from the estimates that NRAs are anyway associated with a positive and statistically significant parameter both when taken in isolation and when considered jointly with the implementation of entry barriers removals. This further corroborates the actual relevance of NRAs and the existence of institutional complementarities between them and liberalization.

The process of change in European telecommunications is still in evolution, and the future development of the industry's structure and regulatory framework is still difficult to foresee. Thus, further empirical inquiries are certainly welcome. Future empirical research might consider studying the institutional complementarities between liberalizations and regulatory controls comparing regulation decentralization (through national authorities) and international coordination (through European networks). On the one hand, decentralization raises the costs for telecommunications operators wishing to enlarge their business at a European level because, for example, it might involve the multiplication of national procedures or might generate differences in the way NRAs implement EU directives. On the other hand, the establishment of European regulatory networks might lead to a capture of national regulatory agencies by the EC. Although it is relatively recent, the academic debate on the institutionalization of transnational regulatory governance in Europe is already lively and intense [see, e.g., Cassese (2005), Yesilkagit (2011), Maggetti and Gilardi (2011), and Levi-Faur (2011)]. At the same time, however, the impact of European regulatory networks and their interaction with national authorities on market dynamics is still unclear. In addition, competition authorities

emerge as a further key regulatory institution, in a context in which competition principles are also internalized by the regulatory framework (this is the essence of the regulatory shift of 2002). Institutional complementarities in telecommunications therefore assume a multi-institutional dimension that needs a deep and systematic exploration.

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# Chapter 5

## Political Market Design in Network Industries

**Abstract** This chapter focuses on the political determinants of liberalization and, particularly, on the debate raised by the empirical literature. We report updated data on market liberalizations and analyze countries' aggregate trends and sectoral patterns. In particular, we explore such heterogeneity in market liberalization patterns and analyze the role played by government ideology. We show that right-wing governments pushed for privatization policies more intensively than left-oriented ones, whereas left-wing governments favored liberalization over privatization. Thus, within the common *neoliberalism wave*, a partisan trade-off between privatization and liberalization seems to have characterized OECD countries' governance of network industries. We propose and discuss various interpretations of these findings, including the role of policy diffusion dynamics, swing voters signaling, possible policy reversal and institutional drivers effects, the role of public finance concerns, and the emergence of new political agendas.

### 5.1 Introduction

Politics and economic policies are interrelated spheres. For a large set of macro-economic policies—covering the regulation of monetary, fiscal, labor, and industrial institutions, among others—partisan differences in policy making are the norm rather than the exception in parliamentary democracies (Alesina and Tabellini 1988; Alesina and Rosenthal 1995; Roemer 2001), with the result that the economic performance of countries tends to be influenced also by partisanship effects rather than only by pure economic factors (Osterloh 2012). Following this “political economics” approach, a relatively recent strand of research has investigated the role of institutional and political determinants of deregulation policies, in addition to the more traditional analysis of the economic determinants.

In this chapter, we briefly review the available literature on the political determinants of deregulation policies, in particular distinguishing liberalizations and privatizations, and discuss to which extent this literature is able to explain observed patterns of deregulation of OECD network industries.

The political economy analysis of policy making is, in general, challenging for empirical scholars. This is particularly true for the case of network industries' restructuring, where complex issues regarding essential facility access, vertical separation, and industrial organization are shown to be interrelated with political intentions (typically redistributive) of governing parties. The analysis of such political determinants, therefore, needs an appropriate assessment of possible strategic interactions between competing parties in which inter-temporal strategies involving both liberalization and privatization measures shape the policy mix and intensity of liberalization initiatives. As we will discuss in this chapter, the standard political economy literature largely fails to properly measure these political complementarities and trade-offs and tends to propose results and predictions in contrast with the recent trends of market liberalizations.

This limit is due to several shortcomings of the above-mentioned literature, including the simplistic assumption that privatizations and liberalizations are to be interpreted as two independent and politically aligned policies (they are often conflated under a generic umbrella of "deregulation policies") and the adoption of single equation models that exclude possible policy interactions.

Liberalization and privatization policies, instead, are two distinct components of pro-market reform processes and are not substitutable issues. This is not only a matter of definition, as the two policies are likely to have different economic and political motivations and consequences. Indeed, while liberalization denotes the abatement of legal provisions impeding the free entry of new competitors into a market (as such, it does not directly involve corporate ownership changes), privatization implies State withdrawal from formerly State-owned companies and does not necessarily determine free entry by new private competitors into the market—in the extreme case of privatization without liberalization, privatization initiatives determine a simple direct shift from a public to a private monopoly. Possible interactions between the policy choices of a government are, therefore, crucial for a precise identification of the political determinants of deregulation patterns. Phrased differently, the economic effect of a policy intervention in the liberalization sphere is likely to depend on what a government is also doing in the privatization sphere and vice versa. In fact, on the one hand, entry barrier reductions before privatization may reduce the monopolistic rents of the incumbent company and thus lower the price at which the State will be able to sell its shares, while, on the other side, privatization before liberalization may increase the returns that the State can obtain from selling the shares of the company.

In the final part of this chapter, we will explain, by properly disentangling pro-market policies and by presenting very recent econometric evidence on the issue, that, within the common neoliberalism wave, a partisan trade-off between privatization and liberalization has characterized OECD network industries' restructuring, with left-wing governments favoring liberalizations and their right-wing counterparts favoring privatizations. This opens new questions and research areas in the political economy analysis of deregulation. First, the alleged primacy of right-wing governments in promoting market openness to competition is clearly to be challenged. Second, political economists should now also acknowledge that the

traditional ideological biases, commonly advocated by standard literature, have not been completely absorbed by converging policy diffusion processes. On the contrary, alternative pro-market paradigms, in which privatization and liberalization measures are combined to different extents, have emerged in OECD countries, driven by governments' political ideology. The main consequence of this new perspective is that the main conclusions reached thus far by the existing empirical literature should be overturned and the political and economic rationales behind liberalizations and privatizations deeply reconsidered.

## 5.2 The Traditional Political Economy Literature

The issue of how politically oriented governments should approach privatization and liberalization is controversial (Roland 2008; Stiglitz 2008). Both policies have consequences affecting consumers' welfare on the one side and the profits of the incumbents and new entrants on the other. As several political economy scholars outlined, therefore, the extent to which governments undertake liberalization and privatization initiatives should depend on the weight they assign to the various components (i.e., consumers, new entrants, and incumbents) of a social welfare function and on the combined economic effects of the two policies and of their sequencing (De Fraja 1991, 1994; Stiglitz 1999, 2008).

As for liberalization policy, in principle it should benefit consumers (mainly through prices reduction and product innovation) and new entrants (by reducing entry barriers in markets with monopoly profits). At the same time, the impact of liberalization on incumbents' profits and incentives to innovate is ambiguous. On the one hand, entry may reduce incumbents' incentives as a result of the new competitive pressure (Schumpeter 1942; Aghion et al. 2005) or even enhance them if the higher competition level entails an *X*-efficiency gain for the incumbent (Hart 1983; Nalebuff and Stiglitz 1983) or stronger incentives to innovate (Arrow 1962). Moreover, the final impact of liberalization—in terms of entrants' market shares, overall investments, retail prices, and innovation rates—depends also on the institutional design governing deregulation processes (Newbery 2002, 2004; Levy and Spiller 1996; Stiglitz 1999, 2008; Alesina et al. 2005; Armstrong and Sappington 2006).

The overall effect of privatizations is ambiguous as well. In principle, privatizations should reduce the managerial slack in the incumbent privatized firm, inducing an efficiency gain (Laffont and Tirole 1988; Vickers and Yarrow 1991; Bertero and Rondi 2002) and mitigating possible corruption of public officials (Berg et al. 2012). Within this literature, Bortolotti et al. (2013) show that how public managers run State-owned firms may also depend on the degree of independence of the existing regulatory authorities. At the same time, however, the impact of privatizations on consumers' and new entrants' welfare is unclear. Privatizations might increase consumers' welfare by fostering quality improvements. Nevertheless, privatizations might also increase final prices and/or reduce quantities

available to certain categories of consumers and increase barriers to entry (Stiglitz 2008). Indeed, new entrants might either enjoy profits or face losses depending on the reaction of the privatized incumbent in terms of restructuring and investments (De Fraja 1994). Finally, from the government point of view, although privatizations generate cash—through the sale of its shares in the privatized company—it remains unclear whether net gains occur. Indeed, the cash effect has to be balanced with the costs of regulation such as, for example, the costs of establishing antitrust authorities and regulatory agencies in general (Roland 2008).

Despite the mixed predictions on liberalization and privatization policies' effects, the standard political economy literature largely converges on the idea that both policies are crucially favored by a right-wing ideology. In particular, right-wing executives tend to promote market-oriented policies in order to satisfy the preferences of their political constituents (Alesina and Tabellini 1988; Alesina and Rosenthal 1995; Roemer 2001). By the same token, Biais and Perotti (2002) formulate a theory of partisan privatization choice within the framework of the median voter problem, whereby privatization by right-wing party acts as a way of co-opting an otherwise left-leaning middle-class voter. Their results claim that only right-wing parties (typically oriented towards lower spending, balanced budget, lower inflation, and a reduced presence of the state in the economy) can commit to credible privatization, since left-wing parties (traditionally focused on policies increasing government spending and public ownership) are constantly tempted to ex post hold-up shareholders' gains through a redistribution of rents towards their own constituents. According to this literature, we should expect more privatization to be brought about by right-wing governments than by left-wing ones. However, this conjecture on the political determinants of privatization does not allow, per se, to draw the same conclusions about liberalization policy. Indeed, this literature has largely neglected to investigate the political determinants of stand-alone liberalization policy. Typically, it is assumed that the political rationale for liberalization initiatives rests on the same premise of privatization. Nonetheless, as long as an economic trade-off may occur between the two policies (De Fraja 1991, 1994; Stiglitz 1999, 2008) this assumption is weakly grounded: if liberalization policy squeezes the rents associated with privatization, would a pro-privatization right-wing government implement both policies at once?

Empirical research on the political economy of deregulation policies has so far failed to provide convincing answers to the above question, generally supporting conventional wisdom.

As for privatization, Arin and Ulubasoglu (2009) performed a panel analysis on time-series data from a sample of Turkish cement firms over the 1984–1999 period and found that right-wing executives are more likely to undertake privatization initiatives with respect to left-wing ones. Similarly, Bortolotti and Pinotti (2008) carried out a cross-country study on OECD countries over the period 1977–2002, covering privatizations in the whole national economies, which shows a tendency in left-wing executives to delay the launch of privatization programs. These findings are confirmed by several analyses showing that many privatization programs encountered dissatisfaction and opposition among citizens and policymakers

where transactions have been corruptly handled and where privatizations have had a negative impact on consumers' welfare (e.g., Kikeri and Nellis 2004). Other scholars have investigated to which extent ideology determines the design and implementation of privatization programs (Appel 2000), outlining how right-wing officeholders with reelection concerns design privatization to spread share ownership among domestic voters. Belloc and Nicita (2012) have performed an econometric analysis explicitly considering neglected factors such as the entry barrier levels and the public finance structure. They found out that privatization choices in OECD network industries are determined by right-wing ideology.

As for liberalization, the empirical evidence seems to reach similar conclusions. Duso (2002) studied entry liberalization in the telecommunications industry in the period 1991–1997 and found that left-wing governments liberalize less than right-wing governments. Corroborating evidence is provided by Pitlik (2007), who performed a cross-country analysis over the period 1970–2000. Using an index of market-friendliness of national policies, he found out that left-wing executives are less favorable to liberalization policies. An additional analysis on the effects of governments' programmatic position and composition on liberalization is provided by Duso and Seldeslachts (2010). Potrafke (2010) analyzed 21 OECD countries over the period 1980–2003 and estimated the impact of government ideology on both privatization and liberalization of network industries considered as two independent and aligned items of deregulation programs. He performed an equation-by-equation estimation and suggested that, again, right-wing governments are more likely associated with both privatization and liberalization initiatives.

### 5.3 ... and Its Limits

If this literature is correct, we should then observe both policies being systematically adopted by right-wing executives. Surprisingly, instead, well-known patterns in the adoption of liberalization and privatization policies in OECD network industries challenge this conventional wisdom.

In particular, the above-mentioned econometric results contrast with some anecdotal and stylized facts suggesting a relevant role for left-wing governments, at least in Europe and in the USA, in adopting liberalization over the last two decades.

For instance, in France, the Socialists have approved an unbundling decree for the telecommunications sector in 2000 that mandated France Telecom to provide both raw copper unbundling and shared access to its loops. Similarly, in Italy, the Center-Left Ulivo alliance has started, in 1997, with Law No. 249/97, the liberalization of satellite services and the voice telephony market. An analogous experience is that of Germany, where legal entry barriers to the telecommunications market started to be significantly reduced by the left-wing SPD with the approval of the new Telecommunications Act in 2003. It is also worth remembering the experience of the Danish communications sector. In 1999, the Danish Social

Democrats approved an agreement that enabled the establishment of alternative infrastructures in the access network through the public tendering of frequency resources in order to enhance competition in the telecommunications market.

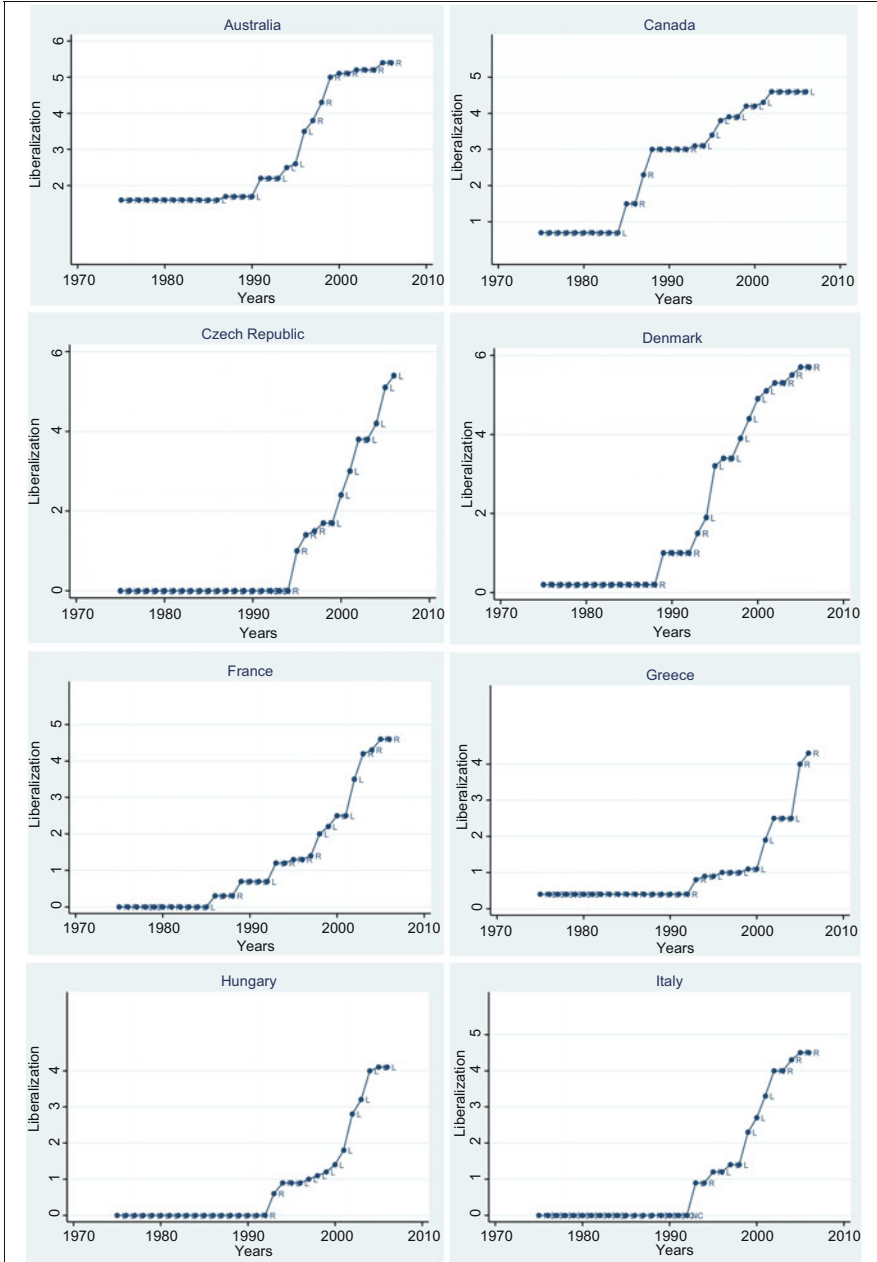
Also in the electricity sector, left-wing executives have implemented significant pro-competitive policies. These interventions date back to the 1978, when, in the USA, the Public Utility Regulatory Policies Act (PURPA) was approved by the Democrats (along with the Airline Deregulation Act) in order to encourage decentralized energy production. In Japan, in 1995, the first left-wing government since 1975 (led by the Social-Democratic Party—SDPJ) approved the Amendment to the Electricity Utility Law and thus introduced a system of competitive tendering in the wholesale electricity market. In Spain, the Electricity Act was promoted by the Socialist Party—the PSOE—in 1994, creating the Independent System and setting up competition for the access to electricity networks. Similarly, in Denmark, the Social Democrat-led parliament issued the Amendment to the Danish Electricity Supply Act, in 1996, in order to allow private companies and distribution companies of sufficient size to buy power from third parties. In Italy, in 1999, the Bersani Decree (Decree 79/99), issued by a Center-Left coalition, introduced liberalization of the electricity sector and the establishment of a sectoral Regulatory Authority. Finally, in France, under the Socialists, the National Assembly enacted the Law No. 2000-108 concerning the access of new entrants to both distribution and transmission networks.

Besides the mentioned experiences of launching liberalization in the telecommunications and electricity sectors, left-wing executives have been active—although to differing extents—also in other industries, such as gas, rail, road, and air transport. In Fig. 5.1, we show the pattern of legal entry barriers abatement, calculated as an average for seven network industries (railways, road, air transport, postal services, telecommunications, gas, and electricity) in a group of OECD countries. In the figure, we also indicate the government in office at the time of each policy intervention. It is easy to notice how the relatively more significant liberalization measures (in terms of intensity) have been adopted by left-wing governments.

The activism of left-wing governments in pushing for liberalizations has been in fact so intense that political scientists have recently coined the term “second-wave neoliberalism” to indicate this pattern of left-wing driven liberalization reform process, as opposed to the first wave of pro-market restructuring launched by Margaret Thatcher and Ronald Reagan (Roy et al. 2006).

In the intentions of its proponents, this left-wing second-wave neoliberalism, started at the beginning of the 1990s, was conducted mainly with the purpose of strengthening social solidarity without renouncing to the neoliberal ideal of market-based entrepreneurship (Steger and Roy 2010). This principle has been rapidly embraced by the new left-center agenda of the most influential social-democratic European parties, such as the German Chancellor Gerard Schröder, the Italian Prime Ministers Massimo D’Alema and Romano Prodi, and the French Prime Ministers Pierre Bérégovoy and Lionel Jospin. As the OECD data collected by Conway and





**Fig. 5.1** Performance of left-wing governments on liberalization policy for seven network industries: *L* left wing, *R* right wing, *NC* nonclassified [elaboration from OECD (2009) and World Bank (2010); *Source*: Belloc and Nicita (2011)]

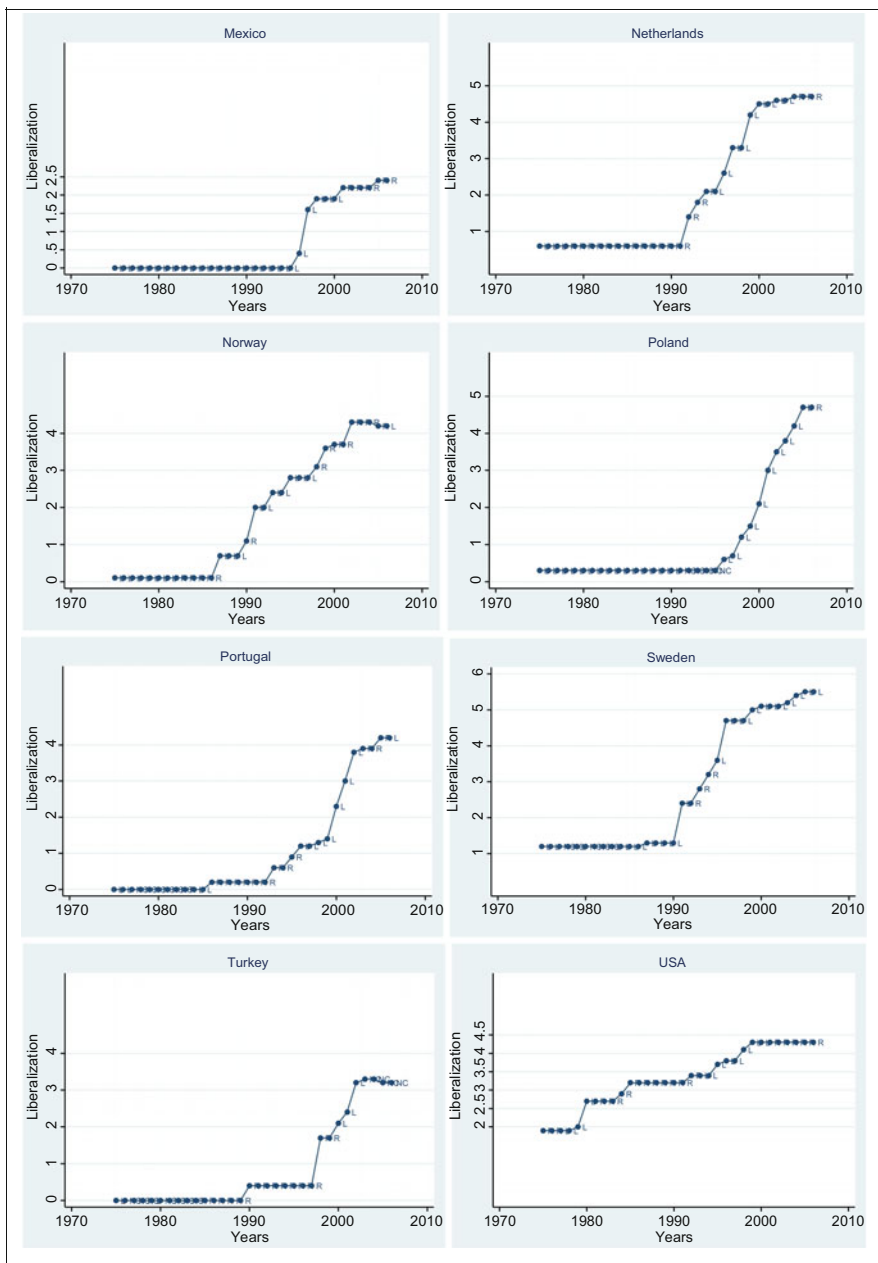


Fig. 5.1 (continued)

Nicoletti (2006) show, many liberalization initiatives in OECD network industries have been undertaken precisely in those years and are the main result of the new policy agenda of this center-left neoliberalism process.

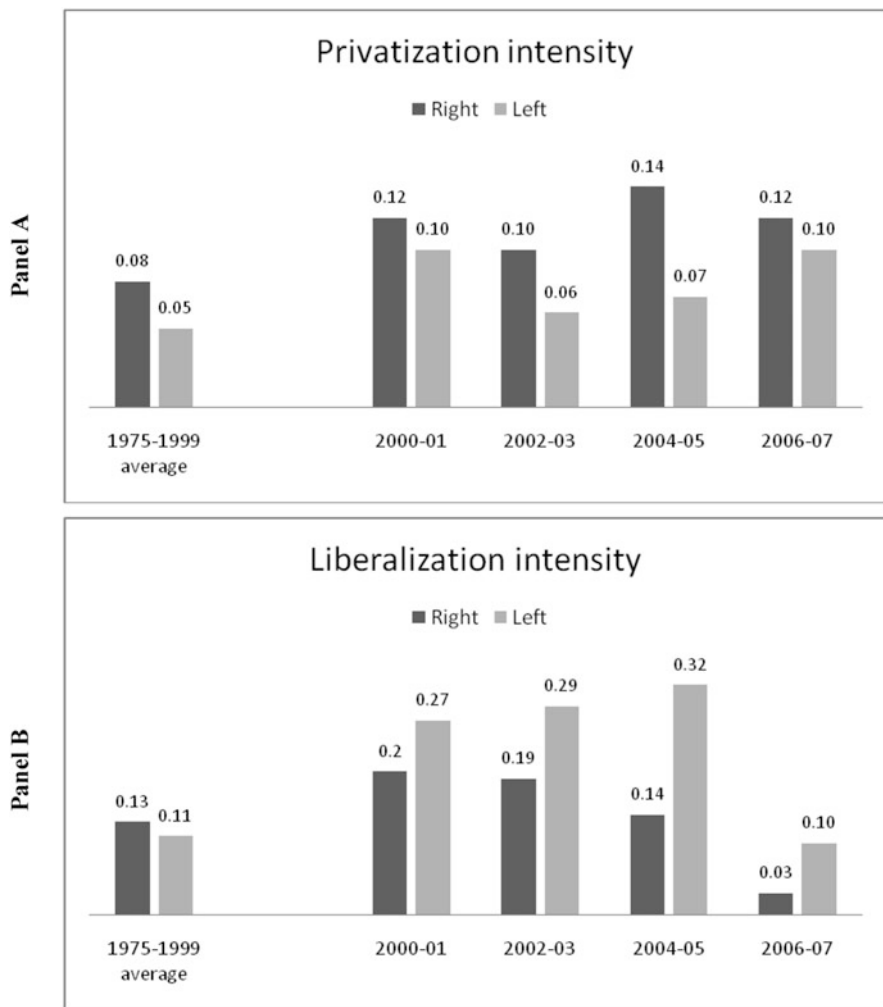
Now, if we look into the actual patterns of deregulation policies as they have been adopted by OECD governments over the last 30 years, properly disentangling liberalizations and privatizations and distinguishing governments on the basis of their political platforms, the emerging descriptive evidence seems to contrast with the standard empirical political economy literature, while it corroborates the stylized facts mentioned above. In Fig. 5.2, we show the intensity of liberalization and privatization reforms adopted in OECD network industries under governments of different political colors. The figure unveils the existence of an unexpected political trade-off: on the one hand, right-oriented governments undoubtedly pushed towards privatization policies more intensively than left-oriented ones; on the other hand, left-oriented governments pushed towards liberalization policies more intensively than right-oriented ones, especially after 2000.

Two conclusions can be inferred from the trend outlined in Fig. 5.2.

First, it appears that right-wing governments do not embrace the entire spectrum of deregulation policies at once; rather, they show a preference for privatization over liberalization. This implies, moreover, that right-wing privatization processes eventually occur in monopolistic markets. The main consequence of this is that monopolistic rents are maintained and simply transferred from the public to the private firm. Such a political decision satisfies shareholders and maybe taxpayers (Biais and Perotti 2002) but not necessarily final consumers, and, more generally, it does not set the conditions allowing for market competition (Stiglitz 2008). Market competition, by allowing the presence of more players on the market, would squeeze privatization rents. This opposite redistributive outcome would thus suggest that right-wing parties may consider liberalization policy as a substitute rather than a complement to privatization.

Secondly, Fig. 5.2 shows that left-wing executives are not, as generally argued, inherently biased against any pro-market policy. Rather, they selectively encourage those initiatives which couple market openness with State control, as in the case of liberalization without privatization. This pattern implies that the national champions will challenge competitors' entry into the market and that the short-run benefits of competitive pressure will have, comparatively, a stronger impact on low-income consumers.

In both cases, these two opposite political strategies (say, privatization without liberalization and liberalization without privatization) are adopted by governments depending on the kind of voters that supported their election, as they selectively distribute the policy benefits to their relative political constituents. In both cases, it is hardly possible that policy benefits will spread to the society as a whole. Moreover, if these deductions were empirically confirmed, they would make the case for the existence of a dramatic gap in the political economy research agenda. In this respect, political parties would appear to behave in a rather different way than the one typically assumed so far by economists and even by political scientists. In particular, their behavior would respond to the systematic—and so far neglected—political trade-off existing between the two pillars of market-oriented policies: liberalization and privatization. This political trade-off, in its turn, would imply that ideology does not affect anymore the traditional cleavage between the market



**Fig. 5.2** Privatization and liberalization intensity averaged over six network industries and 30 OECD countries for right-wing and left-wing governments [*Source*: elaboration from OECD (2009) and World Bank (2010)]. *Note*: privatization was measured by subtracting the OECD’s (2009) indicator of public ownership from its maximum value (the index ranges from 0 to 6); the privatization initiatives’ intensity (panel A) was then calculated by examining the variations of the privatization index over 2 year periods starting from the year 2000; by the same token, liberalization was measured by subtracting the OECD’s (2009) indicator of entry barriers from its maximum value (the index ranges from 0 to 6); the liberalization initiatives’ intensity (panel B) was then calculated by examining the variations of the liberalization index over 2 year periods starting from the year 2000. On the right side of the graph, in both panels, the average privatization and liberalization intensities as calculated for the time span 1975–1999 are displayed

and the State. Rather, it influences the way in which political parties combine their pro-market policies with the surrounding institutional environment, according to the political preferences of their constituents.

Thus, the relevant question here is: why the standard empirical political economy literature has failed to properly measure and estimate this political trade-off between liberalizations and privatizations?

The idea we put forward is that the traditional empirical political economy literature does not properly account for the simultaneous determination of liberalizations and privatizations by governments and for the different preferences that executives of different political orientations may have with respect to the joint effects of the two policies.

The basic assumption underlying the above-mentioned empirical literature, indeed, is that privatizations and liberalizations should be interpreted as two independent but politically aligned policies. As a consequence, existing empirical studies estimate the political determinants of deregulation only through one-equation models in which privatizations and liberalizations are considered separately in unrelated regression equations.

More specifically, these empirical findings are ill-fitting for other theories, purporting distinct rationales and alternative outcomes for, respectively, liberalization and privatization initiatives, suggesting the existence of an economic trade-off between the two policies (De Fraja 1991, 1994; Newbery 2002, 2004; Levy and Spiller 1996; Stiglitz 1999, 2008; Armstrong and Sappington 2006). Several scholars have analyzed the above-mentioned economic trade-off between the two policies in relation to their speed, timing, and sequencing (Roland 1994, 2008; Fink et al. 2002; Wallsten 2001, 2002; Li and Xu 2004). The relation of mutual influence existing among market-oriented policies is discussed, among others, by Harrington (1993), Martinelli and Tommasi (1997), and Cukierman and Tommasi (1998). De Fraja (1991, 1994), in particular, maintained that privatization and liberalization initiatives tend to influence each other and that liberalization may enhance efficiency as well, since competitors' pressure shapes the efficiency gains that a government can expect from privatization. Typically, entry barriers abatement before privatization reduces (or even eliminates) the monopolistic rents of the incumbent and lowers the price at which the State will be able to sell its shares of the company; vice versa, State withdrawing from ownership before liberalization increases the returns that the State can obtain from privatization but also guarantees monopolistic profits to the privatized incumbent until entry barriers are in place. The consequence is that the decisions to adopt, respectively, liberalization and privatization measures are likely to be simultaneously determined by governments and cannot be treated as independent items in econometric modeling.

The existing empirical political economy literature limits its analysis to separate pieces of deregulation policies and tends to neglect the simultaneous occurrence of privatizations and liberalizations, which some theoretical studies deem instead to be crucial.

We thus believe that a proper analysis of the political determinants of liberalization cannot ignore the fact that the extent to which liberalization policies are

implemented by a government is crucially dependent on the privatization initiatives that the same executive intends to adopt. The effects of the two policies, indeed, are likely to be interrelated, i.e., the economic effects of liberalization are not independent from the level of privatization in the market and vice versa, as suggested by De Fraja (1991, 1994), Roland (1994, 2008), Wallsten (2001, 2002), Li and Xu (2004), and Armstrong and Sappington (2006).

Such problem requires a more thoughtful econometric analysis of the political determinants of deregulation, allowing for the possibility that privatization and liberalization policies are simultaneously adopted by governments.

## 5.4 Estimating the Political Trade-Offs Behind Privatization and Liberalization Policies

To estimate the political determinants of liberalization and privatization choices in a simultaneous policy-making setting is a challenging issue for econometric scholars. In a recent paper (Belloc et al. 2014), we have explained why there are several empirical problems that need to be taken into account.

### 5.4.1 *Simultaneity*

Liberalization and privatization initiatives are likely to be considered simultaneously by executives. From an econometric point of view, this simultaneity problem requires an estimation model in which two regression equations are specified: one equation explaining privatization interventions and one equation explaining liberalization interventions, where both include the political orientation of the government as the main explanatory variable. The two-equation model, moreover, should allow the residuals of the equations to be correlated. This is a crucial point, as the correlation between the equations' disturbances should reflect the presence of some unquantifiable factors responsible for the simultaneous determination of privatization and liberalization measures. A proper estimation strategy should, therefore, consider a Seemingly Unrelated Regression (SUR) technique (see Zellner 1962), where two (apparently unrelated) equations can be estimated simultaneously while accounting for correlated residuals. A SUR model is a generalization of a linear regression model—generally estimated through a feasible generalized least squares—consisting of multiple regression equations, where each of the equation has its own dependent variable and a set of regressors. The basic idea of a SUR model is that the error terms have some cross-equation contemporaneous correlation, which is the case of simultaneous liberalization and privatization modeling.

### 5.4.2 *Cross-Effects*

Another issue involves the extent to which State withdrawal in a sector may affect the intensity of future sectoral liberalization and, vice versa, the extent to which the level of barriers to entry into a market may affect the intensity of privatization policy interventions (notice that whether these effects are positive or negative is an empirical question). In other terms, there may be not only correlation between the intensity of liberalizations and privatizations (i.e., the simultaneity problem) but also correlation between the overall level of privatization (i.e., the sum of past privatization initiatives) and the intensity of a certain liberalization measure and between the overall level of liberalization (i.e., the sum of past liberalization initiatives) and the intensity of a certain privatization measure. These possible causal channels may generate cross-effects between the intensity of liberalization and privatization measures that must be explicitly modeled in a regression analysis in order to avoid omitted variable bias and misspecification problems. Econometric theory would suggest vector autoregressive models (VARs) as a standard strategy of empirically analyzing cross-effects. However, VARs cannot be employed where the cross-section dimension is relatively large in the panel structure with respect to the time coverage. This is indeed the case for available databases on network industries' deregulation, where at most 30 countries and six sectors are available over a period ranging from 1975 to 2007 (with data on a yearly basis). Cross-effects between policies should thus be accounted for by constructing variables measuring the absolute level of sectoral liberalization and privatization to be used as additional explanatory variables in the policies' intensity regression equations. This in its turn requires meeting identification requirements by using different sets of regressors in the two equations.

### 5.4.3 *Delayed Effects*

Policy modeling also requires accounting for possible lagged effects. Typically, policy decisions take time to be implemented, and once adopted, they may affect other economic or institutional variables. Thus, estimating the effect of the ideology of a government in office in a certain year on policy outcomes measured in the same year may induce to wrongly attribute the promotion of a certain (relatively long) policy process to a newly elected executive (not responsible for that policy action). This may cause endogeneity or reverse causality in the estimation. This problem needs to be circumvented by regressing liberalization intensity and privatization intensity variables on lagged regressors and by controlling for the intensity of past liberalization and privatization measures adopted by previous governments.

### 5.4.4 *Alternative Causality Channels*

Finally, a robust estimation of the political determinants of liberalization and privatization should test whether possible alternative causality channels may explain the observed deregulation patterns making the political effects statistically irrelevant.

Alternative causality channels include two main aspects: government heterogeneity and political stability effects and institutional and economic integration dynamics.

#### 5.4.4.1 **Government Heterogeneity and Political Stability Effects**

Left-wing and right-wing governments may have different abilities to obtain stable electoral mandates and may, therefore, show executives characterized by different heterogeneities (i.e., different political concentration in government composition) and different capabilities to remain in office. To the extent that these governments' features influence executives' decision-making power, certain policy choices may be only apparently due to ideology while they should instead be attributed to the executive institutional capacity.

The effect of political stability on economic policy, in particular, is an issue largely acknowledged by empirical political economy scholars, and it has been identified in several spheres of macroeconomic policies. For instance, Roe and Siegel (2011) have showed that political stability is likely to affect financial market development, while Alesina et al. (2006) observed that the number of years left in a government's current term of office might increase the likelihood of fiscal adjustments and interventions of budget deficit reductions. Similarly, Fredriksson and Svensson (2003) found that political instability may induce suboptimal governmental interventions in environmental policy regulation, and Chang and Berdiev (2011) reported corroborating results for energy regulation (specifically, they found that the number of years the executive has been in office positively influences pro-market regulatory policies). As Spiller (1996) has explained with reference to the utility sector, regulatory policies may be influenced by a government's expected stability because this influences the concerns for meeting the needs of key constituencies and for achieving reelection.

Because the average stability of left-wing and right-wing governments may be different, a refined estimation should control for both political heterogeneity of governments and for their stability (as measured, e.g., by indicators of whether the party of the executive has an absolute majority in the houses that have law-making powers or by variables indicating the number of years the chief executive has been in office and the number of years left in the chief executive's current term of office). Also proxies for electoral competitiveness may be useful controls in this estimation setting.



### 5.4.4.2 Institutional and Economic Integration Dynamics

A second driver potentially correlated with political orientation of governments is the partial convergence of market restructuring policies due to the foundation of the European Union and the alignment to the neoliberal ideal of free market under the political and economic globalization dynamics. The relevance of institutional integration effects relates to the phenomenon called “policy diffusion,” according to which policy clustering among political and economic partner countries tends to play a role in Western market reforms limiting the autonomous policy-making process at a national level.

The literature on policy diffusion in globalized markets emphasizes how domestic policy choices may be shaped by the transnational propagation of public policies. Simmons and Elkins (2004), in particular, define policy diffusion as the influence that a policy decision adopted by some countries tends to have on the choices made by neighboring countries. Policy diffusion may be a result of the action of supranational institutional drivers (e.g., economic and institutional integration such as joining the European Union may foster policy convergence among member countries), of policy competition (according to which a domestic policy reduces the benefits of the identical policy adoption for others and increases the relative payoff of the first mover), and of learning effects (governments may follow the successful policy strategies previously adopted by partner neighboring countries). Several authors have presented empirical evidence corroborating the effect of policy diffusion on the pro-market choices adopted by OECD governments: see, among others, Simmons and Elkins (2004), Dang et al. (2006), Pitlik (2007), and Chang and Berdiev (2011). Clifton et al. (2006), in particular, argued that the European integration has been one of the main drivers of privatizations in EU member states. EU membership may be relevant in the analysis of OECD liberalization and privatization policies as a large number of OECD countries are indeed members of the European Union.

From an empirical point of view, a proper modeling of the political determinants of deregulation policies should therefore control for EU membership and for the propagation of liberalizations and privatizations across institutionally integrated countries (by means of variables measuring the level of State ownership and of entry barriers to markets averaged over EU members). A more general index of the degree of political and economic globalization at a country level should be also included.

### 5.4.5 *New (and Robust) Empirical Evidence*

A recent work (Belloc et al. 2014) analyzed the political determinants of liberalizations and privatizations addressing all these econometric concerns.

**Table 5.1** Political determinants of privatization and liberalization intensity. Synthesis of results from Belloc et al. (2014)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Eq. 1	Eq. 2	Eq. 1	Eq. 2	Eq. 1	Eq. 2	Eq. 1	Eq. 2	Eq. 1	Eq. 2
<i>LEFT-WING EXECUTIVES</i>	0.010	0.073***	0.015	0.051 **	0.018	0.048*	0.012	0.067***	0.014	0.050**
<i>RIGHT-WING EXECUTIVES</i>	0.035**	0.017	0.034**	0.001	0.039**	0.000	0.042**	0.037	0.045***	0.033
<i>I-LAG DEP. VARIABLE</i>	0.072***	0.071***	0.070***	0.069 ***	0.072***	0.069***	0.065***	0.074***	0.065***	0.080***
<i>STATE OWNER-SHIP LEVEL</i>	-0.028***	0.017***	-0.026***	0.013***	-0.026***	0.013***	-0.029***	0.016***	-0.031***	0.012**
<i>ENTRY BARRIERS LEVEL</i>	0.023***	-0.031***	0.021 ***	-0.026***	0.020***	-0.026***	0.006*	-0.082***	0.006	-0.087***
<i>GOV HETEROGENEITY</i>	-0.022	-0.018					-0.014	0.002	-0.024	-0.057
<i>GOV HERFINDAHL</i>	0.052	-0.333***					0.126	-0.112	0.152*	-0.022
<i>EURO ADOPTION</i>	-0.030	0.080**								
<i>MAJORITY IN HOUSES</i>			0.022	-0.016						
<i>YEARS IN OFFICE</i>			0.005**	0.001						
<i>YEARS LEFT</i>			0.008*	-0.006						
<i>ELECTORAL COMPETITION</i>					0.014	0.040**				
<i>EU PRIVATIZATION LEVEL</i>							0.047***		0.050***	
<i>EU LIBERALIZATION LEVEL</i>								0.070***		0.077***



To perform the empirical analysis, we have collected data from various sources. In particular, as the dependent variables of our econometric study, we considered an index of the intensity of liberalization interventions on a 1-year basis (which we call the *LIBERALIZATION INTENSITY INDEX* in our empirical analysis) and an index of the intensity of privatization interventions on a 1-year basis (which we call the *PRIVATIZATION INTENSITY INDEX*). These indexes are constructed by using the OECD's 2009 indicators of entry barriers and of public ownership based on the "OECD Regulatory Indicators Questionnaire." Such questionnaires collect information on the ranking of explicit policy settings and measure entry barriers and public ownership levels by seven sectoral indicators (covering passenger air transport, telecommunications, gas, post, rail, electricity, and road). The sectoral indicators measure, for each country and sector, the extent of public ownership in the operating companies and the strictness of the legal conditions of entry. Specifically, we measured liberalization policy by subtracting the OECD entry barriers index from its maximum value (we call this variable *ENTRY BARRIERS LEVEL*: a higher value of *ENTRY BARRIERS LEVEL* indicates lower levels of entry barriers) and then calculated the intensity of liberalization measures (i.e., the *LIBERALIZATION INTENSITY INDEX*) by looking at the 1-year differences of *ENTRY BARRIERS LEVEL*. On the other side, we measured privatization policy by subtracting the OECD public ownership index from its maximum value (we call this variable *STATE OWNERSHIP LEVEL*: again, a higher value of this variable indicates lower levels of State ownership) and then calculated the intensity of privatization interventions (i.e., the *PRIVATIZATION INTENSITY INDEX*) by looking at the 1-year differences of the *STATE OWNERSHIP LEVEL* variable. To make the interpretation of these variables clearer, let us specify that the liberalization index includes aspects such as the percentage of the retail market open to consumer choice and the legal conditions of entry into the market among other aspects that may vary across sectors, while the privatization variable is mainly based on the percentage of shares in the incumbent firms owned by the government at the various levels of the vertical structure of the industry with different weights for different sectors. Note that the original dataset provided by the OECD in 2009 does not contain information on public ownership for the road industry. In the empirical study, thus, we did not consider this sector and limited our analysis to the other six sectors (passenger air transport, telecommunications, electricity, gas, post, and rail).

To measure governments' political orientation, in Belloc et al. (2014), we have used data provided by the Database of Political Institutions (DPI) of the World Bank (2010). Such information has often been used in cross-country quantitative studies on the political determinants of economic policies (see, e.g., Dutt and Mitra 2005; Krause and Méndez 2005; and Giuliano and Scalise 2009). Elaborating on the coding provided by the DPI, we have constructed three dummy variables—which we call *RIGHTWING EXECUTIVES*, *LEFTWING EXECUTIVES*, and *CENTER EXECUTIVES* in the empirical analysis—that equal 1 if the government party is defined as conservative, Christian-democratic, or right-wing; it is defined as socialist, social-democratic, communist, or left-wing; or it is defined as centrist or does

not fit into the two previously mentioned categories (this last dummy acts as the benchmark dummy in the regression).

In the end, the sample used is the largest possible data availability (30 countries), and the time period considered covers the entire wave of pro-market reforms observed in Western countries in the last three decades up to 2007, whereas previous analyses focused on a smaller number of countries and on a shorter time period.

As for the regression model, we have estimated two equations (one explaining privatization interventions and the other explaining liberalization interventions) using the SUR technique and included control variables accounting for cross-effects between liberalization and privatization, lagged effects, the effective law-making power of the government (i.e., the executive's capacity to implement economic policies), and proxies for institutional and economic integration dynamics.

The econometric results obtained in Belloc et al. (2014) can be summarized in Table 5.1.

As it is shown in Table 5.1, the econometric analysis reveals that left-wing governments are associated with a positive parameter in the liberalization intensity equation and to a statistically insignificant parameter in the privatization equation, whereas the estimated parameter for right-wing governments is positive and statistically significant in the privatization equation and not statistically significant in the liberalization equation. A test for the parameters' difference [see Belloc et al. (2014) for details] shows, moreover, that the coefficients of government political orientation are significantly different in the two equations. Thus, this estimation unveils a "political trade-off" according to which left-wing governments are shown to implement liberalization policies with a greater intensity than right-wing governments, and right-wing governments tend to adopt more intense privatization measures with respect to left-wing executives.

The estimation results also show statistical significant evidence of the presence of cross-effects between liberalization and privatization policies, i.e., the level of State ownership and entry barriers to market that executives find in place in a given year are relevant to policy choices in the subsequent years. In particular, a low level of State ownership in the sector does stimulate further liberalization initiatives and less intense privatization initiatives in the identical sector, whereas in a similar manner, a low level of sectoral entry barriers does foster subsequent privatization and discourages additional liberalization.

Interestingly enough, finally, all the policy diffusion indicators' results are associated with statistically significant parameter, thus corroborating the hypothesis of possible policy competition and learning effects (as discussed by Simmons and Elkins 2004). Nonetheless, the statistically significant relevance of policy diffusion does not affect our main findings on the political determinants of privatization and liberalization (the estimated parameters for right-wing and left-wing governments in the privatization and liberalization equation, respectively, remain indeed positive and statistically significant also once these additional controls are included).

## 5.5 Interpreting the Political Trade-Offs Behind Privatization and Liberalization Policies

The econometric findings reported above reveal that, even within a common shift towards pro-market reforms at the global level, ideology still plays a significant role in shaping policy strategies of governments. In particular, the traditional view of left-wing governments hindering competition, while right-wing executives promote market restructuring, seems inconsistent with available data on the actual patterns of liberalization and privatization processes.

As explained in Belloc and Nicita (2015), these results should stimulate reconsideration of the political and economic rationale behind privatization and liberalization with respect to the way in which they have been so far represented in the public and academic debate. We next recall some alternative (or complementary) arguments explaining the observed politically biased patterns of privatization and liberalization. We then propose some possible lines for future research on the issue.

### 5.5.1 “Policy Reversal” Strategies

A first possible rationale behind the observed correlation between left-wing and right-wing executives with, respectively, liberalizations and privatizations refers to what may be defined a “policy reversal” strategy by competing parties. While, on the one hand, right-wing parties tend to be anchored to their traditional market-based policy frameworks (mainly centered on a reduction of State burden and economic involvement in the economy), left-wing executives may show an apparent favor for liberalization options in order to improve their credibility to the public opinion and other institutions. The idea here is that to announce and to implement market-oriented policies distant from standard left-wing political agendas may increase the overall confidence of voters on the reliability of the government’s intentions (Cukierman and Tommasi 1998). The basis of this argument is the assumption that executives may find it difficult to make credible announcements to their voters in the presence of asymmetric information between governing parties (which have private information not only on the state of the economy but also on their capability to undertake specific policies) and citizens (who typically do not have full access to the specific intentions of political leaders and on the economic and political constraints they face). In this view, a policy switch from original left-wing policy options to relatively market-oriented solutions may turn out to be strategically optimal for center-left executives, to the extent that it improves their credibility in the national (or international) political arena. While this argument may contribute to improve our understanding of some past policy initiatives by left-wing governments, it seems, however, insufficient to properly describe liberalization and privatization initiatives, as similar policy reversals have not been observed

for right-wing parties that tend to remain strongly anchored to their traditional policy platforms.

### ***5.5.2 Policy Diffusion Effects***

A second possible explanation refers to policy diffusion processes. This is a more intuitive argument deriving from the idea that institutional convergence in market reform processes plays a significant role in globalized economies. Transnational propagation of public policies is indeed one of the most evident characteristics of economic and institutional integration of countries, and it has been observed in many domains of State intervention [see Simmons and Elkins (2004)]. Different drivers may stimulate policy diffusion. In particular, the literature focuses on policy learning (which refers to the imitation behavior of governments that tend to follow successful policy strategies previously adopted by their economic or institutional partners) and on supranational institutional channels (as those emerging with institutional integration of countries, like the establishment of European Union, or with the improvement of political affinity between partner economies). According to this argument, parties adhering to the same political platform may tend to follow similar policy strategies when they obtain governing powers through an imitation process in which followers try to transplant in their own country deregulation strategies previously adopted by a partner-leader. This, in turn, is likely to generate some sort of path dependency, with left-wing governments favoring liberalization (following the neoliberalism way launched by the UK Prime Minister Blair and the US President Clinton) and right-wing parties pushing for privatization (in the spirit of the Thatcherism and Reaganomics). Policy diffusion forces have certainly played a role in the deregulation patterns observed in Western countries. Nonetheless, available econometric studies also reveal that the statistical significance of policy diffusion mechanisms is insufficient to completely explain the correlation between the political orientation of governments and the privatization–liberalization mix emerged in OECD economies Belloc et al. (2014). Thus, policy diffusion alone cannot be considered a fully convincing explanation of why left-wing governments tended to drive liberalizations in network industries with respect to competing right-wing executives apparently concerned with only privatization.

### ***5.5.3 Policy Complementarities***

A third interpretation is based on the argument of possible complementarities between liberalization and privatization, on the one side, and related policies the executive may want to implement, on the other. For example, privatization might be considered by right-wing governments as a necessary step for reducing the State's

size and cutting taxes, while liberalizations may be perceived by left-wing parties as necessary for allowing redistributive interventions or other market-oriented initiatives that the government in office may need to implement. Specifically, when left-wing governments are forced to push on State withdrawal from incumbents' ownership and on privatization in response to efficiency concerns, then entry barriers removal may be perceived by left-wing parties as a prerequisite to avoid a simple shift from a public to a private monopoly. Related literature on network industries, coherently with this argument, shows that outcome of privatization processes indeed are likely to depend on the intensity of joint liberalization measures (Newbery 1997, 2002). Nevertheless, also this argument seems to be able to explain left-wing liberalization but insufficient to clarify why right-wing governments did not push on liberalization initiatives as leftist ones. Following a complementarity argument, we may consider liberalizations as a way for right-wing governments to increase market opportunities for private operators and to sustain new firms creation; however, actual liberalizations have been undoubtedly more intense under left-wing executives.

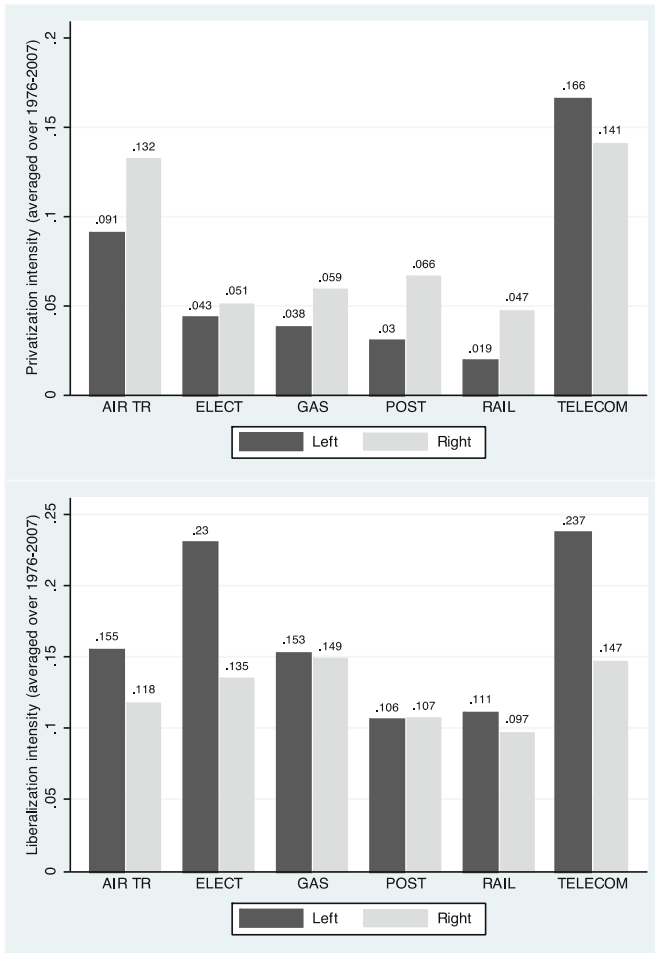
#### ***5.5.4 Swing Voters Signaling***

Another suggestive interpretation may be found in the idea that the observed asymmetric privatization–liberalization patterns are the result of a sort of signaling strategy adopted by governments with the aim of attracting middle-class voters. While right-wing governments may tend to insist on privatization interventions because this allows allocating corporate shares to median-class citizens [that is a possible strategy to favor a shift of preferences to the right; see Biais and Perotti (2002)], left-wing parties may try to use liberalizations to attract median (otherwise rightist) voters by restructuring the economy in order to increase market opportunities and discipline. Of course, following this strategy, left-wing parties may gain some middle-class voters but also loose “original” political supporters. If this latter effect dominates, it is then optimal for left-wing governments not to compete for median voters and to remain anchored to their traditional platform. The generality of the “swing voters signaling” interpretation is therefore limited. This argument, moreover, does not explain why right-wing governments have actually implemented liberalization initiatives with a weaker intensity than left-wing ones [see, on this, also evidence provided Belloc and Nicita (2011)].

#### ***5.5.5 Public Finance Concerns***

Partly recalling the complementarity argument, an additional interpretation finds the possible rational for politically oriented policies in the intentions of governments to respond to public finance concerns. This view, mainly focusing on





**Fig. 5.3** Average privatization and liberalization intensity for six network industries and 30 OECD countries under right-wing and left-wing governments [elaboration from OECD (2009) and World Bank (2010)]. *Note:* privatization is measured by subtracting the OECD’s (2009) indicator of public ownership from its maximum value (the index ranges from 0 to 6): the privatization initiatives’ intensity is then calculated by examining the variations of the privatization index on a yearly basis; by the same token, liberalization is measured by subtracting the OECD’s (2009) indicator of entry barriers from its maximum value (the index ranges from 0 to 6): the liberalization initiatives’ intensity is then calculated by examining the variations of the liberalization index on a yearly basis. In both panels, the average privatization and liberalization intensities are calculated over the 1975–2007 time span. The political orientation of governments is considered 1-year lagged [Source: Belloc et al. (2014)]

privatization, suggests in particular that right-wing executives favor privatization over liberalization because they typically tend to be elected after economic downturns and then, once in office, need to find solutions to public deficits, being the sale

of shares of previously State-owned companies the preferred option. While it is true that the need of debt and deficit restructuring may stimulate privatization initiatives, in a previous paper (Belloc and Nicita 2012), it was also showed that public finance arguments do not fully explain, from a statistical point of view, the entire correlation between right-wing political orientation of governments and the intensity of privatization initiatives.

### ***5.5.6 Political Constraints and Institutional Drivers***

Another significant determinant of market restructuring policies is the effect of institutional design of political and governing entities. From this point of view, more specifically, the institutional and political factors characterizing the environment in which governing parties formulate their policy strategies assume an important role in the elaboration of policy agendas. This argument mainly refers to left-wing liberalizations and suggests that liberalizations may be adopted as solutions to deter more intense market-oriented interventions by “weak” left-wing parties governing in heterogeneous coalitions encompassing also center and pro-market components. Liberalization, in other terms, may be considered as a way of conceding some market-friendly measures to other members in the coalition in exchange for left-wing initiatives as redistributive policies favoring left-wing constituents. This may explain why left-wing parties governing in weak political institutional settings may adopt liberalizations and other market-oriented measures. The same view, however, does not explain the observed privatization–liberalization divide, with right-wing executives liberalizing less than their left-wing counterparts. In a recent work, moreover, we have showed that the statistical correlation between executives’ political color and market policy is robust to the “institutional capacity” of the government in office, as measured by the level of political competition and indexes of law-making powers (Belloc et al. 2014).

### ***5.5.7 Political Tools Revisited in Left-Wing Agendas***

A more convincing explanation seems that framing privatization as a traditional right-wing policy strategy and liberalization as an instrument to reduce inequality within revisited left-wing political agenda. In this view, while right-wing executives tend to preserve their original favor for pro-market frameworks, in particular for those measures that allow a reduction of the State burden (including share ownership of incumbent firms), left-wing governments are progressively revisiting their traditional policy strategies for obtaining redistributive objectives. In the last two decades, left-wing parties have been experiencing an increasing dispersion of their constituents across heterogeneous social classes. The result has been a substantial change in the political reference groups of leftist parties, with low-income

customers substituting low-income employees (Alesina and Giavazzi 2007). In response to this change, left-wing governments may have started to combine traditional redistributive objectives with market-friendly instruments, such as market restructuring and pro-competitive measures. Liberalizations, in other terms, may be used by left-wing governments as a mean to shift financing responsibilities from taxpayers to market actors with the aim of redistributing rents from incumbent players to low-income customers through price reductions and improved competition among providers. Coherently with this view, liberalizations, furthermore, can be implemented without renouncing to universal access priorities, which traditionally have been one of the motivating forces behind State intervention in network industries. This interpretation does not imply a change in the left-wing governments' aversion to fully privatized markets (that, indeed, continue to be at the core of right-wing agendas) but reconsiders and enlarges the extent to which liberalizations may assume a redistributive nature.

## 5.6 The Political Economy of Deregulating Telecommunications: Open Questions

While the average attitudes of politically oriented governments were characterized by left-wing executives favoring liberalizations and right-wing ones pushing towards privatizations, an interesting and different dynamics seems to emerge from the telecommunications sector. In Fig. 5.3, we show the average intensity of right-wing and left-wing deregulation actions at a sectoral level (six network industries are considered) over the 1976–2007 period. In the telecommunications sector, it emerges as an unexpected pattern characterized by both left-wing driven liberalization and privatization. Thus, in the telecommunications, left-wing governments have not only overcome right-wing ones on the ground of liberalizations but they have also shown relatively stronger preferences for privatizations.

This opens new and unexplored research questions for the political economy of market deregulation and, in particular, of network industries liberalization and privatization. What is interesting to understand is whether the telecommunications sector has experienced an exceptional deregulation process, with left-wing governments trying to compete with right-wing counterparts also on the privatization ground in an attempt to remove control over sectoral rents by right-wing incumbent players (what appears to be coherent with some country experiences), or if the telecommunications industry has been a some sort of laboratory in which left-wing executives have tested their capability to manage also privatization processes, with the aim of governing the redistribution of rents towards relatively new and financing constrained market actors (coherently with a possible revisitation of the interpretation of Alesina and Giavazzi (2007) applied to privatization). In this latter case, political economy scholars and industrial experts may wonder if we should expect left-wing privatizations also in other network industries in the future.

So far, this remains an open question that future research may try to answer [some insights on the evolution of telecommunications deregulation are provided in Belloc et al. (2012, 2013)]. Nonetheless, some available econometric evidences can introduce interesting elements in this debate. In particular, in Belloc et al. (2014), we have showed that OECD telecommunications privatizations reacted to international convergence of policy making between EU economies to a larger extent than other industries. Specifically, the intensity of telecommunications privatization is strongly correlated with the country-specific level of openness to globalization, and sector-specific effects related to the telecommunications sector result to be strongly significant, suggesting a strong sector-specific exposition of telecommunications to pro-competitive reforms. Although these empirical elements are not sufficient to explain the political determinants of telecommunications privatizations, they may suggest that the deregulation process in the telecommunications has its own specificities that link telecommunications' restructuring to globalization and international markets integration. Telecommunications (left-wing) privatizations, in other terms, are not confined within single countries' experiences and may reveal under-explored drivers that both public policy scholars and policy makers should more deeply investigate and govern in the future.

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## Chapter 6

# The Way Ahead

**Abstract** In this chapter, we draw the main conclusions of our study, with brief final considerations and open research questions. In particular, we argue that one of the main theoretical consequences of our investigation is that the measurement of political determinants of liberalizations in network industries should clearly unbundle liberalization from other State burden reduction measures, these policies being distinct—although interdependent—tools for promoting market deregulation, having different economic consequences. Our findings, therefore, help in shedding new light on the political economy literature on deregulation policies, as they point to a sort of surprising “politically determined” trade-off between privatization and liberalization, so far neglected in the related literature.

According to a large theoretical and empirical literature, liberalization of network industries has been a complex process whose determinants and outcomes are linked to complementary institutions, including the regulatory frameworks, the level of privatization in the relevant market, and the political ideology of the governments that were in office when liberalization measures have been designed and implemented.

Efficiency trade-offs between regulation and competition as well as between vertical integration and liberalization of access characterize the institutional design of liberalization policies. In a large part of network industries, the natural monopoly based State intervention does not hold any longer because of technological development, allowing for shared access of essential facilities and downstream competition (Lipezynski et al. 2001; Newbery 2002, 2004; Armstrong and Sappington 2006). This encouraged governments to reduce legal entry barriers (the process named “liberalization”). On the other side, the lack of effective tools for disciplining managers in State-owned firms (Vickers and Yarrow 1991; Megginson and Netter 2001; Roland 2008) induced the widespread sale of a substantial part of the State-owned shares in enterprises (the process named as “privatization”) in order to achieve efficiency gains.

However, the issue of how governments should approach privatization and liberalization is controversial (Roland 2008; Stiglitz 2008). Both policies have consequences affecting consumers’ welfare on the one side and the profits of the incumbents and new entrants on the other. As several scholars outlined, the combined effect of the two policies depends on how governments weigh the

components of the social welfare function (De Fraja 1991, 1994) and on the optimal timing and sequencing of the two policies (Stiglitz 1999, 2008).

As for liberalization policy, in principle it should benefit consumers and new entrants. At the same time, the impact of liberalization on incumbents' profits and incentives to innovate is ambiguous. On the one hand, entry may reduce incumbents' incentives as a result of the new competitive pressure (Schumpeter 1942; Aghion et al. 2005) or even enhance them if the higher competition level entails an X-efficiency gain for the incumbent (Hart 1983; Nalebuff and Stiglitz 1983) or stronger incentives to innovate (Arrow 1962).

The overall effect of privatizations is ambiguous as well. In principle, privatizations should reduce the managerial slack in the incumbent privatized firm (Vickers and Yarrow 1991). At the same time, however, the impact of privatizations on consumers' and new entrants' welfare is unclear. Privatizations might increase consumers' welfare by fostering quality improvements. Nevertheless, privatizations might also increase final prices and/or reduce quantities available to certain categories of consumers and increase barriers to entry (Stiglitz 2008). Finally, from the government point of view, although privatizations generate cash—through the sale of its shares in the privatized company—it remains unclear whether net gains occur. Indeed, the cash effect has to be balanced with the costs of regulation.

Building on these (mainly theoretical) arguments, a growing political economy literature has largely investigated the relationship between liberalizations and the role played by economic, institutional, and political factors.

The first wave of political economy studies on market deregulation and liberalization is due to the traditional Chicago theory of regulation, according to which there should be at least four reasons why politically interested governments may engage in market restructuring and liberalization [see, generally, Peltzman (1989)]. The first reason relates to the effects of technological change. Technological developments and production innovations have allowed competition in previously natural monopolistic industries (or segments of industries) and have therefore increased deadweight costs in the presence of substantial entry barriers. This may have stimulated taxpayers' and consumers' pressure on governments and political groups. Second, a change in the lobbying abilities of relevant stakeholders may have induced a change in the relative bargaining power of pressure groups. One of the consequences is that relatively market-oriented actors (interested in new economic opportunities possibly deriving from entry liberalization) have increased their policy-making power, by acting on "partner" governments. Third, politically effective groups have reinforced their belief that they can better promote their private interests in liberalized markets, for example, by self-regulation. Fourth, the declining pattern of profits in regulated markets may have reduced the political yield of regulation, so that governments may have adopted liberalization as a way to reinforce their political support by interested actors.

While this literature has introduced some important elements in the analysis of network industries liberalizations, it is has also overlooked, however, the possible role played by a government's ideology.



A more recent second wave of political economy studies (see, for example, the empirical works of Bortolotti and Pinotti 2008; Pitlik 2007; Potrafke 2010) has tried to analyze also the effect of politically oriented governments, introducing the executives' ideology as a crucial determinant of both liberalizations and privatizations. Despite the mixed theoretical predictions on liberalization and privatization policies, however, this empirical political economy literature largely converges on the idea that both policies are significantly influenced by right-wing ideology, what contrasts with the available evidence of many liberalization initiatives in OECD countries undertaken by left-oriented executives. The consequence is that a gap remains in the literature on several political aspects behind network industries' liberalizations, which are useful to clarify for allowing an informed governance of market reforms and future restructuring.

In particular, an important aspect underexplored in the literature and on which we tried to shed some light in this book is the extent to which political ideology has driven liberalization choices in conjunction with privatization, i.e., phrased differently, the partisan-politics modeling of liberalization–privatization paths adopted by governments. The analysis presented in this book contributes to the literature by showing that ideological cleavages affect the composition of deregulation policies, i.e., the combination of privatization and liberalization, rather than, as it is generally argued, its aggregate level. Indeed, while the empirical political economy literature has so far considered privatization and liberalization policies as typical features of right-wing political choices, we have showed that, by comparing data on deregulation policies and on executives' political orientations, a clear relationship can be identified between a country's policy design of the preferred mix of privatization and liberalization, on the one hand, and political bias, on the other.

More specifically, we have argued and explained that the government in office influences the liberalization–privatization path of a country's network industries according to its ideological bias. Contrary to conventional wisdom, our findings show that right-wing governments privatize to a greater extent and liberalize to a lesser extent than left-wing ones. Furthermore, we demonstrated that these empirical findings are robust to possible cross-effects between privatizations and liberalization, to sectoral path dependency in policy initiatives, and to policy diffusion forces among European countries as well as to other possible alternative explanations (including public finance concerns) summarized in Chap. 5.

These surprising findings are clearly in stark contrast with previous empirical literature, according to which opposite political parties uphold opposite positions on both liberalization and privatization policies: namely, right-wing governments are expected to promote both policies, whereas left-wing ones oppose them. The results we have presented here partially reverse these conclusions by suggesting a much more complex dynamics surrounding the structure of deregulation in network industries.

One of the main theoretical consequences of our investigation is that the measurement of political determinants of liberalizations in network industries should clearly unbundle liberalization from other State burden reduction measures (as ownership privatization of incumbents), these policies being distinct—although

interdependent—tools for promoting market deregulation, having different economic consequences. Governments in office show, indeed, quite diverging preferences about the optimal combination of liberalization and privatization and systematically tend to redirect the country's deregulation path towards the desired pattern.

Our conclusions, therefore, help in shedding new light on the political economy literature on deregulation policies, as they point to a sort of surprising “politically determined” trade-off between privatization and liberalization, so far neglected in the related literature.

On the one side, the “pro-market” paradigm of right-wing parties does not necessarily involve the same level of intensity along the vast array of market-oriented policies. According to our findings, right-wing parties seem to promote a privatization-biased pattern. As Gual and Jodar-Rosell (2009) recently pointed out, this might be due to the belief that quasi-monopolistic rents induce credible economic restructuring of former State-owned enterprises and thus ensure the success of privatization programs. Lipezynski et al. (2001), furthermore, argued that right-wing governments tend to give priority to the reduction of the State's role in the economy and to use privatization programs as a means for financing tax cuts.

On the other side, the fact that left-wing governments appear to be more keen on coupling market liberalization with State control of incumbent firms may account for a persistent aversion towards a fully decentralized market economy and a political bias for economic restructuring through incentives provided by competition, perhaps delaying privatization until after liberalization reaches a critical threshold (Stiglitz 1999, 2008).

This recent pro-market attitude of left-oriented executives is largely acknowledged today. Several political scientists defined the commitment to the neoliberal ideal of entrepreneurship by social democratic parties in Europe and North America as “second-wave neoliberalism” (Roy et al. 2006; Steger and Roy 2010). Our empirical results are consistent with this theory. The liberalization of network industries may thus differ from other market-oriented policies in terms of its political appeal and rationale, as it may represent a politically sustainable way for left-wing executives to indirectly redistribute rents towards final low-income workers/customers and to grant universal access obligations and minimal level of quality (Armstrong and Sappington 2006; Alesina and Giavazzi 2007).

In conclusion, it can be argued that prior work rested on a very clear-cut assumption that right-wing politicians like markets, while left-wing politicians do not. Our results reject this statement by acknowledging that a clear, and so far neglected, political trade-off does clearly emerge between liberalization and privatization choices. As a consequence, two alternative political paradigms came under the spotlight over the past few years: “privatization ‘without’ or with less liberalization” for right-wing parties and “liberalization ‘without’ or with less privatization” for left-wing ones.

An analysis of the political economic rationale underlying the ideologically oriented deregulation paths we identified is beyond the scope of this book. Nonetheless, we believe that the picture we have sketched out raises new crucial issues

regarding the political determinants of market-oriented policies, which deserve further theoretical and empirical research.

In particular, our discussion may encourage a further investigation of the economic effects induced by different policy sequencing. As we have argued in particular in Chaps. 1, 2, and 4, the time structure of the way in which liberalizations (and pro-market reforms in general) are undertaken is an important feature of a market restructuring process. Path dependency, gradualism, and the simultaneous establishment of complementary institutions (such as national regulatory authorities, NRAs) are crucial to the success of a pro-market reform process. Late liberalization of already extensively privatized industries or the absence of NRAs may hamper the emergence of effective competition in the market and may impede an efficient restructuring of incumbent firms. Thus, if governments choose different policy mixes, in which combining liberalizations and other pro-competitive initiatives, then it is interesting to measure the economic outcomes of the various policy mixes. The understanding of these issues may greatly contribute to the identification of optimal strategies in terms of sequencing and balancing of alternative policy instruments.

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