Chapter 10
Departing From Monopoly: Asymmetries, Competition Dynamics, and Regulation Policy

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Deregulation modifies old rules of the game in protected industries. One of the most important changes that deregulation brings is the possibility of entry by new players into markets formerly closed. Deregulation usually increases the intensity of competition and subsequently contributes positively to the general welfare. However, theories that argue in favor of deregulation are generally based on the assumptions that a perfect symmetry exists between different actors who operate in the deregulated markets (Baumol, Panzar, & Willig, 1982). There is no doubt that this assumption must be reconsidered, especially in the context of technical change, and capital intensive industries that require delays in installation of capital equipment (Benzoni, 1987; Curien & Gensollen, 1987).

The purpose of this chapter is to investigate the problem of asymmetric deregulation as it applies to the telecommunications industry.

Part I presents a model simulating the entry of a new firm into the previously monopolistic French long distance communication(s) market. Based on this model Part II analyzes the nature of asymmetries and their consequences for competition dynamics. Finally, Part III contains some general conclusions on the conduct of regulation policies in a market environment where asymmetries hardly determine the competitive process.

ENTRY PROCESS IN THE TELECOMMUNICATIONS INDUSTRY: A SIMULATION

Since 1837, the transmission of any signal in the French public territory has depended on the *Ministry of Posts and Telecommunications* (P&T). Therefore, in France, the telecommunication network and its basic services (telephone, telex, etc.) are managed by a unique public operating company, the *Direction Générale des Télécommunications* (DGT).

General regulatory assumptions need to be made in order to set up the new competitive environment in which the entry would take place. The assumptions are the following:

- The current DGT monopoly on long-distance communications undergoes deregulation by the French government;
- Local and international communications remain the monopoly of DGT; and
- Only one firm has the opportunity to enter the "deregulated" market.

Taking the perspective of the entrant, the following describes the sequence of steps it needs to take to enter the market. To simplify notations, the entrant will be referred to as the *New Operator* (NO) and the formerly monopolistic firm as the *Existing Operator* (EO). Naturally, the sensitivity of NO profitability depends heavily on its competitive advantages compared with EO. So, NO's profitability has to be evaluated by modifying the values of the main exogenous competitive parameters within realistic extreme boundaries. To that extent, we have set up a forecasted 10-year business plan for NO.

Methodology and Presentation of the Model

For NO, the decision of entry requires a market study which must cover both the demand and the supply sides. Let us consider successively these two sides:

Supply: Digital technologies. On the supply side, the first step for NO is to the examine which type of equipment can be used. Obviously, NO must choose the most modern technologies and thus must adopt digital technologies and build a fully digitalized network (transmission and switching). A methodical comparison of the respective advantages between the different digital transmissions means (optical fiber, satellite, and microwave) was undertaken in order to

decide which technology will best adapt to the needs of potential consumers. Assuming that NO would not be backward integrated, the same type of analysis was conducted for the different kinds of switching equipment available or to be announced by the world's major manufacturers (AT&T, Northern Telecom, Siemens, Ericsson, Alcatel). This broad review helped envision the technical tradeoffs as well as the design of the fixed cost function for building a nationwide long distance telecommunication network. Table 1 shows a comparison between different means of transmissions.

In order to complete this first approach, we have developed an operating cost function. Finally, in integrating fixed and variable costs we have obtained a global function cost that essentially depends on three parameters: network scope and structure, maximum traffic per trunk, and level of access charges to the network of the EO.

The network scope and structure determines total expenses for the construction and transmission equipment while maximum traffic per trunk indicates variable equipment costs such as multiplexers and personnel costs. Access charges depend on the number of communications and unit level of the charge fixed by EO or regulatory authorities.

Demand: Segmentation and large business users. Two different types of information were analyzed in order to define which market segment(s) are targeted as its primary customer base. We first broke up the data on market sizes and growth by type of product

Table 1. Comparison of different means of transmission

	ADVANTAGES	DISADVANTAGES
SATELLITES	Rapidity of installation Adaptability of capacities Wide territoriality International network Low costs of investments	Poor transmission quality "Double bonds" impossible Uncertainty in the supply of satellite channels High operating costs
OPTICAL FIBER	Good transmission quality Economies of scale Low operating costs	Large investments Difficulties to overhaul the breaks Important landed infrastructure
MICROWAVES SYSTEMS	Rapidity of installation Modulated systems Using of exisiting infrastructure	Difficulties in setting of apparatus Sensitivity to the environment Scarcity of frequencies

(telephone, telex, dedicated lines, data transmission, etc.), type of communication (local, long distance, and international), and type of customers (residential users, small and large business users). This analysis provided important insights that are summarized in Figure 1.

Despite their limited number (approximately 2,000 in France), the large corporate users represent 10% of the total revenues of telecommunications. With a monthly telecommunications bill of $11,800 on average, their consumption per line is by far the highest and is mainly composed on long-distance communications, the market of NO. Moreover, this market segment presents a high growth rate driven by an extensive use of advanced telecommunications services.

On the other hand, the other market segments do not seem as attractive for NO. Much more numerous in terms of total number of customers, and thus more difficult to reach and costly to serve, their consumption per line is lower and concentrated on local communications. The primary service they use—voice—has matured with a growth rate leveling off at around 5%, indicating a saturated market with no significant growth in consumption.

From this first analysis, we conclude that NO would concentrate on the large business users, and more specifically on long-distance communications. Long-distance communications have potentially the

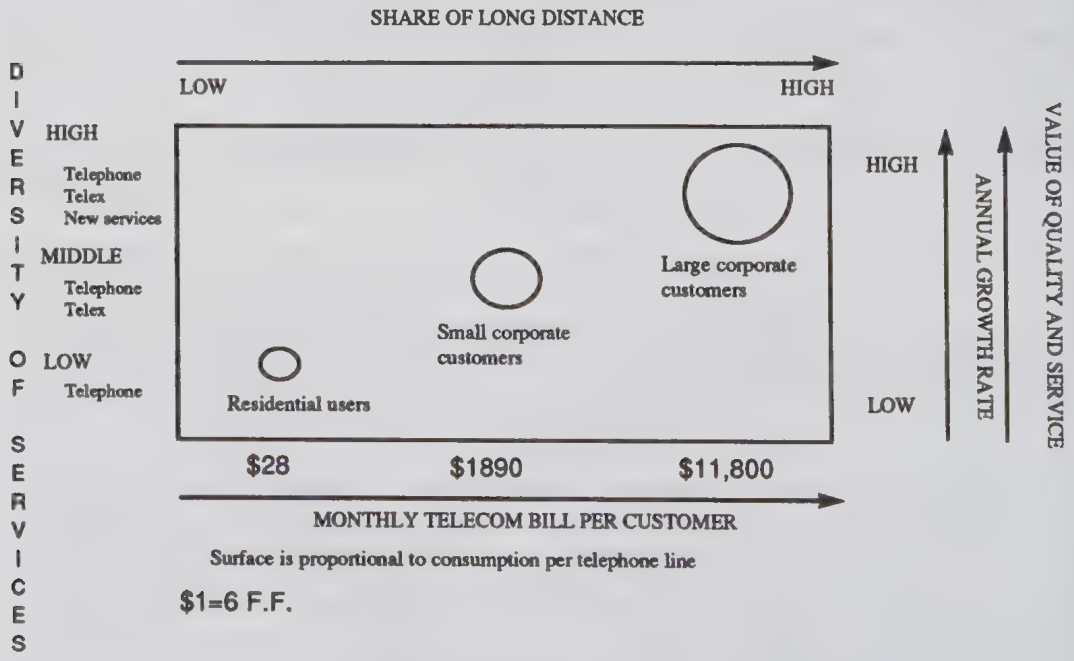
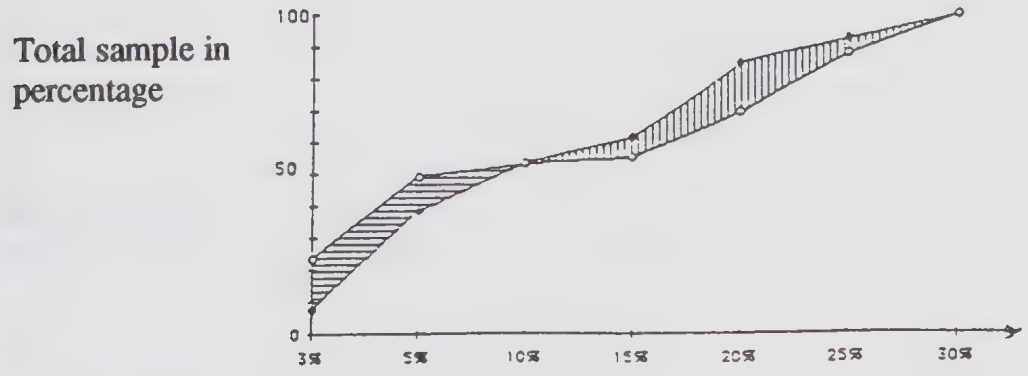


Figure 1. Telecommunications market segments

highest growth, and also happen to be the most profitable for EO due to cross-subsidies between local and long distance services. Then, in just building a long-distance network, the NO can rapidly offer its services on a nationwide basis, minimize its volume of investment, and thus minimize the financial and economic risks.

To determine how to penetrate the segment of long-distance communications for large business users, we conducted in-depth interviews with a sample of the largest corporate users from various industries, accounting for 30% of the total market for this specific segment. Two major factors were found to concern these customers: quality of service and price. Because they view telecommunications as a critical element in their operations, they refuse to trade off quality for price. Therefore, NO must at least match the recognized quality of the existing operator. However, users need an incentive to switch to NO resulting from the risks involved. Interviews allowed us to measure this risk premium with the following results.

Firms representing 65% of the total communications value of the sample are ready to switch to NO providing a 20% price discount over EO rates that NO would guarantee in the long run (Figure 2). It is important to note that with a 10% to 20% price reduction, NO would not obtain new customers. The importance of fixed costs and investments necessarily implies, for NO, conducting a policy of significant discounts to enter the industry. On the curve represented in Figure 2, the point where 20% price discount meets 65% market shares (in terms of value not in terms of customers) seems a good target for the NO.



This curve indicates the percentage of firms in the sample which will switch to N.O. if it provides a X% price discount over E.O.
This curve indicates the percentage of telecommunications revenue in the sample which N.O. captures if it provides a X% price discount over E.O.

Figure 2. Estimation of the N.O.'s demand function

In conclusion, the entry strategy for NO should be to specialize on long-distance telecommunications for large business users and to differentiate its service from those of EO by providing the same quality at a 20% price discount.

At this point, we think that it is important to understand that offering the same quality at a lower price is possible in this case. The reasons for it relate to a general pattern common to many industries. First, due to technological change, NO can utilize more efficient equipment than that generally used by EO. Second, it is not optimal to serve different needs from different customers with the same production and distribution organization. In other words, Rolls Royces and Renault Le Cars cannot be produced cost effectively on the same production line. This applies to the telecommunications industry as well. A strategy of network differentiation is foreseeable (for theoretical principles, e.g., Hotelling, 1929; Thysse & Gabscewicz, 1979). For this reason, despite economies of scale, a more adapted network can offer telecommunication services at lower cost, to a well-defined customer group, provided that the revenue potential is large enough to offset the fixed costs involved in this industry.

Main Results

The network. Figure 3 shows the network of NO, which links 15 major French cities. This network consists of a loop between Paris, Lyon, Marseille, and Bordeaux, with several single "extensions" to cover the northern and eastern industrialized sections. The loop, as well as the Paris-Nancy connection, figures a large capacity 4x140 mbps fiber-optic trunk, while the capacity of the extension is 140 mbps using fiber-optic or microwave technologies. As large corporate users are heavily concentrated in major urban areas, such a network would be able to serve most of their needs. The end-line connection procedure assumed for the purpose of this study is similar to the equal access used in the United States. Moreover, bypass procedures are not allowed, but have been considered to set up an economically justifiable level of access charges.

One central feature of this network is the existence of only four switching stations, which significantly reduces costs. This is made possible by two factors, an excess in transmission capacity and a small number of customers to serve. These stations are located in each of the major cities mentioned above.

The model. An economic model was conceived and implemented to forecast the revenues and profits of NO within the standard 10-year

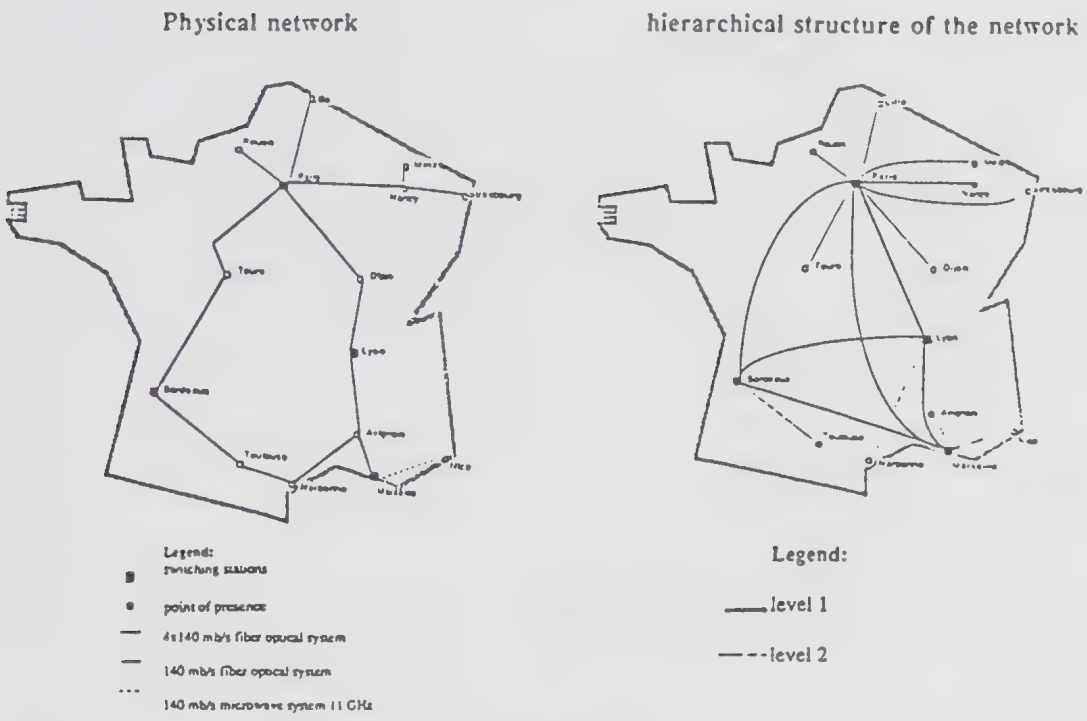


Figure 3
Physical network hierarchial structure of the network

period of an investment of this nature. Figure 4 summarizes this model, which can be divided in three parts.

The first two parts result directly from the supply and demand analysis of the new network. The demand function estimates volume of traffic between the cities on NO's network over the time period considered. The fixed-cost function determines the investment expenditure sequence necessary to build up the network. The operating cost function takes into account human, administrative, and technical costs resulting from the demand parameters.

Demand forecasts in volume are compiled by applying the market share evolution forecasted NO to the traffic estimates in the demand block. The market share gained by NO on large corporate users follows a curve in two phases, corresponding to an initial progressive increase (the lead time necessary to convince clients to switch) and a leveling off going to the limit of 65% referred to in the interviews (see Figure 5).

The evolution of tariffs in the marketplace then determines NO's price function and pricing policy, which sets compound to the traffic forecasts to calculate revenues. Access charges go on the expense account of the income statement.

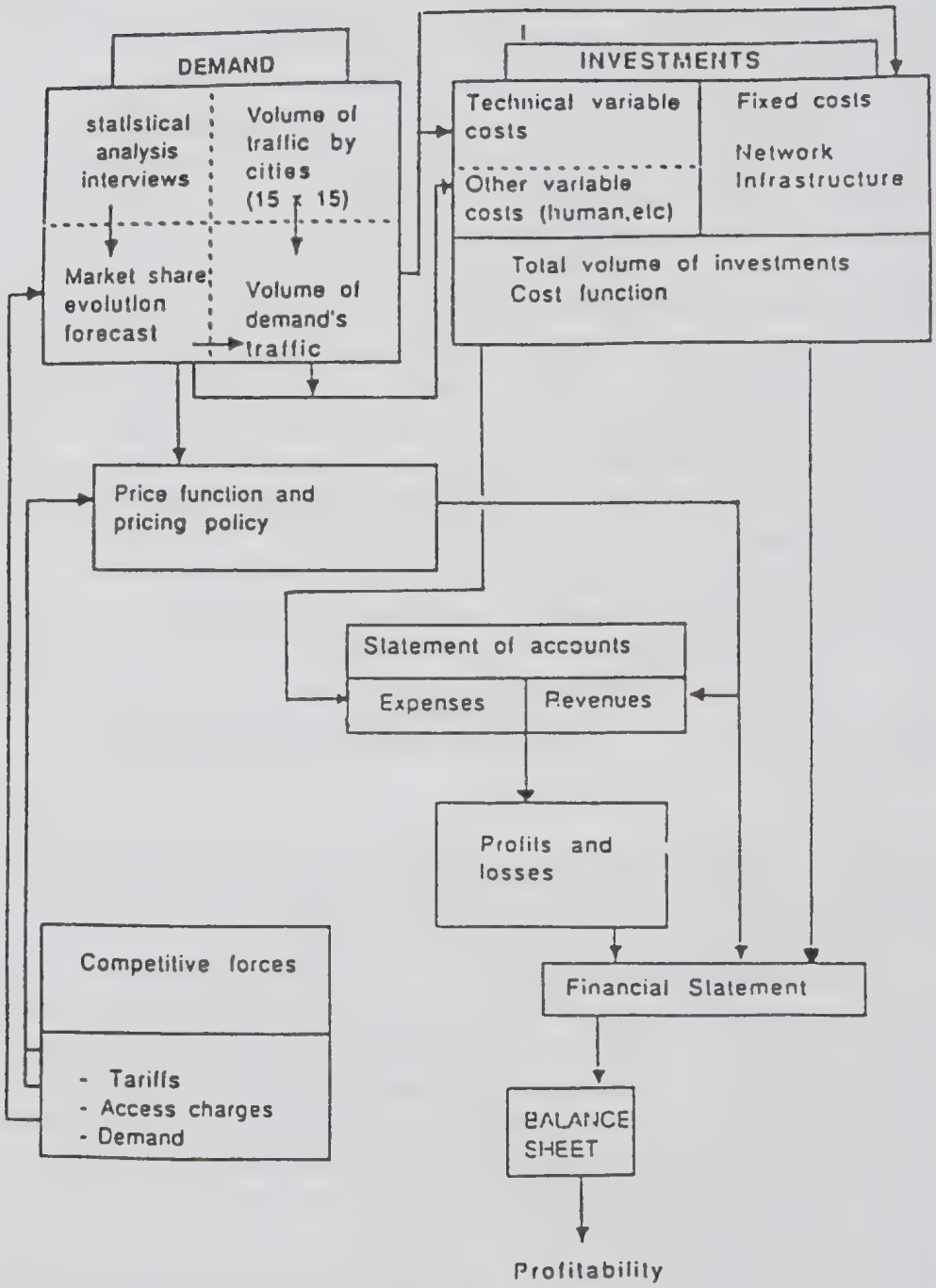


Figure 4. Structure of the Model

The third block estimates the evolution of the three dynamic factors set by market forces or regulation: *tariffs*, *market share*, and *access charges*. In the model, these variables are parameters for which the values are exogenous. Changes in these values will influence NO's profitability and will be sued in sensitivity analysis scenarios.

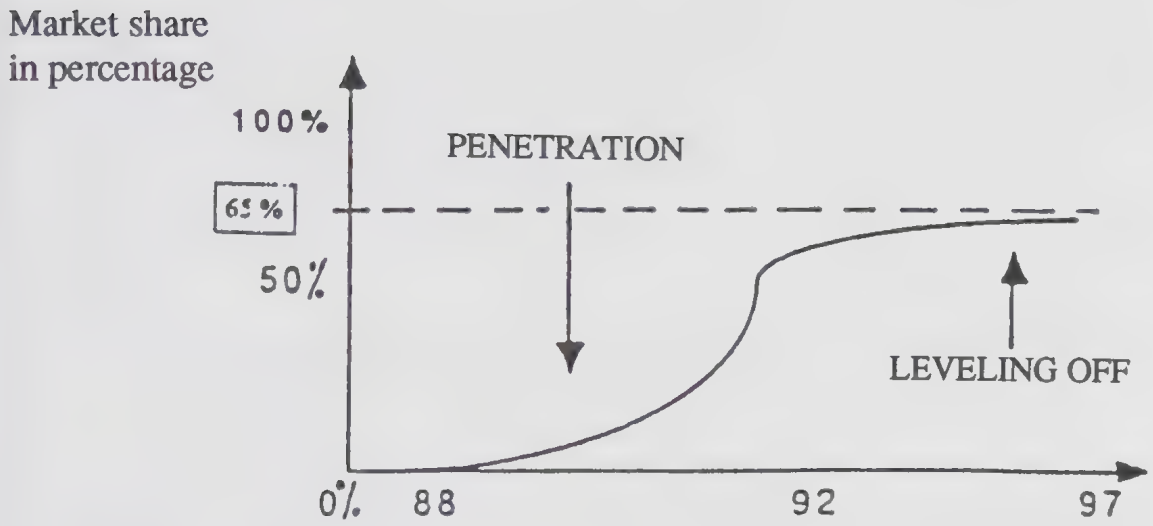


Figure 5. Market share evolution of the N.O. in the segment of long distance communications for large corporate users

Scenario hypothesis. In order to run and test the model, a referential scenario was designed according to values of the exogenous parameters (demand, tariffs, access charges) that, in our opinion, best represents the most profitable evolution in case of deregulation. This scenario brings, for the three parameters, the following values.

1. The evolution of the telecom unit price assumes a sudden rise in the EO's local rate accompanied by a decrease in the long-distance operations in 1989. This change in prices is simply supposed to modify the distribution of EO's revenues without affecting total revenues. The continued evolution after 1989 is derived by a two-year flat steep curve accounting for a transformation period followed by a steady 7% yearly decline due to a productivity gains. NO's price has been set up at least 20% below EO's long-distance price throughout the period.
2. The level of access charges paid by NO for each communication involving EO's connections to the local level is respectively 0.3 of the local unit to access for NO's network (threshold above which bypass is cheaper for a typical NO's customer) and one local unit to end the communication.
3. NO obtains, as it had forecasted, a 65% market share with the price reduction of 20% relative to EO's tariffs. To prevent the access of its network by small users, NO sets the monthly access charge at $300.

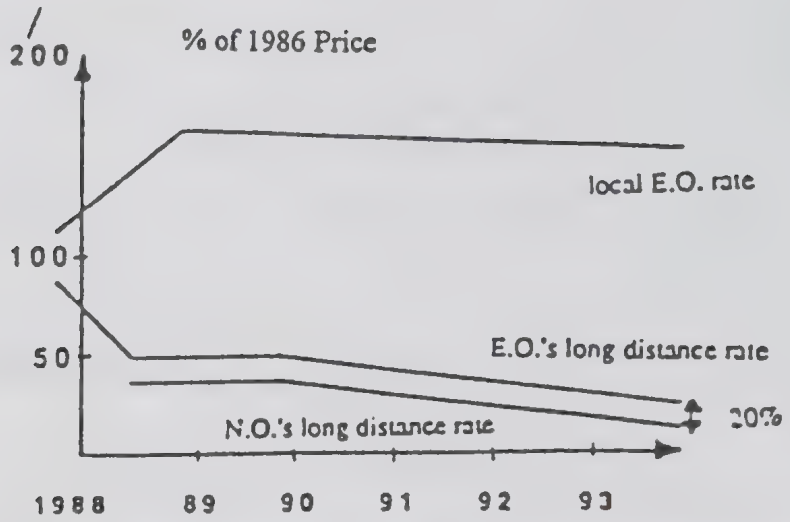


Figure 6. Price evolution of telecom unit in the referential scenario

Even in this referential scenario, we have assumed that EO's reaction is significant in terms of price.

Other scenarios have been studied with more or less hard reactions of EO's in terms of tariff policy, commercial actions (market share), and squeezing behavior (level of access charge paid by EO.). The values of all tested scenarios are related in Table 2.

Table 2 **Assumptions on the values parameter in the different scenarios**

PARAMETERS		Scenario 1	Scenario 2	Scenario 3
Price Evolution Scenarios	local	1987-88: +70% 1989-97: - 3%	1987-88 + 140% 1989-97: - 3%	1987-88: 0% 1989-97: - 3%
	long distance	1987-88: -40% 1989-90: - 3% 1991-97: - 7%	1987-88:-100% 1989-90: - 3% 1991-97: - 7%	1987-88: 0% 1989-90: - 3% 1991-97: - 7%
MARKET SHARE SCENARIOS		N.O. 65% E.O. 35%	N.O. 55% E.O. 45%	N.O. 45% E.O. 55%
ACCESS CHARGES SCENARIOS		1.3 Unit tariff of local communication	1.43 Unit tariff of local communication	1.17 Unit tariff of local communication

1 Market share: 65% for N.O., 35% for E.O.; level of access charges is 1.3 unit tariff of local communication.
2 For price evolution see Scenario 1 in price scenarios, level of access charges is 1.3 unit tariff of local communication.
3 Market shares: 65% for N.O., 35% for E.O. For price evolution see Scenario 1 in price scenarios.

In the referential scenario, the model indicates that NO's net total cumulative profit on the 1988–1997 period is able to reach $300 million. In this case, the net rate of return of investments is near 14%. We conclude that entry is profitable and thus probably foreseeable.

However, the different scenarios show the critical sensitivity of NO's profitability to its competitive environment. Figure 7 shows the results obtained with the model in reference to the scenarios described above.

First, we can observe that price competition implies an important variation in NO's net profit.

According to diverse price scenarios, it varies from $921 down to $36 million. So, as realistic conclusion is that the entry is certainly not profitable in the case of quasidisparition of cross-subsidies. On the other hand, the potential profitability of entry in the case of low reactions from the EO explains the importance of lobbies in favor of deregulation. On the one hand, firms that want to enter the industry can hope to win a lucrative business. On the other hand, the potential profitability can be used by some categories of users (e.g., large corporate business) or regulatory authorities as an argument to prove the bad resource allocation in the telecommunications industry.

Second, the assumption of entry possibility given to one firm and only one is absolutely necessary to effectively open the telecommunications industry to real competition, i.e., a competition with an effective presence of new competitors in the market. For this purpose, we can observe in Figure 7 that for NO, a 10% market share loss implies a total profit loss of near $160 million! The quasilinearity of that relation (due in part to the underlying model) is fraught with consequences.

Let up suppose that two firms can enter the market, and that the three firms (two NOs and one EO) adopt similar commercial actions that have the same overall efficiency. Each one of them must obtain a 33% market share. For the three firms, their net profit will be null during the period 1988–1997. But one of these firms, the EO, is not specialized in the long distance communication for large businesses. EO operates inside other market segments of the telecommunications industry, as well as local communications, small business, and residential long distance communications. EO can survive the uncomfortable situation in the long distance communications market. However, the two NOs will have a lot of difficulties surviving. Maybe, in anticipating poor gains and failures, they will prefer not to enter. The initial monopolistic structure of the telecommunication industry does not change one way or another because of deregulation process.

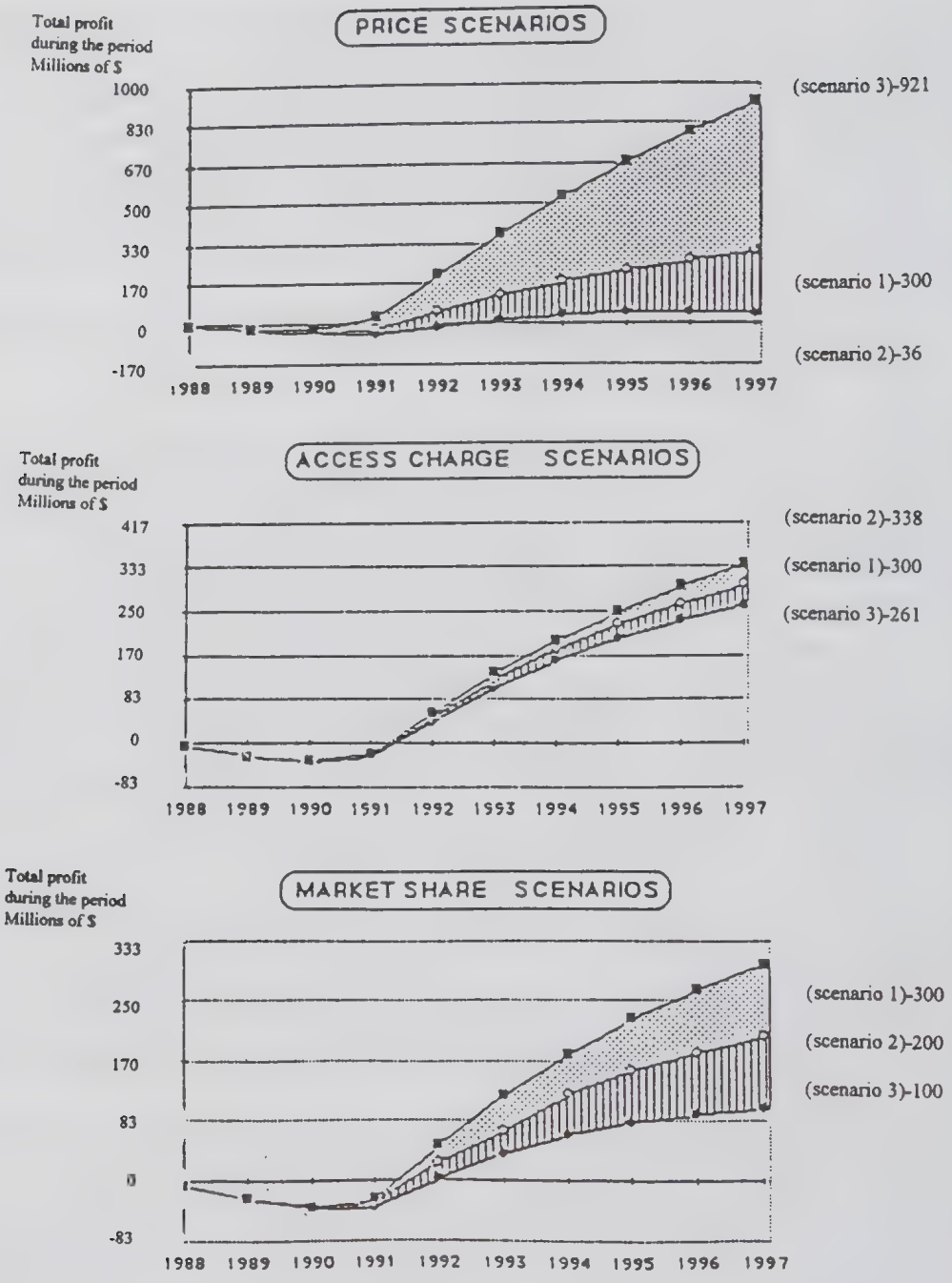


Figure 7. Scenario Results

In the background, there are asymmetries between actors that induce these paradoxical results. For this reason, we are going to push the analysis in this way.

ASYMMETRIES AND COMPETITION DYNAMICS

The simulation of competition has shown that the profitability of entrants depends heavily on the competitive environment. The model was developed in relation to basic conditions and structures of the French communications market, but similar results would certainly been found in other national telecommunications markets, because in the background, the running of telecommunication industries is quite the same. Cross-subsidies, differences in volume of communications utilized by each category of users, increase of long distance communications consumption, evolution of technologies, and diversification of services are all common factors in the telecommunication industries in developed countries.

The competitive process described in Part I does not differ from the one observed in countries where the telecommunications industry is deregulated. Reactions of dominant firms such as AT&T, NTT, and BT to competition with new firms such as MCI, US-Sprint, DAI-NI-DEN-DEN, and Mercury are the same that DGT will use to compete with NO on its profitable markets. In the new competition, two parameters are particularly important: *price levels* and *market share*. On the other hand, access charge levels do not really influence the results of NO. We can note that, in all cases, *Large users' reactions* to new market conditions will be a determining factor in the competition dynamics. This category of users will play an increasingly important role in the world of telecommunications. This fact is not a minor consequence of deregulation.

In the simulation model, a distinction has to be made between market share and price level scenarios. Market shares depend on EO *and* NO's policies, but also on the possible entry of a second or third new operator. Price levels just depend on EO which, as the dominant firm, is the *price maker*. This evident asymmetry of market power between actors takes root in particular asymmetries that must be studied because they have substantial consequences for the competitive process, and finally, for the regulation of the industry.

Natures of Asymmetries

Table 3 summarizes the diverse nature of market asymmetries that may favor both EO and NO. Lines relate the type of asymmetry, and

Table 3. The Diverse Types of Asymmetries

Type of asymmetry	Competitive advantage to	
	Entering firm	Existing firm
Technology	X	
Experience		X
Market segmentation/ Structure	X	
Spatial Distribution		X
Public utilities obligations	X	
Image		X
Scale		X

columns relate which firm profits from asymmetry. We can describe more precisely the roots and economic nature of the asymmetries.

The *existing firm* has an advantage in terms of *experience* in the running and organization of complex technologies, and it benefits from a positive effect of "learning by doing" in this field. Also, in terms of *spatial distribution*, a *nationwide* network is owned by the dominant firm. Entering firms must progressively build their network. During a time they can only propose to users some dedicated lines. In terms of *image*, EO enjoys other advantages which include the longevity and intensity of its contract relations with users, the soundness of the firm, the quality products and services of its being well-known, and so on. Obviously, this type of advantage can favor the NO if EO's reputation is not good. But, in the French demand case, we have found, through the interviews, the EO profits from the good reputation of its services and its infrastructures. Finally, EO has an advantage in terms of *scale* and *scope*, due to the number of connected users on the network, the diversity of services, and the large system of commercialization and distribution of services and products.

In contrast, the entering firm profits in a number of way. In terms of *technology*, because of important technological advances, the last firm entering the industry uses up-to-date technologies and can sell a broader variety of services at lower prices than the existing firms. In other words, the telecommunications industry assumes a decreasing cost function in the long run. In term of *segmentation*, insofar as the entering firm can select its customers and its trunk directions and it is not constrained to serve small users and areas with low-density populations. The possibility of differentiation and segmentation is less easy for EO, which continues to support, even after the deregulation, some obligations concerning public utilities.

THE DIVERSE TYPES OF ASYMMETRIES

We are now going to study how those asymmetries can considerably influence the competitive process.

Generic Strategies

Without any asymmetry, that is, with identical of production functions of all firms, with no differentiation of products and services, with no learning by doing, and so on, it is possible to show that, generally, deregulation can bring more social welfare.

But now, using the results of the model, let us consider plausible strategies, in the case of *existence of asymmetries* formerly described and in the case of *pure and perfect* deregulation, that is, a comeback of entirely free competition without any intervention by authorities. We will first consider the EO's strategic approach, and then that of the NO.

Strategies for the existing operator. To deter entry, the existing dominant firm will want to increase barriers to entry into the long distance communications market. The firm will focus on price policies, because they are one of the most determinant parameters in competition in telecommunications. (Figure 7) Now, it is obvious that prices established in a regulated context on the market segment threatened by NO will appear too high following market liberalization. Thus, deregulation is a special instance for which a rising of barriers to entry, generally and paradoxically, requires a *diminishing* of *limit-price*. The dominant firm will continue price cuts until entry becomes unprofitable (example developed as price scenario 2 in the model). This strategy will involve quasidisparition of cross-subsidies between long distance and local communications, supposing that EO balances earning losses in long distance activities by increase of local tariffs. In this way, NO does not enter.

In this scenario, pure and perfect deregulation involves the *stability of a monopoly structure*, but prices for each type of communication (local and long distance) have steadied down at the level of pure and perfect competition equilibrium. Pure and perfect deregulation results in conclusions of a contestable markets theory, where potential competition can be a sufficient threat to enforce monopoly firm to prices as an atomistic and not a dominant supplier.

Unfortunately, business decision makers described in this scenario are guided by short-term concerns. It does not allow for real strategic behavior of a dominant firm making a price policy that maximizes long-term advantages, shaping the structure of the market within

which it will operate in future periods. So, in the former strategy, the leading firm erects efficient but very costly entry barriers. In fact, it does not optimize its market power. Other tactics are foreseeable. Therefore, the dominant firm has no incentive to deter immediate entry by cutting out cross-subsidies. After promulgation of deregulation acts, EO can, in a first pass, maintain its price level and structure. Thus, for a potential NO, entry will appear very profitable (price scenario 3). Also, NO will invest in the building of a nationwide network, as referred to in Part I. Then, when the NO network goes into service, the dominant firm announces drastic tariff reductions. Further, it can increase efficiency of strategy in accompanying this price cut with various forms of discrimination.

For example, due to *spatial asymmetries*, it might reduce tariffs only on trunks where the network of NO is going to run; or, due to *asymmetries in scale*, it might raise tariffs for domestic users and reduce tariffs for business users. The dominant firm does not suppress cross-subsidies but changes their nature to compete with NO more heavily. So, cross-subsidies between types of communication become cross-subsidies between principal and secondary trunks, or between domestic and business users, and so forth.

During the phase of cut-throat competition, the dominant firm can adopt a strategy of predatory pricing and provokes its own losses during a significant time. Consequently, NO could rapidly fail. Here, the financial capacity of competitors will be determinant. In this area, the dominant firm is more credible than NO for investors, banks, and so on. In this case, it is obvious that NO will not withstand the competition. The efficiency of the leading firm's strategy is highly related to its competitive advantages due to asymmetries.

For the EO, the strategy using asymmetries is undoubtedly the most efficient to compete with NO. Indeed, on the supply side, the first entrant setback clearly points out market hazards to any potential entrant. On the demand side, users will regard all potential NO's with distrust. Thus, the monopolistic firm prevents entry for a long time. Finally, due to asymmetries, full deregulation implies the possibility for the dominant firm to exert its market power in the long run without a real entry threat. To prevent this undesirable effect of deregulation, the only solution is to introduce control of the competitive process by authorities. This control might relate to tariffs, quality, network structures, access charge, access quality, cross-subsidies, and so on.

Consequently, liberalization results in new regulation to reduce the consequences of asymmetries on the competitive process, especially to protect NO against the market power of the monopolistic firm. But in fact, NO is not without weapons in the competitive process.

Strategies for the new operator. The heterogeneous demand induces a progressive entry. Our demand analysis suggests a specialization of the NO in large corporate long distance traffic. That specificity of the demand allows a strategy of *niche*, which is implemented by the EO. It is based on the high-growth consumption of particular customers and the high sales concentration on a small client base.

Due to the custom characteristics, the market segmentation implies the building of a nationwide network. But the NO's network is not common, but specialized and selective. A lot of services available on the NO's network (e.g., software-defined networks, direct access, centrex, videocommunications) are dedicated especially to NO's customers. The market segmentation is supported by specific technological choices (fully digitalized network, overcapacity of transmission, optical fiber trunks, up-to-date switching stations), and by specific commercial actions (a lot of technology salesmen, price discount, maintenance). In the background, the competition is, in fact, based on differentiation in quality service, discount to attract customers (not to bring prices nearer costs), and technological innovations to create a captive market. For economic theory, that pattern of competition is not pure and perfect competition, but monopolistic competition (Chamberlin, 1933/1956). Nothing proves that, in the long run, this situation will bring more welfare than a situation of regulated monopoly (for an application to the telecommunication industry, see Volle, 1987).

On the contrary, the NO's entry and strategy leads to perverse effects. Cream skimming from the profitable client base is only possible because the regulatory authority, by imposing a public service commitment on the EO without counterparties for the NO promotes unfair competition. The bypass practice appears as an evident case of unfair competition, because it squeezes the EO, which keeps local communications tariffs at a low level ($0.18 in 1987), or else it loses a considerable volume of local traffic as a consequence of the bypass by NO. So, the duplication of a local transmission system certainly does not imply greater economic efficiency.

On the other hand, we have shown that NO cannot support pure and perfect deregulation because of EO's market power. If EO adopts conciliatory behavior in helping NO to penetrate the market, the two firms can implicitly set up a gentlemen's agreement. But if EO adopts aggressive behavior to deter NO's entry, subsequently, regulatory authorities will be likely to protect NO, especially if they are responsible for its creation, implicitly following the rules of the *infant industry theory* (List, 1985). In this case, the authorities are bound by a tacit agreement with NO to prevent the cut-throat competition which would kill NO. It can try to promote rules of competition that favor its particular interest but do not increase efficiency.

When asymmetries represent major data of the market, the consequences of deregulation on social welfare are less clear. The increase of regulation seems necessary to correct distortions in the competition process induces by asymmetries. Finally, we can assume the following paradox: Deregulation movements must always go with an increase of regulatory control—more state control to obtain less state control.

So, to conclude this chapter, we propose some reflections about regulation policies.

CONSIDERATIONS ON ECONOMIC BASES FOR REGULATION

The problem that derives from the previous analysis is the following: Are there economic bases for "good" regulation in a deregulated market? How can regulatory authorities define rules of fair competition when actors use asymmetries to create mobility barriers, deter entry, and adopt pricing strategies to cut profit outlooks?

In schematizing, a regulatory agency might have a double role. First, it might ensure bases of fair competition in order to select the most efficient firms. Second, it could function to prevent uses and misuses of asymmetries to limit market power effects.

An optimal regulation needs principally to define operational standards in terms of tariffs, access charges, and unfair practices. We know that the protective strategy for the existing firm can take separate forms. The most important consists of using cross-subsidization by product, communication trunk, customer category, and type of communication. To prevent this unfair practice, the nations where telecommunications are liberalized are engaged in different efforts to control the firms.

The theoretical approach to this problem is simple. Regulatory authorities must impose a marginal cost rating for all services provided by telecommunications operators. The marginal cost rating eliminates cross-subsidies in pricing strategies, but we have seen that it reduces the profit so drastically for potential entering firms that, finally, they do not enter. It is difficult to imagine a deregulation without entry of new competitors, because a lot of customers would think that the regulated monopoly became nonregulated. This opinion would be in part justified, because in fact, the marginal cost rating is impossible to control. For this purpose, we must note that it does not seem possible to establish clear rules of accounting to charge fixed costs between different services provided by multiproduct firms such as telecommunication operators. Thus, two approaches can be observed in actual cases.

A pragmatic first approach is to enact a deregulation act where cross-subsidies are impossible because firms provide a single product. The deregulatory process in the United States is a good example of this practice. The Bell system has been broken up into two separate categories of telecommunications operators. Local operators (Regional Holding Bell Operating Companies) preserve the monopoly on the local traffic but they cannot provide long distance and international telecommunications services, or enhanced services, nor can they themselves produce their own telecommunication equipment. On the other hand, long distance operators (AT&T, MCI, and so on) compete in all telecommunication and information markets (services and equipments), but they cannot provide local communication service.

It is obvious that one of the main goals of this regulation is to prevent the use of a monopolistic position by local telecommunication operators to subsidize other telecommunications activities. Thus local operators cannot misuse their monopolistic position, but neither can they use their knowledge and profits to invest in new fields of telecommunications (smart buildings, enhanced services, electronic transfer funds, etc.) Despite technical and commercial advantages, local operators undergo the bypass and are passive bystanders with respect to the development of new services without being able to contribute. There is undoubtedly an anomaly in this situation, because local operators do not enjoy large economies of scope, important in the telecommunications sector. This new type of regulation may not bring the most economic efficiency. For this reason, local operators want the authorization to increase the scope of their activities and bargain continually with regulatory authorities.

However, this type of regulation does not forbid, for long distance operators, the possibility of cross-subsidies between the service provision and other telecommunications activities (equipment manufacturing and so on). AT&T long distance can profit by its dominant position and compete with small firms that meet difficulties in making their investments profitable. AT&T can run economies of scale and scope to investigate other activities such as information and data processing. After an intermediate pass, it is obvious that AT&T will subsidize all types of activity, except local telecommunications, principally by its profits in the long distance telecommunications market. The possible introduction of price cap regulation to substitute the rate of return regulation is a step in this direction.

A second pragmatic approach to deregulation is given by the Japanese and British examples. The former monopolist firm (BT, NTT) continues to provide both local and long distance communications. The new operators choose only to provide long distance communications. The deregulation creates fundamental asymmetry

between actors, to favor the entry of NO. To compensate for these asymmetries, the regulatory authorities always give the former monopolies substantial advantages, such as the possibility of entering markets formerly forbidden to them, manufacturing telecommunication equipment, all types of services, and so on. Two major consequences can be observed due to the new market rules.

First, the former monopolies always try to increase the price of local communications to balance price cutting in the long distance market due to competition. Consequently the total profit is not reduced, and now it is used more to rapidly improve many new activities than to increase the telecommunication basis services quality, essentially to the detriment of the small customers.

Second, the regulatory authorities often adopt partial behavior to favor the emergence of one or more NO. Authorities are then implicated in bargaining processes with all the existing and potential competitors. Lobbying, political maneuvering, and international pressure are rapidly becoming a major aspect of the deregulation process.

In conclusion, whatever the type of deregulation, we observe that bargaining power becomes an essential parameter in the deregulation market revolution. It is important to note that the bargaining power of an actor is not proportional to his or her market power. This importance of bargaining power comes directly from the impossibility of economic theory to define clear market rules in a deregulated market when large asymmetries exist between actors. Authorities are obliged to regulate the market but do not know which rules they must invoke. This situation implies a lot of incomplete, contradictory, temporary measures to reduce imperfections of the initial deregulation act.

But finally, will the deregulation give rise to more competition or more regulation? Or both?

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