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Principles of Regulation and Competition Policy for the Telecommunications Industry

A Guide for Policymakers

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About The Author

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1. INTRODUCTION

1.1 OBJECTIVES AND OVERVIEW

The primary objective of this manuscript is to articulate a set of economic principles to assist policymakers in their deliberations on the issue of deregulation in telecommunications markets. The key question confronting policymakers concerns when the discipline imposed by competition can substitute for the discipline imposed by regulation. The complexity of this question is exacerbated by the technological dynamics of the industry: The product market is being redefined, "rents from incumbency" are considerably diminished and market share measures—recognized to be unreliable indicators of market power, particularly in regulated industries—are at best yesterday's snapshot of a marketplace in rapid and largely-irreversible competitive transition.

The Federal government enacted the 1996 Telecommunications Act in order "To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." This policy directive supports two basic premises for this analysis. First, the discipline imposed by economic regulation should defer to the discipline imposed by market forces whenever consumer welfare would be served by such a transfer of control.[1] Second, regulation should be presumed unnecessary absent market conditions that credibly demonstrate that there exists a threat of abuse of market power that poses a substantial and non-transitory risk to consumer welfare and would otherwise be likely to unduly impair the integrity of the competitive process.

The market landscape in the U.S. telecommunications industry is perhaps best characterized as a hybrid regulated-competitive market structure. There is, of course, a natural tension between regulation and market forces as both "compete" to impose market discipline.[2] The problem arises when regulation and competition work at cross-purposes and thereby risk harming consumers. Indeed, as Professor Alfred Kahn has poignantly observed, there is "no rational half-way house between thorough regulation and free competition."[3] This implies that any test for deregulation be structured and dutifully applied in a manner that promotes consumer welfare rather than the welfare of individual competitors.

The nexus between regulation and competition poses significant challenges for policymakers as they contemplate the merits of deregulation. Regulators naturally struggle with the difficult question as to the appropriate time to deregulate. And while there are risks associated with deregulation that is either too early or too late, the risks associated with waiting too long to deregulate are likely to be underestimated. This will tend to lead policymakers to erroneously conclude that deregulation that is "too late" is necessarily preferable to deregulation that is "too early" and yet the reality is likely to be quite different. The risk with deregulation that is somewhat "too early" is that the requisite degree of competitive discipline may fail to materialize. And yet, this risk is seemingly dominated by the countervailing risk that continuing regulation will itself discourage competition from materializing.

This analysis further reveals that the technical conditions of supply that constitute the central economic argument for regulation can, under certain conditions, be relied upon to constrain market power. Regulated telecommunications firms typically operate with high price cost margins due to scale/scope economies. Consequently, a price increase that produces even a small reduction in demand—as consumers curtail consumption and/or switch to alternative suppliers—can be expected to generate relatively large losses in contribution to joint and common costs and therefore prove unprofitable. This suggests that in evaluating the merits of deregulation, policymakers should be mindful of the fact that a relatively modest amount of competition can go a long way.

Finally, it is important for policymakers to recognize that a decision to deregulate does not mean that governmental oversight of competitive conduct would be terminated. It simply means that the form of governmental oversight would change from *ex ante* regulation by the

expert regulator to *ex post* supervision by the antitrust authorities.

The economic (regulatory and competitive) principles developed in this manuscript are reproduced below to serve as a reference for the reader and to foreshadow the principal themes.

1.2 WHEN TO REGULATE AND WHEN TO DEREGULATE

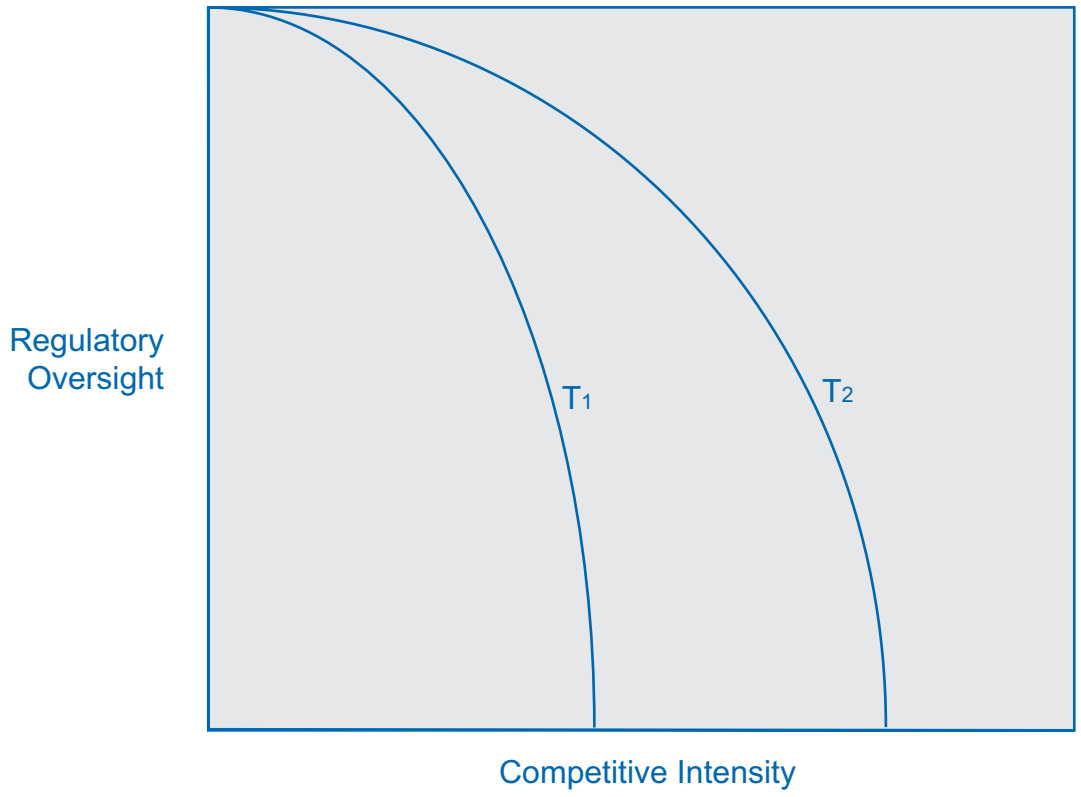
In general, there is likely to be agreement on the proposition that in the complete absence of rivalrous competition there is a compelling need for economic regulation of telecommunications markets. There is also likely to be agreement that when there is intense market rivalry, there is no compelling need for economic regulation. It necessarily follows that at some point along this continuum, from the absence of competition to intense market rivalry, consumers are better served by the discipline imposed by the market rather than the discipline imposed by regulation. Of course, precisely when regulators should "let go" and defer to market forces is further complicated by the fact that continued regulation may prevent the emergence of sufficient competition to deregulate entirely.

The current environment in the U.S. telecommunications industry poses significant challenges for the design of efficient regulatory policies. Historically, regulatory policies have been designed with the single objective of protecting consumers from the abuse of market power by monopoly providers of telecommunications services.[4, 5] In this respect, economic regulation serves as a substitute for competition in that regulators set the levels of both price and quality.

In the current telecommunications marketplace, regulatory practice is expanded to encompass two distinct objectives. First, economic regulation serves to protect consumers from the abuse of market power. Second, regulation serves to protect the integrity of the competi-

Figure 1:

Relationship between Regulatory Oversight and Competitive Intensity



tive process in the technologically-dynamic telecommunications industry.

There is a tendency for regulators to want to mettle with the competitive process and all too frequently this takes the form of subsidizing competitors and otherwise constraining the incumbent provider in a manner that is unrelated to possible abuse of market power. This undermines the integrity of the competitive process and harms consumers. Indeed, as Professor Alfred Kahn has observed:

> Subsidizing competitors at the expense of incumbents is a cheap way of getting political credit, but it is not a way of encouraging efficient competition—or, in the long run, of promoting consumer welfare.[6]

A key question facing policymakers and, in turn, the entire telecommunications industry concerns the manner in which regulatory oversight should yield to competitive market forces. Figure 1 above illustrates two possible transition paths from regulatory control to market control. These transition paths are labeled T_1 and T_2, respectively. Both transition paths reveal an inverse relationship between regulatory oversight and competitive intensity, but transition path T_1 shows regulatory oversight being relaxed at a faster rate with respect to competitive intensity than transition path T_2.

Figure 1 also reveals that the relationship between regulatory oversight and competitive intensity is non-linear: each additional unit of competitive intensity, appropriately defined, necessitates a greater reduction in the degree of regulatory oversight than the unit of competitive intensity that preceded it. Furthermore, regulatory oversight is terminated entirely for relatively modest levels of competitive intensity. This characteristic reflects the realization that there are real and non-trivial costs associated with economic regulation. With specific reference to the issue of deregulation, this observation suggests that economic regulation may not be warranted even if in its absence there is some limited exercise of market power.

Finally, there will, of necessity, be protracted debate amongst industry participants as to the manner in which

Regulatory Principles

Principle R-1: Economic regulation should be limited to essential services when market conditions would otherwise permit the (non-transitory) exercise of market power.

Principle R-2: Economic regulation should serve as a surrogate for competition.

Competition Principles

Principle C-1: Market forces are generally superior to government regulation for constraining market power when the former can be safely relied upon to provide the requisite level of market discipline.

Principle C-2: Deregulation policies should strike the appropriate balance between Type I errors (regulation when deregulation is warranted) and Type II errors (deregulation when regulation is warranted).

Principle C-3: Efficient deregulation policies should be both *technology-neutral* and *provider-neutral.*

Principle C-4: Deregulation policies should strike the proper balance between allocative, technical, and dynamic efficiency.

Principle C-5: Policymakers should not rely exclusively or even predominantly upon market share to draw inferences about market power in telecommunications markets.

Principle C-6: High price-cost margins, reflective of scale and scope economies, can serve to constrain the market power of the incumbent provider, *post-deregulation*.

Principle C-7: Predation is difficult in regulated network industries due to the (i) high-proportion of sunk costs and the fact that productive

capacity typically does not leave the industry even if particular competitors should exit the market; and (ii) emergence of new technologies that have dramatically lowered entry barriers.

Principle C-8: Whereas it is important to deregulate at the appropriate time based upon an objective assessment of market conditions, it is likely better to err on the side of somewhat too early rather than on the side of somewhat too late.

regulatory oversight should be relaxed and ultimately terminated as competitive intensity increases. The regulatory and competition principles articulated in this manuscript are designed to inform this debate in a manner that facilitates the development of sound competition policy for the U.S. telecommunications industry.

1.3 LEGISLATIVE AND STATUTORY DIRECTIVES

The federal government enacted the 1996 Telecommunications Act for the following purpose:

> To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.[7]

In particular, the preamble of the Telecommunications Act emphasizes (i) the promotion of competition; (ii) reduced regulation; (iii) "lower prices"; (iv) "higher quality services" and (v) investment in telecommunications infrastructure.[8, 9]

The *principle of statutory construction* requires that, wherever possible, the various provisions of a statute must be read so as not to create a conflict, [10] either with the other provisions of the statute, or with respect to the overall intent of the statute. Hence, in order to avoid a conflict with the multi-faceted provisions of the 1996 Telecommunications Act—increased reliance on market forces, investment in infrastructure and reduced regulation—"lower prices" must be interpreted, and in fact can only be interpreted, as those prices that would be realized under competitive market conditions. Prices will tend under competition to move in the direction of the underlying cost of supply. This implies that prices for services that are above cost will tend to fall and prices for services that are below cost will tend to rise, everything else held constant. No other interpretation of the phrase "lower prices" is consistent with the *principle of statutory construction*.

In similar fashion, the phrase "high(er) quality telecommunications services" must be interpreted as that level or those levels of quality that would prevail under competitive market conditions. In some cases, the level of quality may be expected to rise and in other cases the level of quality may be expected to fall. In addition, under competitive market conditions, we would expect consumers to enjoy greater choice in terms of service offerings that vary according to both price and quality dimensions.

The decision to place increased reliance upon market forces rather than regulation to instill the requisite level of market discipline necessarily limits the discretion that regulators can exercise in setting both price and quality. What this means precisely is that competition may be foreclosed if regulators set retail prices for the incumbent firm at artificially-low levels and/or if regulators set retail quality benchmarks for the incumbent firm at artificially-high levels. The competitive process must be allowed to determine price and quality for retail telecommunications services absent the regulators' innate tendencies to second-guess the marketplace.

For example, it is generally recognized that the deregulation of the airlines resulted in substantial gains in economic welfare even though average quality declined along with prices.[11] In this case, the marketplace responded to increased competition with price-quality combinations that more closely reflected consumer preferences.

1.4 ORGANIZATION OF MANUSCRIPT

The remainder of this manuscript is organized as follows. Section 2 articulates a set of key regulatory principles that address the scope and purpose of economic regulation

as traditionally practiced in North America. Section 3 articulates a set of competition policy principles designed to inform policymakers' deliberations on the deregulation issue and its implications for telecommunications policy. Section 4 provides a brief overview of deregulation trends in North America. Section 5 contains a brief summary and conclusion. Appendix A provides an overview of deregulation in local telecommunications markets in the United States. Appendix B provides an overview of the status of regulatory forbearance in local exchange markets in Canada.

2. REGULATORY PRINCIPLES

2.1 REGULATORY PRINCIPLE I

There is a general consensus in the economics of regulation literature that regulation should be limited to essential services that are not yet subject to the discipline of competitive market forces.[12] Essential services are typically defined as services of such importance to the economic and social welfare of the citizenry that universal access to such services at affordable rates remains a key element of public policy.

It is important to carefully distinguish between essential services and essential facilities. An essential service is defined with respect to the particular demand characteristics that the service exhibits in combination with applicable social equity considerations. In contrast, an essential facility is defined with respect to the underlying technical conditions of supply.[13] An essential service may or may not be produced with the use of an essential facility.[14]

Principle R-1. Economic regulation should be limited to essential services when market conditions would otherwise permit the (non-transitory) exercise of market power.

Historically, industries that produce critical infrastructure type services have been the primary focus of economic regulation. These include electric power, natural gas, telecommunications and water. The economic rationale for regulation is summarized succinctly by Professor Alfred Kahn:

> The importance of these industries, as measured not merely by their own sizable share in total national output, but also by their very great influence, as suppliers of essential inputs to other industries, on the size and growth of the entire economy. These industries constitute a large part of the "infrastructure" uniquely prerequisite to economic development. . . . That many of them are natural "monopolies": their costs will be lower if they consist of a single supplier. . . . That for one or another of many possible reasons, competition simply does not work well.[15]

Implicit in the above principle is recognition of the important idea that regulation should not serve to impede the development of competition that is durable in nature. Application of this principle necessarily poses some challenges for regulators when the product market is evolving in a manner that defies traditional classification of the (regulated) service as being homogeneous, uni-dimensional and subject to natural monopoly conditions.

2.1.1 THE SCOPE OF ECONOMIC REGULATION

We recognize that there is a cost associated with economic regulation in the sense that it distorts marketplace outcomes and is frequently administratively burdensome. Hence, it is critical that whatever form of regulation that is adopted be narrowly tailored to the task at hand. In other words, regulation, where applied, should be justified, in the sense that it passes a cost-benefit test,[16] and proportionate, in the sense that it is the least-intrusive ("welfare-maximizing") form of regulation consistent with the realization of the stated objectives.

2.1.2 *EX ANTE* VS. *EX POST* REGULATION

The preference for market as opposed to non-market outcomes should, at least in some cases, be matched by a similar preference for *ex post* rather than *ex ante* regulation and for similar reasoning. When regulation is required, *ex post* regulation is generally preferred to *ex ante* regulation, provided that the former is consistent with the realization of the stated policy objectives.

This preference derives from the recognition that the regulator should serve as "referee" for the game rather than a "player" in the game. This is necessarily the case because the regulator that serves as a "player" in the game is more likely to materially influence the course of the industry's competitive transition. In contrast, the regulator that serves as a "referee" for the game is by definition more of a passive participant in the competitive

process. This idea is closely tied to the public policy counterpart of the *Heisenberg Uncertainty Principle* in Physics, which is discussed below in connection with Competition Principle C-1.

Ex ante regulation also gives rise to a variant of *Say's Law* in that the supply of regulation tends to create demand for regulation. In other words, the very existence of an industry-specific regulator will tend to propagate rent-seeking and/or rent-defending behavior on the part of market participants—be they new entrants or incumbent providers.

Ex post regulation is sometimes criticized on grounds that it requires the showing of a "dead body" before the government acts. This criticism is not unlike that levied against the Sherman Act in the early part of the 20th Century. The antitrust legislation that followed the Sherman Act—principally the Clayton Act and the Federal Trade Commission Act—paid homage to the principle of *incipiency*. According to Judge Robert Bork, "this consists of the theory that anticompetitive potential of suspect practices may be discerned and the practices stopped, well before they have actual anticompetitive consequences."[17] That is, the government is obligated to intervene when it observes conduct that, if left uncorrected, would lead to an anticompetitive outcome, regardless of whether that anticompetitive outcome had actually occurred. From this perspective, *ex post* regulation can be conceived of in terms of a "code of conduct" for all market participants that can be expected to significantly reduce, if not completely eliminate, the prospect of anticompetitive behavior.

2.2 REGULATORY PRINCIPLE 2

The literature recognizes that a primary objective of economic regulation is to emulate a competitive market standard. To this end, Professor Kahn observes that "the single most widely accepted rule for the governance of the regulated industries is regulate them in such a way as to produce the same results as would be produced by effective competition, if it were feasible."[18, 19]

Whereas it is correct to state that regulation emulates a competitive market outcome in certain respects, it typically does not do so in all respects; limiting entry into certain markets, carrier-of-last resort obligations, broadly-average rates and cross-subsidization are all functions of economic regulation that are not easily reconciled with emulation of a competitive market outcome.[20]

Principle R-2. Economic regulation should serve as a surrogate for competition.

It must be stressed that regulation can at best serve as an imperfect substitute for competition. This is necessarily the case because regulators do not have the requisite information to replicate a competitive market outcome. Incentives play a critical role in a market economy in allocating scarce resources to their highest-valued use and in encouraging the most efficient means of producing society's output. Indeed, the experience on the world stage over the last two decades reveals the extreme limitations of command economies and the clear superiority of market economies in fostering these incentives.[21]

It was largely in recognition of the unavoidable informational asymmetries and the limitations they impose on the effectiveness of traditional rate-of-return ("command and control") regulation that led to the pervasive adoption of price regulation in the telecommunications sector in North America and, in fact, throughout the world.[22] In other words, regulators recognized the economic benefits that could be realized from decentralizing control to the regulated firm.

Deregulation is properly viewed as another step along the continuum from "command and control" regulation to market determination of prices and qualities. It is important to recognize, however, that the decision to deregulate telecommunications markets does not imply the absence of governmental oversight. Rather, the decision to deregulate is properly viewed as a decision to transfer oversight responsibilities from an industry-specific regulator—be it the FCC or the individual state public service commissions—to a more general antitrust or competition authority such as the Antitrust Division of the Department of Justice or the Federal Trade Commission.

2.2.1 REGULATION EMULATES A "COMPETITIVE" MARKET STRUCTURE

The fundamental principle that regulation should emulate a competitive market outcome begs the question as to what specific type of competitive market structure should serve as the benchmark for such emulation.[23] It is generally recognized that atomistic or perfect competition is not the appropriate benchmark for emulation by the regulatory authority because such competition does not reflect the operating characteristics of a business enterprise with large-scale, sunk capital investments—such as telecommunications firms.[24] This suggests that the equilibrium market structure for the telecommunications industry is likely to be *naturally oligopolistic* with a significant competitive fringe consisting primarily of service resellers.[25] The following passages are instructive:

- In this respect, perfect competition is not only impossible, but inferior, and has no title to being set up as a model of ideal efficiency. It is hence a mistake to base the theory of government regulation of industry on the principle that big business should be made to work as the respective industry would work in perfect competition.[26]
- The introduction of new methods of production and new commodities is hardly conceivable with perfect—and perfectly prompt—competition from the start. And this means that the bulk of what we call economic progress is incompatible with it. As a matter of fact, perfect competition is and always has been temporarily suspended whenever anything new is being introduced—automatically or by measures devised for the purpose—even in otherwise perfectly competitive conditions.[27]
- The idea of perfect competition '.... assumes the state of affairs already to exist which .... the process of competition tends to bring about .... (I)f the state of affairs assumed by the theory of perfect competition ever existed, it would not only deprive of their scope all the activities which the verb 'to compete' describes but would make them virtually impossible.[28]

As discussed in greater detail in Section 3, the nature of the production process for telecommunications services—high fixed costs and low variable costs—has important implications for market structure and the requisite degree of competitive intensity sufficient to warrant deregulation. We submit that even highly imperfect competition is likely to dominate the market outcome under what, in many cases, is likely to be highly imperfect regulation.

2.2.2 COMPETITIVE OUTCOMES VS. COMPETITIVE PROCESSES

It is critical that regulatory policies designed to encourage competition maintain the critical distinction between mandating the competitive outcome and fostering the competitive process.[29, 30] Sound regulatory policy should foster the competitive process, but should not attempt to mandate the competitive outcome. This is necessarily the case because if the outcome of the competitive process could be known in advance it would, of course, render competition totally unnecessary:

> If regulators were in fact all-knowing, there would be no need for competition. The regulator could simply direct the incumbent firm to produce in accordance with the efficient-firm standard. The reality, of course, is that regulators do not have sufficient information to actively engage this approach.[31]

Implicit in this discussion is the important principle that the marketplace should be relied upon whenever possible to provide the requisite discipline. This policy prescription recognizes that regulation is not benign and that there are social costs associated with the overreach of regulation. In other words, consumers are harmed when regulatory rules render it more profitable for competitors to do battle in the hearing room—in a quest for regulatory favoritism and protection—than deploy innovative new products and services in the marketplace. The high social cost of regulation is a prominent theme in the discussion of the costs and benefits of deregulation in Section 3.

2.2.3 COMPETITION AND INCUMBENT ENTITLEMENTS TO COST RECOVERY

As discussed in Section 1.1., the nexus between regulation and competition poses significant challenges for policymakers and, in turn, the firms they regulate. One of the more formidable challenges concerns the issue of cost recovery in a hybrid regulated-competitive market structure. In particular, we recognize that regulation should not preclude the regulated firm from a fair opportunity to recover its not imprudently-incurred cost.

The phrase "not imprudently-incurred cost" may initially strike the reader as somewhat awkward. Nonetheless, the distinction between "prudently-incurred costs" and "not imprudently-incurred" costs does serve to highlight an important difference worthy of note. Specifically, the burden of proof is placed on the regulator for establishing that the regulated firm's costs are not prudently incurred rather than on the regulated firm for proving that its costs are prudently incurred. In other words, there is a presumption in favor of allowing for cost recovery unless the regulator's case for imprudence is a credible one.

This discussion naturally prompts the question as to the precise nature of the risks that the regulated firm should be required to bear in hybrid regulated-competitive market structure. The risks that the regulated firm agrees to bear in this environment are those associated with market risks and not risks of the regulator's own making. As a general proposition, the incumbent providers are not entitled to protection from the natural play of competitive market forces.[32] By the same token, the regulator cannot artificially propagate those "competitive market forces" and then claim the incumbent provider has no recourse to the government on a takings claim—confiscation of property without due compensation—for protection from "competition."[33] This difference, which may be clearer in principle than in practice, is akin to that which distinguishes the arsonist's match from the strike of a lightning bolt.[34] The following passage attempts to draw the requisite lines of demarcation.

> The critical issue would seem to focus on the degree to which the regulator artificially propagates the economic forces that deprive the regulated firm of an opportunity to earn on the merits by constraining it to pricing rules and service obligations that prove advantageous to competitors. . . . Hence, it is important to recognize that the issue here is not the introduction of competition *per se*, but rather the accommodation of that competition through regulatory-assisted forms of entry that undermine the prevailing retail price structure and/or deny the incumbent firms an equal opportunity to compete on the merits. In other words, the validity of a takings claim is not independent of the origins of the 'competition' that erodes the regulated firm's revenue streams.[35]

2.2.4 TRADE-OFFS IN DEFERRING TO THE MARKET

Under traditional *monopoly* regulation, there are a multitude of objectives for rate-making practices that include but are not limited to: (a) avoidance of undue discrimination; (b) setting of "just and reasonable" rates; (c) simplicity and public acceptability; (d) revenue sufficiency; (e) rate stability; (f) fairness in apportionment of total costs; (g) maintaining standards for reliable service through timely infrastructure investment; and (h) encouragement of efficiency.[36] While there will be some reasonable differences of opinion concerning the relative importance of each of these objectives, it is generally held that economic regulation should pursue economic efficiency, fairness, simplicity, continuity, universal service and the development of new products and services.[37]

In addition, regulatory policy must effect the appropriate trade-offs between these various objectives. At times, the goals of social equity and economic efficiency may conflict with one another and regulators must defer to the public policy of an increased reliance on market forces to reconcile this conflict.

Under traditional monopoly regulation, policymakers have the discretion to pursue selected non-market-based outcomes. The current hybrid regulated-

competitive market structure in the telecommunications industry poses some difficulties for traditional rate-making practices. In other words, at least some of the aforementioned objectives associated with traditional monopoly regulation will likely prove to be unsustainable in a competitive marketplace. Hence, there are clearly trade-offs that arise naturally in transferring control over market discipline from the regulator to the market. That is to say, some traditional rate-making practices may prove to be unsustainable in a competitive market.

Trade-offs in deferring control to the market might include, but are not necessarily limited to, less stable prices, differential pricing reflective of differences in market demand characteristics,[38] service offerings that reflect varying price-quality attributes, and possible bankruptcies among telecommunications providers, possibly even the incumbent providers themselves.[39]

By the same token, there are non-trivial costs associated with continued economic regulation of an industry. To wit, regulation may provide consumers with limited choices due to reduced incentives for innovation and product differentiation.[40] A prominent theme in Section 3 is that enhanced innovation likely dominates lower prices in terms of consumer benefits.

3. COMPETITION PRINCIPLES

In this section, we articulate a set of competition principles that should serve as a guide to policymakers as they contemplate the conditions sufficient to deregulate telecommunications markets.

3.1 COMPETITION PRINCIPLE 1

Principle C-1. Market forces are generally superior to government regulation for constraining market power when the former can be safely relied upon to provide the requisite level of market discipline.

The rationale for *Principle C-1* follows directly from the well-known deficiencies of "command and control" economies relative to market economies in providing the goods and services that consumers want at prices that reflect efficient production techniques and processes.[41]

Incentives in a market economy serve to allocate scarce resources to their highest valued use; to provide incentives for cost minimization and innovation; and to encourage firms to supply those products and services that consumers demand. These incentives derive from the profit motive—the pursuit of individual self-interest ultimately benefits society by providing the goods and services that consumers want at the lowest possible cost. This, of course, is the proverbial "invisible hand" of Adam Smith:

> As every individual, therefore, endeavors as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. … he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. … By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.[42]

Recent events unmistakably confirm that market economies and the use of incentives are superior to command economies and government mandates for producing the goods and service that consumers want at the lowest possible cost and to foster innovation. In evaluating the fundamental flaws in the Soviet economic system, Yergin and Stanislaw observe that:

> Already by the early 1970s, a fatal weakness was becoming clear in the system: It could not, for the most part, innovate. There was no reward, no reason to do anything new. In fact, there was a strong predisposition to avoid change of any kind, for change caused enormous bureaucratic headaches. The best thing was to keep doing what had been done before. In more advanced economies, innovation was essential to the promotion of economic growth. But in the Soviet system innovation was characterized mainly by its absence. And that applied to everything—whether it was small changes to make processes work better or the introduction of new products.[43]

3.1.1 THE MARKET IS THE DEFAULT

Regulation is justified in a market economy only when there is a significant market failure that allows for the abuse of market power.[44] We do not typically regulate a market in the absence of a reason to deregulate it; we choose not to regulate that market unless there is a compelling reason to continue to regulate it. In other words, the default is not reliance upon regulation, but rather reliance upon the market for providing the requisite level of price/quality discipline.[45]

The primary justification for economic regulation in a given market is the infeasibility of competitive sup-

ply—the existence of natural monopoly conditions such that the market can be served at least cost by one rather than multiple service providers. In fact, according to Professor Ronald Braeutigam, "the central economic argument for economic regulation of an industry is that the industry is characterized by 'natural monopoly'."[46] In light of what has occurred in telecommunications markets as well as what can reasonably be expected to occur, it may be difficult to support the proposition that "the central economic argument for economic regulation" is still present. And, if it is not present, what is the public policy rationale for continued regulation at the retail level.

From a public policy perspective, economic regulation can only be justified when the expected benefits of regulation exceed the expected costs; that is to say, we should not spend $10 to correct an economic distortion that if eliminated would yield at most $1 in social benefits. In evaluating the merits of regulation, it is necessary to compare economic welfare in the free-market (unregulated) outcome with economic welfare in the regulated outcome, inclusive of the costs of regulation.[47]

A market is effectively ("workably") competitive if the price (quality) that prevails in the market is sufficiently close to the price (quality) that would prevail if the market were competitive and that any attempt to regulate a lower price (higher quality) would entail expected social costs that exceed the corresponding social benefits.[48] In this sense, regulation should be presumed unnecessary absent market conditions that credibly demonstrate that there exists a threat of abuse of market power that poses a substantial and non-transitory risk to consumer welfare and would otherwise be likely to impair unduly the integrity of the competitive process.

3.1.2 PUBLIC POLICY AND THE HEISENBERG UNCERTAINTY PRINCIPLE

The public policy counterpart to the *Heisenberg Uncertainty Principle* in Physics recognizes that the presence of economic regulation invariably alters the course of the market's competitive transition.[49, 50] Furthermore, the regulator's influence upon the resultant transition path may be sub-optimal.

> The real problem with perpetuating competition under asymmetric regulation is that it cannot be known what it is that is being observed. In other words, the implicit social cost of these non-uniform regulatory policies lies in the inability of market forces to differentiate between what is truly welfare-enhancing competition—in the sense of innovative new products and services and more cost-effective production techniques—and what is merely inefficient duplication. What this suggests is perhaps the economic analog of the "Heisenberg Uncertainty Principle" in physics: The optimum market structure is indeterminate under asymmetric regulation because the regulatory rules contaminate the experiment upon which the conclusion rests.[51]

The presence of regulation tends to divert resources in socially-unproductive ways; regulation should not provide a means for either incumbent or non-incumbent providers to secure a strategic advantage in the "hearing room" that they cannot secure on the merits in the marketplace.[52] Indeed, history suggests that it is difficult for regulators to serve as passive bystanders as market discipline passes from regulatory control to competitive control.

In summation, Competition Principle C-1 recognizes that there is a real cost of regulation and hence economic regulation may not be justified even if there is some non-trivial departure from effectively-competitive market conditions. The higher the costs of regulation, broadly defined, the greater the departure from competitive conditions that can be justified under deregulation.

3.2 COMPETITION PRINCIPLE 2

Any regulatory policy decision necessarily carries with it the risk of error. For example, the policymaker may decide to regulate when deregulation is warranted—a "false positive" or what is commonly referred to as a Type I error. Alternatively, the policymaker may decide to deregulate when regulation is warranted—a "false negative" or what is commonly referred to as a Type II error. How the policymaker balances these risks turns principally upon the expected costs and benefits of each possible

course of action. This suggests the second competition principle.

Principle C-2. Deregulation policies should strike the appropriate balance between Type I errors (regulation when deregulation is warranted) and Type II errors (deregulation when regulation is warranted).

In the following passage, Professor Fred McChesney discusses the recent evolution of thought on the part of the antitrust courts in balancing Type I and Type II errors.[53]

- More recently, however, antitrust courts have recognized that there are two types of error to be considered, only one of which enters into per se reasoning. Type I error refers to a "false positive," analogous in the legal context to mistakenly imposing liability on an innocent defendant. Type II error is a "false negative," or failing to punish a guilty party. Each type of error has a cost associated with it. . . . Optimally, decisions would be made so as to minimize the costs of being wrong.[54]
- The trade-off between Type I and Type II error is common to all of law. But antitrust is different in one respect. The cost of Type II errors (failing to penalize anticompetitive contracts and practices) will be low, as long as barriers to entering markets plagued by suspected anticompetition are also low. As prices rise because of anticompetitive contracts or practices, new entrants emerge to alleviate or even eradicate the problem. Letting the guilty go free in antitrust is generally a self-correcting problem.
- Type I error, however, is not subject to much self-correction. If liability is imposed on conduct that actually is beneficial (that is, competitive innocents are punished), there is no market corrective for judicial mistake.[55] (footnotes omitted)

3.2.1 BALANCING TYPE I AND TYPE II ERRORS

In deciding upon the appropriate balance of Type I and Type II errors, the policymaker should consider whether one type of error is more amenable to self-correction by market forces than the other type of error.[56] Judge Frank Easterbrook states this basic idea in the most succinct of terms by observing that "[T]he economic system corrects monopoly more readily than it corrects [regulatory] errors. . . . in many cases, the costs of monopoly wrongly permitted are small, while the costs of competition wrongly condemned are large."[57]

Relatively lax regulation that allows prices to exceed competitive levels will typically be corrected by competitive entry; in contrast economic regulation that is too stringent will discourage competitive entry and thereby thwart one of the key objectives of public policy in the telecommunications industry. In light of this public policy of promoting competition for telecommunications services, policymakers should be more averse to committing Type I errors (regulation when deregulation is warranted) than committing Type II errors (deregulation when regulation is warranted). This follows from the fact that the risks associated with deregulation are lower than the risks associated with continued regulation in the present environment.

Finally, it must be recognized that in regulating a market, we cannot observe the state of the world in which regulation is not present. As a result, there may be a tendency on the part of policymakers to conclude that there is little or no cost to regulation simply because those costs cannot be observed directly.

3.3 COMPETITION PRINCIPLE 3

It is generally held that policymakers should maintain a policy of neutrality or non-interference with respect to the natural evolution of an industry. For example, Joel Klein, the former Assistant Attorney General for Antitrust in the U.S. Department of Justice, observes that policymakers are charged with refereeing the struggle between competing interests while recognizing that "the referee's role must be appropriately circumscribed."[58] This necessarily implies a public policy of non-interference, to the greatest extent possible, with respect to both tech-

nology choice and the survival of particular competitors, respectively.

Principle C-3. Deregulation policies should be both *technology-neutral* and *provider-neutral.*

Regulation serves as an imperfect substitute, or surrogate, for competition under conditions in which competition for particular services in particular markets is infeasible. Regulation will propagate market distortions if it attaches to certain technologies, but not to others.

The adoption of new technologies in the marketplace should reflect the natural cost and demand conditions prevailing in the market rather than technology-specific regulation. The risk is that the adoption of a new technology (respectively, the retention of an old technology) reflects an attempt to circumvent regulation rather than partake of efficiency gains.

3.3.1 A CURRENT EXAMPLE—VOICE OVER INTERNET PROTOCOL

Voice over Internet Protocol (VoIP) represents a technological paradigm shift in the provision of voice telephony—one that promises to irrevocably change the economics of the telecommunications industry.

> VoIP Technology enables end users to treat voice telephone calls and their accompanying features as just another set of applications they can run over any broadband connection . . . VoIP thus frees such applications from the control of telephone company software locked in centralized circuit switches. In this respect, VoIP invites end-user innovation for voice services in the same way that the Internet facilitates such innovation for communications in general: it turns the circuit-switched telephone network "inside out."[59]

In the United States, the FCC has preempted state regulation of VoIP services, ruling that these services are inherently interstate in nature. The FCC further indicated that this determination is independent of whether VoIP is ultimately classified as an information service or a telecommunications service.[60] The FCC's policy decision is not *technology-neutral* as competing telecommunications services provided over traditional, circuit-switched technology are subject to common carrier regulation. An outstanding question concerns whether the interest in providing VoIP among telecommunications carriers and cable companies in the U.S. is attributable to a new, cost-effective technology or an opportunity to circumvent regulatory oversight, or both?

In its recent Telecom Decision CRTC 2005-28,[61] the Canadian Regulatory Commission decided to attach regulation to the "local VoIP services" of the incumbent local exchange carriers (ILECs), but not to the VoIP services provided by other entities. The Commission's policy decision is not *provider-neutral*. This decision is further noteworthy because there is widespread recognition, if not unanimity of opinion, among economists and policymakers that asymmetric regulation of this type entails high social costs. The practice of asymmetric regulation is discussed in the following subsection.

These policy decisions beg the question as to whether it is advisable to achieve symmetric regulation by handicapping all providers/technologies in a non-distortionary manner or handicapping none of the providers/technologies? The former path seems both unnecessary and unwise, particularly in light of a public policy that places increased reliance on competition and market forces for providing the requisite level of market discipline.

Writing almost two decades ago, antitrust scholar and former FCC Commissioner Glen Robinson proved to be amazingly prophetic in contemplating the future of competition in local exchange markets and the prospect that regulators would interfere with this process:

> Some markets that are now monopolistic, such as local exchange service, may continue to resist competition. However, even they will be vulnerable at least to a kind of Schumpeterian "creative destruction" that should promote diversity and change—unless regulators frustrate the process.[62]

Indeed, the nature of the metamorphosis now underway in telecommunications markets is becoming increasingly apparent.

- It is now no longer a question of whether VoIP will wipe out traditional telephony, but a question of how quickly it will do so. People in the industry are already talking about the day, perhaps only five years away, when telephony will be a free service offered as part of a bundle of services as an incentive to buy other things such as broadband access or pay-TV services. VoIP, in short, is completely reshaping the telecoms landscape.[63]
- "Voice over Internet Protocol," known by its increasingly monosyllabic acronym VoIP ("voyp"), is a textbook model of such creative destruction. And, in a few short years, this technology may well uproot the foundation of traditional telephone regulation.[64]
- In the early years of the 21st century, as a critical mass of American consumers ordered broadband connections, new service providers and software developers began specializing in VoIP products that rivaled conventional circuit-switched telephone service in call quality. The result is a tremendous boon for consumers—and a potential catastrophe for the traditional telephone industry.[65]

VoIP technology is facilitating the entry of a seemingly endless array of competitive local telephone service providers, including access-independent applications provided by Vonage and Primus, as well as access-dependent services provided by major cable companies.

Indeed, to implement their strategy of serving as the one-stop provider of telecommunications services, cable companies *must* enter the market for voice telephony. In addition, according to Nuechterlein and Weiser, "vertically-integrated broadband access providers will increasingly include VoIP services 'for free' with the sale of other services, as Cablevision has already done."[66] Moreover, a recent *Wall Street Journal* article discusses the packages of services that Cablevision sells and notes that "Cablevision is effectively giving away phone service."[67]

3.3.2 ASYMMETRIC REGULATION

In general, deregulation policies should be *pro-competition* rather than *pro-competitor.* As John de Butts, a past chairman of AT&T, observed more than 30 years ago in a landmark speech before the National Association of Regulatory Utility Commissioners (NARUC):

> On the other hand, it appears worth noting that the fervor for competition on the part of some regulatory officials has not been accompanied by any demonstration of enthusiasm for its necessary concomitant—deregulation. Which brings us to the question: can there be competition—real competition—when not all the parties to it enjoy the same freedoms or bear the same responsibilities, endure the same constraints.[68]

Mr. de Butts recognized that the temptation to practice asymmetric regulation could well frustrate the very competitive process that regulatory policies were designed to encourage.

Competition policies should serve to protect the integrity of the competitive process and therefore promote economic efficiency rather than serve to protect individual competitors.[69] The practice of asymmetric regulation emasculates the competitive process to the detriment of consumers. It is accepted doctrine that regulation should serve to protect the integrity of the competitive process rather than the financial viability of individual competitors. Unfortunately, the reality is often quite different.

> The regulator tends as a matter of constitutional preference … to convert the maintaining of the "level playing fields" into an interference with the contest itself. Regulators move from trying to assure a fair and equal start to ensuring an equal finish; to preserve whatever the regulator conceives to be the proper market shares of the various competitors.[70]

The practice of asymmetric regulation gives rise to a problem of "moral hazard" in which new entrants and/

or incumbents develop an unnatural dependence on the regulatory process for their very survival.[71] For example, new entrants may have limited incentives to operate efficiently if they know that they can always appeal to regulators for relief, say in the form of additional competitive constraints on the incumbent provider.[72] They do so because they understand that regulatory agencies do not want to see competitive experiments fail.[73] As a former chief economist of the FCC observed in the context of long distance competition in the United States:

> A firm does not have to possess a large market share to exercise economic power. The OCCs [other common carriers] do not possess large market shares, but they can certainly exercise power by threatening to make government officials who have inflicted huge costs on consumers to promote competition look bad. They can do this by threatening to fail. A small market share and low profits can be assets in such an extortion campaign. They can make the threat of failure more compelling and thus make it more likely that government officials will yield to extortionate demands. And as is always the case with extortionists, giving in merely encourages additional blackmail attempts.[74]

For a prolonged period of time, the FCC severely restricted AT&T's ability to reduce prices in response to competition out of concern that lower prices would place new entrants in financial jeopardy. These policymakers ultimately came to realize that these asymmetric regulatory policies succeeded only in forcing consumers to pay higher prices than would otherwise have been necessary.[75] The following passage is instructive:

> It can be argued, for instance, that some of the Commission's regulatory actions in the interexchange market that were designed to promote competition during transition, such as restrictions on competitive pricing responses by AT&T, will have resulted in substantial, unnecessary costs for society that never would have been incurred in a truly competitive marketplace. Moreover, this approach will have directly increased consumer costs by requiring regulated firms to charge higher prices to protect competitors during the transition.[76]

There is a natural temptation for regulators to mistake rivalry for competition. A large number of competitors does not enhance consumer welfare if lower prices, higher quality services and more varied product choices could be obtained with somewhat fewer competitors. The focus should therefore be on consumer welfare rather than the absolute number of competitors. It necessarily follows that competition policies should serve to accommodate the transition to competition without propagating entry artificially.

Raymond Gifford, the immediate past chairman of the Colorado Public Utilities Commission commented recently on the incentives that state regulators have to encourage entry,[77] albeit artificially, in local telephone service markets by creating profitable opportunities for prospective market entrants.[78, 79]

> While this incentive to create a margin may not be "real competition", the behavior comports with the regulators' incentives and abilities. A short time horizon, political pressure to show gains in competitive entry, and a plastic rate methodology – all this gives the regulator ample room to furnish the aesthetics of competition.[80]

Competition policies grounded in social equity considerations (e.g., universal service) should be borne by all market providers in a manner that is competitively-neutral and hence non-distortionary.

The performance of asymmetric regulation in the telecommunications industry (and in most other regulated industries, for that matter) strongly suggests that such policies will be abused and ultimately serve to impede rather than promote competition. As Professor Alfred Kahn has lucidly observed:

> In these circumstances, the only remaining purpose of all the competitive handicapping of the Bell successor companies would have to be the desire to protect competitors. In my view, regulators have no business being in that business. It is not their proper function to interfere with the market's determination—subject of course

> to the antitrust laws, strenuously enforced—of which companies deserve to survive and what their market shares should be.[81]

In a similar context, The Honorable Stephen Breyer, Associate Justice of the U.S. Supreme Court, has warned of the dangers associated with just such misdirected protections:

> A second special policy risk of deregulation is that government policymakers will protect competitors instead of protecting competition. This is a problem familiar to students of antitrust. It arises when regulators or antitrust enforcers confuse means with ends by thinking that the object of the law is to protect individual firms from business risks rather than to bring consumers the price and production benefits that typically arise from the competitive process. Where deregulation is at issue, the consequence of misdirecting protection is to threaten to deprive the consumer of the very benefits deregulation seeks."[82]

3.3.3 EVOLVING PRODUCT MARKETS AND INCUMBENT RENTS

The telecommunications industry today is in the midst of a sea change of seemingly unprecedented proportion in which markets are being redefined as a result of shifting technological and market forces. This is perhaps best characterized as a process of technological and market convergence in which the unit of sale increasingly encompasses bundled arrays of services and options provided over different technological platforms. These include the proverbial triple-play, which consists of telephony, video and broadband. Increasingly, the triple-play is morphing into the "quadruple-play" with the addition of wireless to the product mix.

The nature of competition in telecommunication is no longer for individual services, *per se*, such as local or long-distance telephone service, but rather for the right to serve as the customer's one-stop provider of the entire array of communications services, including local/long distance telephone service, broadband, video entertainment and wireless. This represents a fundamental change in the nature of telecommunications product markets.

Policymakers are quite naturally concerned that the incumbent provider in a market that has been opened to competition will necessarily enjoy an advantage over its rivals solely because of its incumbent status. In other words, there may be something akin to "rents from incumbency," which may be defined as the propensity for consumers to remain with the incumbent provider in the face of comparable (price/quality) service offerings from rivals.[83]

One way in which regulators have attempted to counter these perceived "incumbent rents" is to prohibit incumbent providers from contacting customers who have recently defected to a competitor for the purposes of enticing that customer back. These are sometimes referred to as restrictions on the use of promotions and winbacks.[84] The purported rationale for these restrictions is that entrants must incur substantial customer-specific costs (such as marketing, order entry, and service-initiation costs) in attracting customers for their services. Should the incumbent provider succeed in convincing these customers to switch back to its services, the entrant may not be able to recover the customer-specific sunk costs that may have been incurred.

These asymmetric regulatory restrictions on winbacks and promotions raise a number of thought-provoking issues. First, as a general principle, regulators should not be in the business of guaranteeing any market participant—whether they be new entrants or ILECs—that they will necessarily be able to recover their costs. Indeed, competitive markets are distinguished by the absence of just such guarantees.

Second, it is important to recognize that "incumbency" is not well-defined in the evolving telecommunications product market. In this era of market and technological convergence in which customers are increasingly purchasing an entire array of telecommunications and video entertainment services—frequently as packages—from a number of competing suppliers using a variety of different technological platforms, it is unclear whether the "incumbent" is the local exchange car-

rier, the cable company, the wireless provider or some other entity. To wit, while the cable companies are new entrants into voice telephony, the ILECs are new entrants into video entertainment, which is likely to be considerably more difficult and expensive in terms of the capital requirements.[85] Indeed, the cable companies may be considerably further along in offering telephony than the ILECs are in offering video entertainment:

> Cable operators are much further along in offering phone services than the new AT&T is in offering TV. Cable companies already have more than three million phone subscribers and adding more every day. The danger facing AT&T is that by the time it works all the bugs out of its TV technology, cable will have a strong lead in signing up households for multiple services, which tends to increase customer loyalty.[86]

Hence, whereas the cable companies are incurring customer acquisition costs to attract their customers' telephony business, the ILECs are incurring customer acquisition costs to attract their customers' video entertainment business.[87] There is a certain symmetry between the ILECs and the cable companies in terms of market positioning—each is the incumbent provider of one product in the bundle of products—but fundamental, regulatory asymmetries in the form of winback and promotion restrictions may serve to soften the degree of price competition.

In commenting recently on the flexibility that should be afforded incumbent providers in response to competition from rivals, Paul Vasington, the immediate past Chairman of the Massachusetts Department of Telecommunications and Energy, observed that "There is something inconsistent about an analysis that attempts to show that competition is insufficient based on evidence of responses to competition."[88] Indeed, winbacks and promotions are an integral part of the interminable, competitive struggle between market participants and the incumbent provider should, in general, not be prohibited from responding to competitive market forces in this manner.

Third, once the customer switches to a rival, the ILEC would then have to incur the customer acquisition costs to attract that customer back.

Fourth, any attempt on the part of regulators to prevent the ILEC from mounting a competitive response would only serve to allow its rivals to "get away" with offering consumers less value, higher prices and/or lower quality than would otherwise be available to them.

Finally, to the extent that selected customers do exhibit some inertial tendencies to remain with the incumbent provider, those customers are likely to be disproportionately low-usage customers who are among the least attractive for any carrier to serve. In this sense, the incumbent provider's carrier-of-last resort obligation could well represent a competitive disadvantage.[89]

3.4 COMPETITION PRINCIPLE 4

Virtually all public policies should have some efficiency metric at their core. Economists commonly employ three distinct measures of economic efficiency: allocative efficiency, dynamic efficiency and technical (productive) efficiency.[90]

Allocative efficiency refers to the relationship between the price of the service and the underlying marginal (incremental) cost of the service at any given point in time. Consumers make their purchasing decisions on the basis of the prices they face for goods and services relative to the valuation that they place on these goods and services. When prices deviate from marginal or incremental cost, there is a mismatch between the valuations that society places on the goods and the resource costs that society must incur in producing the good. This mismatch creates allocative efficiency losses.

The loss in surplus that results when prices diverge from underlying incremental cost is commonly referred to as an allocative efficiency loss precisely because society's resources are not being allocated in accordance with the valuation that society places on them. Hence, aligning prices more closely with underlying incremental cost tends to enhance allocative efficiency.

Dynamic efficiency is concerned with the optimal investment over time in capital formation, cost-reducing innovation and product innovation. Dynamic effi-

ciency is particularly critical in infrastructure industries that serve as key drivers of economic growth.[91, 92]

Productive or technical efficiency is concerned with production at the lowest possible cost. A firm is technically efficient if it (i) uses the minimum possible amount of inputs to produce its output; or, equivalently, (ii) produces the maximum possible amount of output from any given quantity of inputs.

In general, public policies should strive to balance these various measures of efficiency in recognition of the desired end-state of the public policy. This observation suggests the next competition principle and associated observations.

Principle C-4. Deregulation policies should strike the proper balance between allocative, technical, and dynamic efficiency.

To illustrate this basic idea, consider the case of patents, which are essentially government-created barriers to entry. Patents are granted in order to provide the innovator with the requisite incentives to innovate. On any given day, the government could presumably declare all patents null and void. In the short-run, this would serve to reduce the prices for products and services that previously operated under patent protection. In the longer run, such actions will serve to reduce, perhaps significantly, the rate of innovation and product differentiation. In other words, as a matter of public policy we accept transitory distortions in allocative efficiency—prices in excess of marginal cost—in order to encourage dynamic efficiency—optimal investment in innovation over time.

3.4.1 IMITATION VS. INNOVATION IN THE DESIGN OF COMPETITION POLICY

In many cases, consumer welfare can be better served by encouraging higher rates of innovation (dynamic efficiency) rather than by focusing exclusively on lower prices (allocative efficiency). In the following passage, Professor Joseph Schumpeter admonishes against an exclusive focus on the price variable:

> The first thing to go is the traditional conception of the *modus operandi* of competition. Economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position. … But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts, but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance)—competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives.[93]

Professor James Bonbright, a leading authority in the field of public utility regulation, explains the critical importance of encouraging dynamic efficiency in a market economy:

> Under unregulated competition, the price system is supposed to function in two ways with respect to the relationship between the price of the product and the cost of production. In the first place, the rate of output of any commodity will so adjust itself to the demand that the market price will tend to come into accord with production costs. But in the second place, competition will impel rival producers to strive to reduce their own production costs in order to maximize profits and even in order to survive in the struggle for markets. This latter, dynamic effect of competition has been regarded by modern economists as far more important and far more beneficent than any tendency of "atomistic" forms of competition to bring costs and prices into close alignment at any given point of time.[94]

Recognition of the operative trade-offs between these various measures of efficiency is particularly critical in technologically-dynamic industries. The capital-intensive

nature of these industries is such that relatively high price-cost margins may be necessary, not only for cost recovery, but also to provide the requisite incentives for investment in innovation. In addition, there is a natural tension that arises between allocative and dynamic efficiency because lower prices are directly observed by the policymaker's constituency whereas foregone innovation is not.

In what is arguably the fundamental theorem of economics, we recognize that economic resources invariably flow to their most profitable rates of return. An immediate corollary to this theorem is that firms do not invest in markets unless they believe there is a reasonable opportunity to recover their costs. This implies that while barriers to entry may sustain *supra-competitive prices* (prices above competitive levels), the complete absence of all barriers to entry will tend to discourage investment and retard innovation.

Hence, while barriers to entry can be a source of market power, the complete absence of barriers to entry may constitute the ultimate barrier to entry. Competition policies (e.g., unbundling, interconnection, resale) that focus exclusively on the elimination of barriers to entry necessarily entail trade-offs between imitation and innovation (respectively, between allocative and dynamic efficiency). For example, permitting market entrants to utilize the network facilities of the incumbent provider at prices that may well be more favorable to the new market entrants than to the incumbent providers themselves invites those new entrants to become *de facto* clones of the incumbent provider.[95] In other words, this policy decision trades off product innovation for product imitation. And yet, as Professor Schumpeter reminds us in the above quotation, it is principally innovation that drives a market economy and enhances consumer welfare.

3.4.2 THE FCC'S MORE TEMPERED APPROACH TO NETWORK UNBUNDLING

It is instructive in exploring the trade-offs between imitation and innovation to trace the FCC's evolution of thought on the issue of unbundling and the pricing of network elements because it has changed over time in recognition of inherent flaws in its original approach. Following the passage of the 1996 Telecommunications Act, the FCC issued its *Local Competition Order* in August of 1996. In this order, the FCC championed its TELRIC ("ideally-efficient firm") standard for the pricing of unbundled network elements and placed virtually no restrictions on the number and type of network elements that the ILECs were required to unbundle. The following passage from the FCC's 1996 *Local Competition Order* is instructive:

> Congress recognized in the 1996 Act that access to the incumbent LECs' bottleneck facilities is critical to making meaningful competition possible. As a result of the availability to competitors of the incumbent LEC's unbundled elements at their economic cost, consumers will be able to reap the benefits of the incumbent LECs' economies of scope and scale, as well as the benefits of competition. Because a pricing methodology based on forward-looking costs simulates the conditions in a competitive marketplace, it allows the requesting carrier to produce efficiently and to compete effectively, which should drive retail prices to their competitive levels. We believe that our adoption of a forward-looking cost-based pricing methodology should facilitate competition on a reasonable and efficient basis by all firms in the industry by establishing prices for interconnection and unbundled network elements based on costs similar to those incurred by the incumbents…[96]

The FCC believed at the time that its fundamental task in implementing the provisions of the 1996 Telecommunications Act was to mandate a competitive market outcome rather than to foster a competitive process *a la* Professor Schumpeter.[97] Justice Breyer, in characteristically eloquent fashion, sought to point out the inherent problems with the FCC's approach:

> The competition that the Act seeks is a process, not an end result; and a regulatory system that imposes through administrative mandate a set of prices that tries to mimic those that competition would have set does not thereby become

> any less a regulatory process; nor any the more a competitive one.[98]

For example, in the *UNE Remand Order*,[99] the FCC clearly took the view that network unbundling would accelerate facilities-based investment on the part of the new entrants. This conclusion was based, in part, on assurances by the CLECs (competitive local exchange carriers) that they would build their own networks once they established a "foot-hold" in the market with the use of UNE-P.[100, 101] This has sometimes been referred to as the *stepping-stone-theory* because it was initially envisioned—incorrectly as it turns out—that the CLECs would move from leasing network elements to building their own facilities-based networks.

> We agree with the competitive LECs that argue that unbundled access to certain incumbents' network elements will accelerate initially competitors' development of alternative networks because it will allow them to acquire sufficient customers and the necessary market information to justify the construction of new facilities. Indeed, many commenters in this proceeding emphasize that they plan to deploy alternative facilities as soon as it is technically and economically possible to do so at a cost that is close to the incumbent LECs' prices for network elements.[102] (footnotes omitted).

Notably, the FCC's views expressed in the subsequent *Triennial Review Order* concerning the relationship between unbundling and investment in facilities-based networks are an about-face from its earlier views as expressed in the *UNE Remand Order*.

> Although we recognize that Congress intended to create a competitive landscape through resale, interconnection and facilities-based provision, and a combination of these modes of entry, in practice, we have come to recognize more clearly the difficulties and limitations inherent in competition based on the shared use of infrastructure through network unbundling. While unbundling can serve to bring competition to markets faster than it might otherwise develop, we are very aware that excessive network unbundling requirements tend to undermine the incentives of both incumbent LECs and new entrants to invest in new facilities and deploy new technology.[103, 104]

The above passage underscores a key concern with artificially-low prices for network elements. To wit, it creates a "bad equilibrium" in which the incumbent providers do not invest because they cannot recover their costs and their rivals do not invest because it is cheaper to lease.

Finally, in its recently released *TRO on Remand*, the FCC continues this line of reasoning when it eliminated mass market switching as an unbundled network element. The following passage is noteworthy:

> Based on the evidence of deployment and use of circuit switches, packet switches and softswitches, and changes in incumbent LEC hotcut processes, we determine not only that competitive LECs are not impaired in the deployment of switches, but that it is feasible for competitive LECs to use competitively deployed switches to serve mass market customers throughout the nation. Further, regardless of any potential impairment that may still exist, we exercise our "at a minimum authority" and conclude that the disincentives to investment posed by the availability of unbundled switching, in combination with the unbundled loops and shared transport, justify a nationwide bar on such unbundling.[105]

The FCC continued with its revisionist thinking in its *NPRM* on TELRIC wherein it intimates that the artificially-low pricing of network elements may have discouraged facilities-based entry.

> Our concerns in evaluating the TELRIC pricing rules are somewhat different than those present at the time the Commission adopted its *Local Competition Order*. At that time, local competition was largely a theoretical exercise and we placed a premium on the need to stimulate entry into the local exchange market.[106]

> To the extent that the application of our TELRIC pricing rules distorts our intended pricing signals by understating forward-looking costs, it can thwart one of the central purposes of the Act: the promotion of facilities-based competition.[107]

Notably, the FCC's more-balanced approach reflects, in part, the guidance that had previously been provided by the courts. As the DC Circuit explains in its *USTA Decision*:

> Each unbundling of an element imposes costs of its own, spreading the disincentive to invest in innovation… At the same time – the plus that the Commission focuses on single-mindedly – a broad mandate can facilitate competition by eliminating the need for separate construction of facilities where such construction would be wasteful. Justice Breyer concluded that fulfillment of the Act's purposes therefore called for 'balance' between these competing concerns.[108] (footnotes omitted).

The *stepping-stone theory* argues that CLECs will naturally migrate from reselling the services of the incumbent providers to investing in their own facilities-based networks. And yet the reality is likely the complete opposite—the presence of multiple facilities-based providers will naturally create the wholesale conditions that regulators seek as each facilities-based provider strives to increase utilization on its network. According to this view of the world, network owners will have the requisite incentives to unbundle and price in accordance with market conditions without requiring regulators to pre-determine the competitive market outcome. In other words, rather than facilities-based networks being an outgrowth of resale competition—as the *stepping-stone theory* would suggest—resale competition will actually be an outgrowth of multiple facilities-based networks.

Because the behavior of prices is relatively easy to monitor, there may be a tendency for policymakers to emphasize lower prices to the exclusion of other no-less-important characteristics of "competitive" behavior, such as new products and services. As the following passage points out, this focus on eliminating barriers to entry may be particularly problematic in technologically-dynamic industries.

> Perfect competition implies free entry into every industry. It is quite true, within that general theory, that free entry into all industries is a condition for optimal allocation of resources and hence for maximizing output. If our economic world consisted of a number of established industries producing familiar commodities by established and substantially invariant methods and if nothing happened except that additional men and additional savings combine in order to set up new firms of the existing type, then impediments to their entry into any industry they wish to enter would spell loss to the community. But perfectly free entry into a *new* field may make it impossible to enter it at all.[109]

Professor Schumpeter's main point will most assuredly not be lost on the numerous, now-defunct, facility-based CLECs in the U.S. that proceeded to lose billions of dollars when the FCC's introduction of UNE-P along with artificially-low prices for network elements resulted in what was essentially ultra-free entry. In commenting on the failure of these facilities-based CLECs and the role of regulation in their demise, Professor Alfred Kahn has recently observed that:

> Further contributing to the subsequent failure of those ventures from 2000 onward was the FCC's ill-advised policy of making available to competitive local exchange carriers (CLECs) the ineffable, oxymoronic UNE-P (totally bundled "unbundled network elements"), at rates intentionally far below the actual costs of the incumbent carriers, both historical and incremental. The result was a sharp increase in *non*-facilities-based reselling, predominantly by AT&T and MCI—in effect, a betrayal of the CLECs that had made the mistake of constructing their own facilities and a discouragement to genuine competition at the "production" or wholesale level (footnotes omitted).[110]

The above observations of Professors Schumpeter and Kahn serve to underscore a critical principle of sound competition policy. To wit, policies that reward imitation rather than innovation will attract those market entrants adept at imitation, predominantly arbitragers, while driving away genuine innovators.[111] On this score, it is indeed noteworthy that the pervasive entry of cable television providers into telecommunications markets with their "triple play" of voice, broadband and video certainly seems to have accelerated in the United States only after the FCC announced the termination of pervasive network unbundling and further signaled its intent to move toward more rational pricing of network elements.

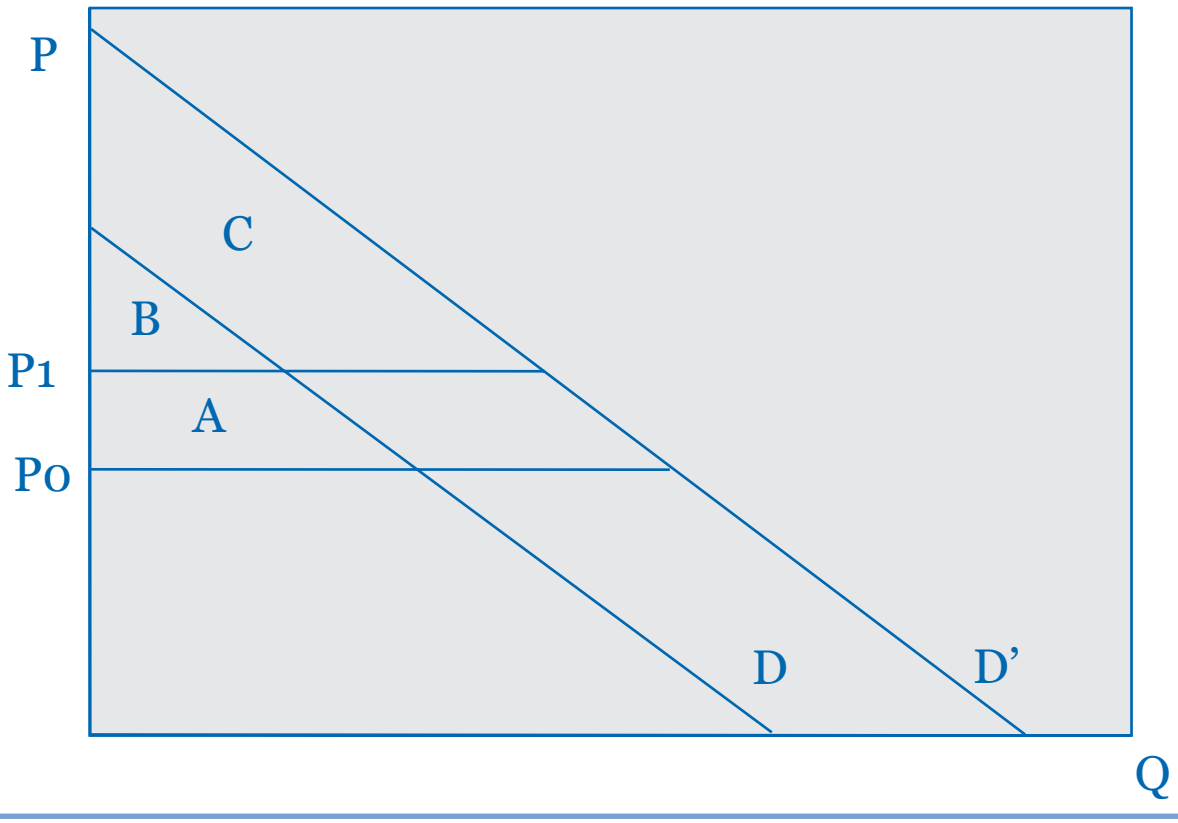
The FCC's "court-prodded" elimination of UNE-P was based on the realization that facilities-based entry and associated product differentiation and innovation would be enhanced with the elimination of mass market switching as an unbundled network element. This could be expected to benefit consumers even if it should result in some softening of price competition in retail markets.[112] This decision underscores the importance of designing competition policies that recognize the operative trade-offs between allocative and dynamic efficiency, encouraging genuine innovation rather than mere imitation.[113]

3.4.3 A GRAPHICAL ILLUSTRATION OF THE RELEVANT TRADE-OFFS

A simple, graphical depiction of the relevant trade-offs between imitation and innovation is illustrated with the aid of Figure 2. The initial aggregate demand curve for telecommunications services is labeled "D" in this figure. This reflects the demand for telecommunications services under a policy of pervasive unbundling and an "efficient-firm" standard for the pricing of unbundled network elements.[114] A common measure of consumer welfare (net benefits from consumption) is that of consumers' surplus—the difference between the maximum valuation of the good and the price that consumers are required to pay.

Figure 2:

Imitation vs Innovation



For the initial demand curve D and market price P_0, consumers' surplus ("CS_0") is measured by area A plus area B in the figure. Suppose that the regulator relaxes the unbundling requirements imposed on the incumbent provider and further moves toward more rational pricing of unbundled network elements. This policy action can be expected to give rise to two separate effects. First, there may be some modest softening of price competition and hence a small increase in the retail price from P_0 to P_1. Second, consistent with Schumpeterian competition principles, this policy action can be expected to lead to greater innovation and product differentiation which shifts the demand curve out from D to D'. Consumers' surplus ("CS_1") at price P_1 on demand curve D' is measured by area B plus area C.

This policy decision with respect to network unbundling enhances consumer welfare if $CS_1 > CS_0$. This implies that area B plus area C > area A plus area B, or area C > area A. Area C represents the additional consumers' surplus that consumers realize from the enhanced level of innovation and product differentiation at the price P_1 with respect to demand curve D'. Area A represents the consumers' surplus foregone due to the higher price for telecommunications services, P_1, with respect to demand curve D. This is the trade-off that the FCC has pursued in its *Triennial Review Remand Order* and it is entirely consistent with the Schumpeterian idea that enhanced innovation may [actually] dominate lower prices in terms of providing consumer benefits.[115]

In CRTC 94-19, the Canadian Regulatory Commission seemingly recognized this trade-off in observing that falling prices are not a necessary condition for a determination that a market is workably competitive.

> In assessing the degree to which a market may be workably competitive, evidence of rivalrous behaviour is also important. Such evidence may include falling prices, vigorous and aggressive marketing activities, or an expanding scope of activities by competitors in terms of products, services and geographic boundaries.[116]

In a nutshell, the policy trade-offs come down to answering the following question. Intuitively speaking, are we better off as a society forcing the incumbent automobile producer, General Motors, to make all of the component parts for its Chevrolet Impala available to Ford at cost-based prices? Or, are we better off limiting access to only those elements of automobile production that are truly uneconomic to duplicate? In the former, consumers have a choice of any car they want at a relatively-low price so long as it is a Chevrolet Impala, even if happens to carry the Ford brand name. In the latter case, we may well trade-off some productive efficiency for enhanced innovation and product heterogeneity in a manner that is responsive to consumer preferences. The prices in this latter state of the world may be somewhat higher, but consumers have real choices and the Ford Taurus no longer looks and drives like the Chevrolet Impala. These are the trade-offs that Professor Schumpeter spoke to over a half-century ago and they remain relevant today as we craft competition policies for the technologically-dynamic telecommunications industry.

3.5 COMPETITION PRINCIPLE 5

Perhaps no other single issue has filled more pages in the law and economics literature than the relationship between market share and market power. Market power is generally defined as the ability of a firm to profitably raise prices above competitive levels for more than a transitory period of time.[117] This literature finds that market share is not necessarily a reliable indicator of market power and this is likely to be particularly the case in telecommunications markets. Nonetheless, there is a tendency for policymakers to default to some measure of market share as an indicator of market power, perhaps because it provides a tangible number on which to base a policy decision.

Principle C-5. Policymakers should not rely exclusively or even predominantly upon market share to draw inferences about market power in telecommunications markets.[118]

As discussed in greater detail below, telecommunications providers (i) may not be able to raise prices even if they have a high market share; and (ii) may have

acquired high market shares because regulation maintained prices at artificially-low levels. Meaningful market share measurement must begin with the proper definition of the relevant product/geographic market and therefore include all *sufficiently-close* substitutes.[119]

3.5.1 GEOGRAPHIC AND PRODUCT MARKET DEFINITION

The first step in the evaluation of a proposed merger—and increasingly in evaluating proposals for deregulation or forbearance—is typically that of market definition. There is both a product market definition and geographic market definition.[120]

> The purpose of defining a relevant market is to identify its participants: the group of firms that impose competitive constraints upon a particular firm or combination of firms. Thus, a market's participants should include all those competitors that are positioned to discipline or constrain a monopolistic price increase, while excluding those firms that do not have that ability.[121]

> Relevant product markets are defined with respect to both the products or services included in the market and the geographic scope of competition. The relevant product market includes all products that substantially constrain the pricing of the product being studied, while the relevant geographic market includes all geographic areas where firms are located whose output substantially constrains the pricing of the firm (or firms) being studied."[122]

A relevant geographic market for purposes of competitive analysis includes not only where competitors currently serve customers, but also where they readily could serve customers if the incumbent provider were to raise prices.[123] A geographic market area is one in which sellers provide products or services that customers treat as substitutes for one another and thus which compete against one another.

> The geographic limit of a market is determined by answering the question of whether an increase in price in one location substantially affects the price in another. If so, then both locations are in the same market."[124]

At the outset, it important to keep in mind that the primary purpose of defining the relevant market is that of calculating market shares. Hence, to the extent that market share measurement, for whatever reason, is of limited value for the exercise at hand, so, by implication, must be the definition of the relevant market.

> The boundaries of the relevant market in antitrust economics normally cannot be determined with absolute precision. Nor do real world markets always array themselves in binary fashion, where products are clearly inside or outside the market… At base, what matters more than defining a market perfectly is identifying the economic forces that constrain a firm's pricing. The exercise of defining a market and calculating market shares is useful to the extent that it accurately reflects these economic forces.[125, 126] (footnotes omitted)

Moreover, as Professors Katz and Shapiro observe:

> Finally, practitioners and policymakers should remember that the role of market definition is to provide a basis on which the government calculates market shares in making its primie facie case. One should be careful not to make too much of market delineation. It is not a substitute for a full analysis of likely competitive effects.[127]

> We wish to emphasize that our entire analysis was directed at the task of defining relevant markets. This task should not be confused with the assessment of likely competitive effects and efficiencies. Indeed, we are concerned that in horizontal merger cases antitrust litigation sometimes places too much weight on defining relevant markets rather than assessing the likely competitive effects and efficiencies of a proposed merger.[128]

For example, in the Bell Atlantic-NYNEX merger the FCC outlined the following approach to define the geographic market.

> A geographic market aggregates those consumers with similar choices regarding a particular good or service in the same geographical area. In the *LEC In-Region Interexchange Order*, we found that each point-to-point market constituted a separate geographic market. We further concluded, however, that we could consider groups of point-to-point markets where customers faced the same competitive conditions. We will therefore treat as a geographic market, an area in which all customers in that area will likely face the same competitive alternatives for a product. This approach allows assessment of the market power of a particular carrier or group of carriers based on unique market situations by recognizing, for example, that certain carriers may target particular types of customers, provide specialized services or control independent facilities in specific geographic areas.[129]

3.5.2 MARKET SHARE AND MARKET POWER IN REGULATED INDUSTRIES

Whereas there is general recognition in the literature that market power depends upon the demand elasticity,[130] the supply elasticity and market share,[131] the proper weight to be attributed to each of these three factors will typically vary from one industry to another. For example, the FCC's decision to deregulate AT&T was based largely on its finding that the supply elasticity in the industry was sufficiently high that any attempt on the part of AT&T to unilaterally raise prices—leverage market power—would invite a competitive supply response of such magnitude as to drive prices back to competitive levels.[132] In other words, it focused predominantly upon entry conditions. The FCC specifically observed that:

> The Commission explained in the First Interexchange Competition Order that there are two factors that determine supply elasticities in the market. The first is the supply capacity of existing competitors: supply elasticities tend to be high if existing competitors have or can easily acquire significant additional capacity in a relatively short time period. The second factor is low entry barriers: supply elasticities tend to be high even if existing suppliers lack excess capacity if new suppliers can enter the market relatively easily and add to existing capacity.[133] (footnotes omitted)

In this very same order, the FCC discounted the significance of relatively high market share on the part of the incumbent provider as being indicative of market power.

> Although several parties argue that AT&T's overall market share of 60 percent is inconsistent with a finding that AT&T lacks market power, we disagree. It is well-established that market share, by itself, is not the sole determining factor of whether a firm possesses market power. Other factors, such as demand and supply elasticities, conditions of entry and other market conditions, must be examined to determine whether a particular firm exercises market power in the relevant market. As we noted in the First Interexchange Competition Order, "[m]arket share alone is not necessarily a reliable measure of competition, particularly in markets with high supply and demand elasticities." (footnotes omitted).[134]

A 2002 decision of the Massachusetts Department of Telecommunications and Energy recognized the limited significance of the ILEC's market share under conditions in which the supply elasticities are relatively high.[135]

> The Department found that while Verizon's market share for business services is large, significant CLEC entry and expansion into the business market has occurred, and also found that Verizon's market share has continued to decrease even during a period of significant turmoil in the telecommunications industry. Having determined that the supply elasticity of competing firms in Massachusetts is high, the Department placed less weight on market share as an indicator of market power in its evaluation of sufficient competition. Because of the ease of entry in the Massachusetts business mar-

> ket, actual competition, as reflected in market share data, is not as important as potential competition to constrain Verizon's prices.[136]

In commenting on the economics underlying the commission's decision, Paul Vasington, the immediate past Chairman of the Massachusetts Department of Telecommunications and Energy, observed that:

> The commission's findings on the contestability of the retail business market were primarily based on the availability of UNEs at forward-looking prices. Therefore, the commission granted Verizon's request for pricing flexibility for those retail business services whose components are available on a wholesale basis as unbundled network elements.[137]

As Landes and Posner point out, the standard relationship between market share and market power is particularly inapt in a regulatory setting. This is necessarily the case because these market shares are not the outcome of a market process, but rather the outcome of a regulatory ("command and control") process.

> In view of the growing importance of antitrust enforcement in regulated industries, we shall note briefly the significant limitations of our formal analysis when applied to a market in which rates are regulated by a government agency. To the extent that regulation is effective, its effect is to sever market power from market share and thus render our analysis inapplicable.[138]

Landes and Posner also suggest that a superior measure of market share in drawing inferences about market power would be based on the capacity rather than the current output of the competitive fringe:

> If *i*'s market share is 80%, consumers cannot easily substitute other goods, and producers of other goods cannot easily switch to the production of this good, *i* may still lack substantial market power. Suppose the output of competing producers of the good is highly responsive to changes in the price… Market share alone would be a poor measure of market power in such a case, at least in the long run… The excess capacity of the fringe firm would limit *i*'s efforts to raise price above marginal cost. To reflect this factor, one could redefine *i*'s market share as its current output divided by the sum of *i*'s output and the fringe firm's capacity (*i.e.,* by their potential rather than current, output). This adjustment would reduce *i*'s market share … and thereby provide a better measure of *i*'s market power.[139]

Consider, for example, a particular market in which the ILEC and a cable company compete. Suppose the cable company has quickly garnered 5 percent of the customers and the ILEC files for deregulation. There may be a tendency to conclude that the ILEC continues to maintain market power since it has 95 percent of the customers. And yet, if capacity is truly the relevant measure of market share, and both the ILEC and the cable company are able to address 100 percent of the customers, the ILEC's market share is actually only 48.72 percent (95/(95 + 100)). Hence, how market share is measured is critically important for evaluating the existence of market power. In fact, the Competition Bureau in Canada came to this very conclusion in a recent forbearance proceeding. The following passages are instructive.

> Market shares should be defined in a manner that reflects the potential for the ILEC to exercise market power if there is forbearance… Therefore, the mere presence of the competitor has a larger impact on ILEC behaviour than its actual market share.[140]

> For example, in geographic markets where there are two independent facilities-based service providers with sunk costs, that are not capacity constrained, and are equally capable of offering the relevant product, the capacity market share of the ILEC and the new entrant will each be 50%.[141]

The FCC recently came to the very same conclusion in evaluating proposed mergers in the wireless industry and the significance of the HHI measures:[142]

> For many markets where the facts of a high subscriber-based HHI and a high change in HHI might seem to suggest a potential competitive problem, there is in fact little likelihood of harm. We find that the presence and capacity of other firms matter more for future competitive conditions than do current subscriber-based market shares. In particular, current market shares understate the likely future competitive importance of Verizon Wireless, Sprint, T-Mobile, and Nextel. These firms all compete fiercely for customers; all are investing substantially in capacity and new services in this sector; and Verizon Wireless, T-Mobile, and Nextel have been gaining nationwide market share over recent quarters.[143]

Indeed, as Judge Richard Posner, a leading law and economics scholar, has observed:

> Competition is not a matter of many sellers or low prices or frequent changes in prices or market shares. It is properly regarded as the state in which resources are deployed with maximum efficiency, and it is not so much the existence of actual rivalry, let alone any specific market structure or behavior, as the potential for rivalry, that assures competition.[144]

The capacity of rivals is an indicator of just such "potential for rivalry." Furthermore, the Canadian Regulatory Commission noted in CRTC 94-19 that:

> under some circumstances, the simple threat of entry may be enough to cause incumbents to behave competitively. In addition, the Commission acknowledges… that *competition occurs at the margin*, and that it is unnecessary for competitors to cover the entire market. [Section III. B] (emphasis added)

This observation is similar in spirit to one previously proffered by Professor Schumpeter.

> It is hardly necessary to point out that competition of the kind we now have in mind acts not only when in being, but also when it is merely an ever-present threat.[145] It disciplines before it attacks. The businessman feels himself to be in a competitive situation even if he is alone in his field … In many cases, though not in all, this will in the long run enforce behavior very similar to the perfectly competitive pattern.

Market share may be a particularly misleading indicator of market power in regulated industries due to regulatory-mandated subsidy flows that actively discourage entry into certain markets;[146] in other words, the incumbent provider's high market share may actually reflect the absence rather than the presence of market power. The D.C. Circuit's *USTA Decision* spoke to this very issue:

> Competitors will presumably not be drawn to markets where customers are already charged below cost, unless either (1) the availability of UNEs priced well below the ILECs' historic cost makes such a strategy promising, or (2) provision of service may, by virtue of economies of scale and scope, enable a CLEC to sell complementary services (such as long distance and enhanced services) at prices high enough to cover incomplete recovery of costs in basic service. The Commission never explicitly addresses by what specific criteria want of unbundling can be said to impair competition in such markets, where, given the ILECs' regulatory hobbling, any competition will be wholly artificial.[147]

The immediate past chairman of the FCC, Michael Powell, made a similar point when he observed that "retail rates are not an irrelevant part of an economic market, and regulators may have to make a choice between 'sustainable businesses' and low prices to end users." He further stated that universal service can be a barrier to entry "if it leads to prices that are not reflective of cost dynamics and efficiencies."[148] These observations notwithstanding, the cost of providing telephone service over VoIP is generally recognized to be significantly lower than the cost associated with providing telephone service using traditional, circuit-switched technology.[149] Hence, the extent to which basic telephone service is actually priced below forward-looking costs is likely to be reduced over time with the advent of these new technologies.

Market share measurement is inherently static in nature and therefore quite limited in predictive value in markets that exhibit "fragility" due to their technologically-dynamic character.[150] Indeed, in commenting in CRTC 94-19 on the conditions that are likely to render a market workably competitive, the Canadian Regulatory Commission observed that:

> The nature of innovation and technological change in the relevant market may also be a useful indicator. Industries characterized by rapid innovation in products, processes and technology tend to experience greater price movements and new entry, thereby making it difficult to exercise market power. [Section III. B.]

This discussion establishes that market share is not synonymous with market power and that the errors involved in presuming otherwise are particularly pronounced in markets that have been subject to regulatory control.

3.5.3 LIMITATIONS OF MERGER GUIDELINES FOR DEREGULATION

In light of the increased emphasis placed on competition law principles for evaluating the merits of deregulation, there may be a tendency for policymakers to place too much weight on horizontal merger guidelines to inform such decisions. While the evaluation of a merger and a deregulation decision share a common concern, that of the exercise of market power, there are some important differences that should be noted.

First, in the typical merger proceeding, the merging firms typically argue for a relatively broad market and the antitrust authorities typically argue for a narrow market. In the context of deregulation, this pattern is seemingly reversed. A narrow market yields lower market shares for the incumbent provider and vice versa. Once again, the emphasis placed on market definition is appropriate only insofar as there is reason to believe that the resulting market share calculation sheds some light on the ability of the incumbent provider to exercise market power.

Second, in the typical merger proceeding, we begin with a competitive market and inquire as to whether the proposed consolidation is likely to lessen market rivalry to the point that it allows for the abuse of market power. The market forces being examined are centripetal—"center seeking" in nature—from out to in. In the context of deregulation, markets are becoming increasingly competitive and the focus is on whether they have become sufficiently so to enable the regulator to defer to market forces for the requisite level of discipline. The market forces being examined are centrifugal—"center fleeing" in nature—from in to out. This distinction looms large in the context of market definition for purposes of deregulation because the market boundaries defined by market forces are highly speculative. The only concrete and refutable answer to the question of the where market forces impose competitive discipline is where competition actually exists.

Third, it is likewise necessary to understand the key differences between these two scenarios and the important role of *path dependence*. To wit, a regulated monopolist that begins with a 100% market share and experiences rivalry that reduces its share relatively quickly to 80% is likely in a far different competitive situation than a firm with a 50% market share merging with a firm with a 30% market share, despite the fact that in both cases a single firm has 80% of the market. Merger enforcement guidelines generally recognize the importance of changes in market concentration and/or the stability of market concentration, but it is unclear whether this acknowledgment is anything more than gratuitous.[151]

Finally, there is a tendency for antitrust authorities to use the model of perfect competition as a benchmark against which to evaluate market power. Following the discussion in Section 2.2.1 above, this is particularly problematic in traditionally-regulated industries. Traditional antitrust analysis rests on the premise that if the firm in question has high margins, it must imply through the Lerner Index,[152] that it faces a low elasticity of demand, otherwise it would not have been able to sustain these relatively high margins.[153] The direction of causality runs from low elasticities to high margins. But in the context of deregulation, the question is seemingly quite different. To wit, given the high margins required for the financial viability of the incumbent provider, what is the critical elasticity above which the firm would have no

incentive to raise price, everything else held constant?[154] We turn to this very question in the following section.

3.6 COMPETITION PRINCIPLE 6

Perhaps the key question confronting policymakers in their deliberations on the deregulation issue concerns when the discipline imposed by competition can substitute for the discipline imposed by regulation.[155] The regulator's concern may be either that prices are too high—suggestive of the exercise of market power—or that prices are too low—suggestive of predation in an attempt to augment market power. These concerns are addressed in Competition Principles 6 and 7, respectively.

Principle C-6. High price-cost margins, reflective of scale and scope economies, can serve to constrain the market power of the incumbent provider, *post-deregulation*.

While the literature recognizes that economic regulation should serve as a surrogate for competition, it does not provide policymakers with unambiguous guidance as to when deregulation is warranted. As Professor David Sappington observes:

> It is generally preferable to replace regulatory control with the discipline of competition when competition provides adequate protection for consumers. In practice, though, it is often difficult to determine precisely when adequate, sustainable competitive pressures have developed.[156]

It is indeed noteworthy that the supply conditions that constitute the central economic argument for regulation can, under certain conditions, actually be relied upon to constrain the market power of the (de)regulated firm. To understand this basic idea, recognize that regulated firms typically operate with high price-cost margins due to scale and scope economies.[157] As a result, a price increase that produces even a small reduction in demand can generate large losses in contribution to joint and common costs and may therefore prove to be unprofitable.[158]

When a firm operates with high price-cost margins, only a relatively small number of marginal customers, those willing to discontinue service or substitute alternative services in the face of a price hike, may be required to defeat a price increase.[159] When we make the observation that "competition occurs at the margin," we mean that it is the existence of marginal customers that effectively disciplines the firm's pricing behavior. (See endnote number 217.)

3.6.1 A STYLIZED NUMERICAL EXAMPLE

A simple, stylized example should prove instructive. Suppose the regulated firm has fixed costs of $300 and incremental cost of $1 for the core service. The regulated price is $5 and demand at this price is 100 units. The corresponding level of profits is $100.[160] We pose the following question: What is the level of competitive intensity that must prevail in this market for the (de)regulated firm not to have an incentive to raise price? Suppose the (de)regulated firm contemplates a 5 percent increase in price, the standard market power test under the antitrust guidelines.[161] What demand reduction must follow in order to discourage the (de)regulated firm from raising price?

Another way to pose this question is to compute the break-even decrease in demand following the 5 percent increase in price that would yield precisely the same level of profits for the (de)regulated firm of $100. Hence, for any decrease in demand greater than this breakeven level, the (de)regulated firm's profits would be less than $100 and the contemplated price increase of 5 percent would not occur because it would reduce profits.

For the stylized parameters used in this example, the break-even decrease in demand is 5.88 percent. To see this, recognize that the new price is $5.25.[162] A 5.88 percent reduction in demand yields a new level of demand equal to 94.12 units.[163] The new level of profits is, of course, $100.[164] Hence, for any decrease in demand greater than 5.88 percent, the firm's profits would fall below $100 and the contemplated price increase would prove unprofitable. The implied critical price elasticity of demand is given by 1.176.[165] Hence, if the price elasticity facing the (de)regulated firm is greater than 1.176,

the contemplated price increase of 5 percent would serve to decrease rather than increase profits.[166]

To place this discussion firmly in the context of the deregulation issue, it says that if a wireline provider were to raise price by 5 percent and lose 6 percent or more of its volumes to competing providers of wireless or VoIP, the contemplated price increase would prove to be unprofitable.[167]

3.6.2 THE SIGNIFICANCE OF DEMAND COMPLEMENTARITIES

The existence of demand complementarities (services that tend to be used in combination with other services, such as local telephone service and vertical features) renders the case for deregulation even more compelling.[168] The fact that the ILEC participates in other complementary markets, including long-distance, vertical services, broadband access and video entertainment, necessarily limits its incentives to increase the price for local telephone service.[169] A price increase for local telephone service can spill over to adversely affect sales in these complementary markets wherein price-cost margins are relatively high, customers have ample choice of service providers, switching costs are minimal and hence customer inertia would not appear to be a significant problem.[170] The basic point here is a simple one—the ILEC will be reticent to raise the price for local telephone service if it risks jeopardizing the sale of relatively high-margin services that customers use in combination with local telephone service.[171]

To see this, assume that half of the consumers of the core service also purchase the complementary service. Furthermore, suppose that the price-cost margin on this complementary service is $2. Under these assumptions, the baseline level of profit for the (de)regulated firm is now $200.[172] The contemplated 5 percent price increase would now prove unprofitable for the (de)regulated firm if the corresponding fall off in demand for the core service is approximately 4.8 percent or greater.[173] The corresponding critical price elasticity is approximately 0.95[174, 175]

In general, the more pronounced are scale and scope economies and the greater the tendency for customers to use relatively high margin services in combination with local telephone service, the lower the critical price elasticity sufficient to discourage the firm from raising price. This discussion implies that for price-cost margins sufficiently large and/or demand complementarities sufficiently strong, deregulation may be warranted even for relatively modest levels of competition from imperfect substitutes.

The key lesson to be gleaned from this analysis is clear: Once it is recognized that scale and scope economies figure prominently in the production of telecommunications services, we should not necessarily look to high price-cost margins as an indication of market power. In fact, the more efficient the telecommunications provider in producing multiple services with the use of a common platform, the lower the ratio of variable to fixed costs and the higher the price-cost margin for any individual service. These higher price-cost margins are needed to cover the firm's fixed costs. It follows that the higher the price-cost margins for any particular service, the smaller the loss in demand (firm-specific price elasticities) required to render any price increase unprofitable and hence the lower the effective critical price elasticity.[176, 177]

3.7 COMPETITION PRINCIPLE 7

Principle C-7. Predation is difficult in regulated network industries due to the (i) high-proportion of sunk costs and the fact that productive capacity typically does not leave the industry even if particular competitors should exit the market;[178] and (ii) emergence of new technologies that have dramatically lowered entry barriers.

One of the difficulties that policymakers face in "refereeing the struggle between competing interests" in a market involves discerning competitive conduct from predatory conduct. Competitive conduct benefits consumers in the short-run and in the long-run, while predatory conduct may benefit consumers in the short-run, but harms consumers in the long-run.

It is important to note at the outset that deregulation of a market does not imply any greater tolerance for anticompetitive conduct; it simply means that responsibility for policing such conduct will pass from the industry-specific regulator to the antitrust authorities. There is no basis to believe that the latter would be any less vigilant in protecting against anticompetitive conduct than the former. Nonetheless, it is important for policymakers to recognize the market conditions that would determine whether anticompetitive conduct is likely to be successful should it be attempted.

3.7.1 TRADITIONAL THEORIES OF PREDATION

The traditional theory of predation envisions two stages in carrying out the predation strategy—the predation stage and the post-predation stage.[179] In the predation stage, the predator prices its product below some measure of economic cost—typically incremental cost—with the intent of driving its prey from the market. In the post-predation stage, the prey leverages the absence of meaningful competition to price its product at *supra-competitive* levels, thereby recovering the losses incurred during the predation stage and earning monopoly profits thereafter.

The consensus view in the literature, and this is a view that has prevailed for several decades now, is that traditional predation is difficult and hence frequently irrational. Because firms will re-enter the market when the predator commences pricing at *supra-competitive* levels, recoupment of the losses incurred in the predation stage is virtually impossible. Hence, in order for the predation strategy to be successful, there must be some type of barrier to entry that precludes entry from occurring when the predator prices above competitive levels.

Traditional predation is likely to be particularly difficult in regulated network industries due to the high-proportion of sunk costs and the fact that productive capacity typically does not leave the industry even if particular competitors should exit the market.[180, 181] In other words, productive capacity in the industry serves as a check on *supra-competitive* pricing. Consequently, even if predation should succeed in driving a particular competitor from the market,[182] the (independent) productive capacity that the competitor leaves behind continues to discipline pricing.

3.7.2 MODERN THEORIES OF PREDATION

Over the past 25 years, in concert with important developments in game theory, a number of modern, strategic theories of predation have emerged. These models, which include financial market predation, reputation models and cost signaling models,[183] generally require conditions of asymmetric information. In other words, the predator has information that its prey does not, and it leverages this informational asymmetry to drive the prey from the market or to deter its expansion into new markets. The following quotation from Professor Paul Milgrom captures the essence of these "new" theories.

> Thus, for example, a firm in an industry with rapid product change might cut prices sharply in answer to new entry in order to discourage the new entrant from continuing an active product development programme. Whether the entrant attributes its lack of profitability to its high costs, to weak market demand, to over-capacity in the industry, or to aggressive behaviour by its competitor, it will properly reduce its estimate of its own future profits. If its capital has other good uses, this might lead it to withdraw from the industry. If not, it may nevertheless be dissuaded from making new investments in and developing new products for the industry. At the same time, other firms may be deterred from entering the industry. If *any* of these things happen, the predator benefits.[184]

In the case of *Financial Market Predation*, the prey is dependent upon some source of external financing. The focus is on the relationship between the prey and its investors. "The predator seeks to manipulate that relationship and thereby drive the prey out of the market or deter its expansion into new markets."[185] For example, the predator may reduce prices in order to reduce the profitability of its rivals. The rival's investors view this decrease in profitability as a signal that prospects in this market are limited and decide to decrease financial support accordingly. In this model, investors are unable to

differentiate between the predation campaign and managerial incompetence.

> Nor can lenders solve the financing problem by excusing default when caused by predatory pricing. The lender may be unable to determine whether the default stems from predatory pricing or from the debtor's poor performance because the lender lacks both full information and the expertise available to a market insider.[186]

Reputation Predation Models are based on a type of signaling wherein the predator seeks to convey a reputation for "toughness" and a steadfast willingness to defend its market at virtually any cost.

> In reputation effect predation the predator reduces prices in one market to induce the prey and potential entrants to believe that the predator will cut price in other markets or in the predatory market at a later time. The predator seeks to establish a reputation as a price cutter, based on some perceived special advantage or characteristic. Thus, a predator trying to establish a reputation for financial predation cuts price when it has superior financial resources (and when the other conditions for financial predation are present). [187]

In this model, the predator reduces its prices in order to signal to its rivals that it is a tough competitor and that opportunities for positive returns will be strictly limited either in other markets or in the predatory market in the future. It is important to note, however, that this theory may not be completely robust.

> Although economic theory views reputation effect predation as a separate and distinct predatory strategy, a reputation effect theory based on irrational toughness may be too easy to assert and too difficult to prove.[188]

In the *Cost Signaling Model of Predation*, the predator wishes to signal its rivals that it is a low-cost rather than a high-cost provider. Rivals will enter the market if they believe the dominant firm is a high-cost provider, but will not enter the market or will choose to exit the market if they believe the dominant firm is a low-cost provider.

> In cost signaling a predator drastically reduces prices to mislead the prey to believe that the predator has lower costs and to exit the market. More specifically, a predator trying to establish a reputation for low cost cuts price below the short run profit-maximizing level. Observing the predator's low price, the prey rationally believes that there is at least some probability that the predator has reduced costs. This lowers the prey's expected returns and causes the prey to exit.[189]

It is important for the discussion that follows to summarize the key assumptions on which these modern theories of predation are based. First, these models require some type of asymmetric information—information in the possession of the predator that is not common knowledge. Second, these models typically assume that the predator enjoys some financial or cost advantage over its prey. If the prey is in a superior financial position or if it is known to have lower costs than the predator, there is no real prospect for predatory behavior. Third, these models are of limited relevance when the prey's market presence is driven primarily by strategic or defensive considerations rather than financial considerations. In other words, the prey believes that its presence in the market is necessary in order to be a "full-service" provider or to sustain sales of other, perhaps higher-margin, products. Finally, policymakers should be cognizant of the high social cost of falsely labeling competitive behavior as predatory. When the market conditions requisite to predatory behavior are not present, allegations of predation serve only to peg prices at artificially-high levels and thereby reduce consumer welfare.

3.7.3 PUBLIC POLICY AND THE LAW

Claims of predation are common in regulated industries, but in many, if not most, cases likely amount to little more than attempts by competitors to raise their rivals' costs. As Professor William Baumol observes:

> Rules that make it excessively easy to secure a conviction on charges of predation invite

> anticompetitive and rent-seeking litigation. Such rules tempt firms that cannot make it in the marketplace by virtue of superior products or greater efficiency and lower costs, to seek success over their more efficient rivals in the courts instead. There they can hope to constrain the vigor of rivalrous acts by competitors and to transmogrify the character of their rivals from energetic enterprise to timidity and hesitance. ... Long study of the subject has led me to the conclusion that litigation of this sort is a major handicap to the growth and competitiveness of the nation's economy.[190]

Professor Baumol further observes that "there seems to be a general consensus among informed observers that genuine cases of predation are very rare birds."[191, 192] The courts have decisively arrived at similar conclusions. In *Matushita v. Zenith*,[193] the U.S. Supreme Court stated that "predatory pricing schemes are rarely tried and even more rarely successful." And in *U.S. v. Eastman Kodak*,[194] the Court dismissed concerns raised by the government regarding predatory pricing in part because "the Government could not cite one modern example of successful predatory pricing."

As Justice Lewis Powell poignantly observed in the *Matsushita* predatory pricing case:

> [C]utting prices in order to increase business often is the very essence of competition. Thus, mistaken inferences in cases such as this one are especially costly, because they chill the very conduct the antitrust laws are designed to protect.[195]

The courts have also recognized that it may be difficult in practice to differentiate between predatory pricing and a legitimate response to increased competition.

> The difficulty, of course, is distinguishing highly competitive pricing from predatory pricing. A firm that cuts its prices or substantially reduces its profit margin is not necessarily engaging in predatory pricing. It may simply be responding to new competition, or to a downturn in market demand. Indeed, there is a real danger in mislabeling such practices as predatory, because consumers generally benefit from the low prices resulting from aggressive price competition.[196]

The courts have also explicitly recognized that pricing individual products or services below cost need not harbor predatory intent. This is particularly likely to be the case for a multi-product firm selling bundles of products and services. For example, in *American Drugs* v. *Walmart Stores*, the plaintiff argued that Wal-Mart was regularly selling products below cost in violation of the Arkansas Unfair Practices Act. The Arkansas Supreme Court did not concur.

> We discern no proof in the record of this case that Wal-Mart specifically intended to destroy competition with regard to any one article like Crest toothpaste or Bayer Aspirin or Dilantin by selling below cost for a sustained period of time. What is evidenced is that Wal-Mart regularly would sell varying items below cost as a loss leader to entice people into its store and increase traffic,… That strategy of selling below the competitor's price and even below Wal-Mart's own cost, which Wal-Mart admits to, is markedly different from a sustained effort to destroy competition in one article by selling below cost over a prolonged period of time.[197]

Finally, it should be noted that the most recent case alleging predation in commercial aviation, that involving American Airlines, was dismissed on summary judgment.[198]

- As we have said in the Sherman Act context, predatory pricing schemes are rarely tried, and even more rarely successful, and the costs of an erroneous finding of liability are high. The mechanism by which a firm engages in predatory pricing—lowering prices—is the same mechanism by which a firm stimulates competition… It would be ironic, indeed, if the standards for predatory pricing liability were so low that antitrust suits themselves became a tool for keeping prices high.[199]
- The "meeting competition" defense is similar to a statutorily recognized defense to a price dis-

crimination charge under the Robinson-Patman Act. See 15 U.S.C. s 13(b). A company should not be guilty of predatory pricing, regardless of its costs, when it reduces prices to meet lower prices already charged by its competitors. To force a company to maintain non-competitive prices would turn the antitrust laws on their head.[200]

- This court has previously noted that a high market share cannot be inferred as creating actual or potential monopoly power where a given market has low entry barriers and other factors rendering monopoly power unlikely.[201]

This last quotation has important implications for the U.S. telecommunications industry. To wit, the emergence of VoIP and the market presence of cable companies with parallel facilities-based networks suggests that entry barriers are extremely low. For example, the cable companies can reportedly enter voice telephony for as little as $300 per subscriber.[202]

The capital requirements necessary for an access-independent VoIP provider to enter the market for telephony are lesser still. For example, according to a recent industry report, entry costs for VoIP providers may be less than $8,000 CDN.[203]

> The phone business used to be a business of giants – only large corporations, with deep pockets of cash, and legions of engineers and technicians – could contemplate offering telephone service. No longer. Barriers to entry in the phone business have collapsed.[204]

3.7.4 LIKELIHOOD OF PREDATION AND THE RISK OF ERROR

It is not abundantly clear that predation should be of significant public policy concern in telecommunications markets today. First, entry barriers are extremely low, so it is unclear how the predator would recoup the losses associated with the first stage of the campaign. When the predator commences pricing at *supra-competitive* levels, rivals will enter the market and drive prices back down to competitive levels.[205] Second, given the plethora of evidence on costing in telecommunications networks, particularly those of the ILECs for purposes of pricing unbundled network elements, it would seem difficult to argue that informational asymmetries, the key assumption underlying modern theories of predation, even exist. Third, as discussed below, the willingness on the part of the cable companies to use telephony as a loss leader suggests a strategic or defensive motivation rather than a financial motivation *per se* for entering telephony. Consequently, the financial predation models would seem to have limited applicability. Fourth, reputation models would likewise seem to have limited applicability since the cable companies have already entered the market for the provision of video entertainment and broadband and the incremental cost of providing telephony over a cable network that has already been deployed for other purposes is very low.[206] Fifth, the cost-signaling models would not seem to apply since the ILECs cannot signal something contrary to what market participants already know to be true and that is that the ILECs are not the low-cost providers of telephony.

In fact, if one observes the nature of the evolving competition in local telecommunications markets—that between the ILECs and the cable companies—it is difficult to see how a predation strategy on the part of the ILECs could possibly meet with success. The question is not whether cable companies can afford to offer voice telephony, but rather whether they can afford not to. Indeed, as discussed above in sub-section 3.3.1, "vertically-integrated broadband access providers will increasingly include VoIP services 'for free' with the sale of other services, as Cablevision has already done."[207] How does an ILEC successfully predate against a rival giving away telephony, the product that forms the very core of its product market?

In recognition of the fact that the law and economics literature finds that predatory pricing is a rare phenomenon,[208] there should be a presumption that the price vector of the incumbent provider is "non-predatory" unless there is credible evidence to the contrary. In this context, the term "non-predatory" means that the incumbent provider does not have an incentive to change its vector of prices when it credibly believes that none of its rivals will exit the market.

In terms of evaluating price reductions on the part of the ILECs, there is the possibility of Type I errors (labeling a price cut predatory when it is actually competitive) and Type II errors (labeling a price cut competitive when it is actually predatory).[209] The optimal public policy should balance the risk of error in a manner that maximizes expected consumer welfare. For example, a public policy that is more likely to result in a Type I error than a Type II error is likely to entail high social costs because it will give firms pause in lowering prices out of fear that such behavior will be condemned as being predatory. Given the market conditions that currently prevail in the telecommunications industry, it would seemingly be irrational for an ILEC to attempt predation given its extremely low probability of success. Given the dearth of actual, confirmed cases of successful predation along with the market conditions that currently prevail in the U.S. telecommunications industry, policymakers should seemingly be much more concerned about mistakenly classifying competitive behavior as predatory ("Type I errors") than mistakenly classifying predatory behavior as competitive ("Type II errors"). It necessarily follows that the burden of proof for allegations of predation should be placed on those market participants making such allegations.[210]

3.8 COMPETITION PRINCIPLE 8

Principle C-8. Whereas it is important to deregulate at the appropriate time based upon an objective assessment of market conditions, it is likely better to err on the side of somewhat too early rather than on the side of somewhat too late.

It is important to be clear as to precisely what *Principle C-8* says as well as what it does not. *Principle C-8* does not say that deregulation should occur prematurely. Ideally, the decision to deregulate should be based on "an objective assessment of market conditions" and should occur no earlier and no later than when the incumbent provider's market power is no longer in excess of residual levels.

Nonetheless, in waiting for the "ideal" time to forbear, the regulators may serve only to ensure that that time never arrives. Moreover, the presence of economic regulation (i) invariably alters the course of the market's competitive transition; (ii) tends to foster an unnatural dependence on the regulatory process by service providers that creates incentives for "regulatory protectionism"; and (iii) tends to divert resources in a socially-unproductive manner, typically from the marketplace to the "hearing room."(See related discussion of *Competition Principle 1*.) Moreover, the typical comparison is usually one between perfect regulation and imperfect competition, whereas the relevant comparison is that of imperfect, perhaps highly imperfect, regulation with that of imperfect competition.[211]

Somewhat earlier deregulation is suggested by the fact that Type I errors (regulation when deregulation is warranted) are typically less amenable to self-correction than Type II errors (deregulation when regulation is warranted). (See related discussion of *Competition Principle 2*.)

Somewhat earlier deregulation is suggested by the fact that the overhang of regulation is likely to bias efficient technology choices and lead to asymmetric regulation and its attendant market distortions. (See related discussion of *Competition Principle 3*.)

Somewhat earlier deregulation is suggested by the fact that any "rents from incumbency" that the ILECs might enjoy are considerably diminished due to the product market being redefined as a result of shifting technological and market forces. (See related discussion of *Competition Principle 3*.)

Somewhat earlier deregulation is suggested by the fact that the gains from dynamic efficiency (new technologies, products and services) are likely to dominate any transitory allocative efficiency losses (prices above incremental cost). (See related discussion of *Competition Principle 4*.)

Somewhat earlier deregulation is suggested by the fact that waiting until the market share of the ILEC falls to a prescribed, albeit nonetheless arbitrary, level is likely to force consumers to pay higher prices than they would

pay in the absence of such regulatory constraints. (See related discussion of *Competition Principle 5*.)

Somewhat earlier deregulation is suggested by the fact that ILECs (i) operate with high price-cost margins due to scale and scope economies; (ii) provide a multitude of complementary services over a common technology platform; and (iii) incur large losses in contribution to joint and common costs from relatively small reductions in demand volumes. (See related discussion of *Competition Principle 6*.)

Somewhat earlier deregulation is suggested by the fact that actual cases of predatory pricing are rare and the conditions that currently prevail in local telecommunications markets are particularly ill-suited for successful predatory pricing. (See related discussion of *Competition Principle 7*.)

As Professor Joseph Farrell has observed in the context of the FCC's implementation of the 1996 Telecommunications Act:

> Indeed, if regulators continue to regulate the incumbent's retail prices, and don't happen to replicate the solution that the incumbent and the customer jointly find most beneficial, it puts the incumbent at an artificial competitive disadvantage. Thus, *while there are obvious risks in premature deregulation of incumbents, there are also risks in waiting too long*.[212] (emphasis in original)

While there are risks associated with deregulation that is either too early or too late, the risks associated with waiting too long to deregulate are likely to be underestimated. This will tend to lead policymakers to erroneously conclude that deregulation that is "too late" is necessarily preferable to deregulation that is "too early" and yet the reality is likely to be quite different.

Finally, if deregulation were to occur somewhat too early, there is some risk that the requisite degree of competitive discipline would fail to materialize. And yet, this risk is seemingly outweighed by the greater risk that continuing regulation will itself discourage competition from materializing for the reasons that are explained in detail above. It is also important to recognize that a decision to deregulate does not mean that governmental oversight of competitive conduct would be terminated. It simply means that the governmental oversight would change from *ex ante* regulation by the expert regulator to *ex post* supervision by the antitrust authorities.

4. KEY TRENDS IN DEREGULATION

In this section, we briefly summarize the key trends in the deregulation of local exchange services. The interested reader is referred to Appendices A and B for overviews of deregulation and forbearance in local telecommunications markets in the United States and Canada, respectively.

At this point in time, total deregulation of local exchange markets is still relatively rare. Only two states, Nebraska and South Dakota have deregulated local exchange services in their entirety. Price cap regulation is still the predominant form of regulation for the larger ILECs, although the trend is away from indexed ("I - X") price cap plans in favor of non-indexed price cap plans. Earnings sharing in price cap plans has essentially been eliminated. Traditional rate-of-return regulation is still prevalent among the smaller carriers. Emerging trends include rate protection for stand-alone basic local exchange service for residential customers, but deregulation of business services and bundles of services. A number of states have moved to de-tariff services and/or provide ILECs with the option of petitioning for deregulation in markets in which they can demonstrate that consumers have competitive alternatives for telecommunications services.[213] In some cases, legislation has proposed a sunset for deregulation at a future date-certain. States have generally refrained from attaching regulatory oversight to local telephone services provided using newer technologies, such as broadband, VoIP and wireless. It is also apparent that the state legislatures are playing and ever more prominent role in the deregulation of local exchange markets. The reasons for this are likely two-fold. First, there may be increased recognition on the part of state officials as to the role of information technology in fostering economic growth. Second, the ILECs may believe that statutory rules governing deregulation engender a level of commitment that may be difficult to obtain from state regulators.

Over the past two years, the two largest telephone companies in the U.S., SBC (now "at&t") and Verizon, have seemingly focused their regulatory efforts in consummating their acquisitions of AT&T and MCI, respectively. Given that this process is completed, it is reasonable to expect that these companies will move aggressively in the near future to secure full or partial deregulation of local exchange markets—particularly in light of the competitive inroads made by the cable companies. It is unclear at this point in time, however, whether these reforms will take place exclusively at the state level, or will be aided in whole or in part by new telecommunications reform legislation at the federal level.[214]

5. SUMMARY AND CONCLUSIONS

The United States has vigorously pursued a policy of increased competition for the provision of telecommunications services. This policy in concert with various regulatory decisions to open markets to competition has profound implications for the telecommunications industry and its consequent deregulation.

Historically, regulatory policies for the telecommunications industry in the U.S. have been designed with the single objective of protecting consumers from the abuse of market power by monopoly providers of telecommunications services. In this respect, economic regulation serves as an imperfect substitute for competitive market forces in that regulators set price and quality levels for the market. In the current telecommunications marketplace, regulation has two distinct objectives. It serves not only to protect consumers from the abuse of market power, where market forces alone are insufficient to provide the requisite level of discipline, but it also serves to protect the integrity of the competitive process.

Two key premises provide the foundation for this analysis. First, the discipline imposed by economic regulation should defer to the discipline imposed by market forces whenever consumer welfare would be served by such a transfer of control. Second, regulation should be presumed unnecessary absent market conditions that credibly demonstrate that there exists a threat of abuse of market power that poses a substantial and non-transitory risk to consumer welfare and would otherwise be likely to impair unduly the integrity of the competitive process.

Despite some surface appeal, incremental approaches to deregulation of the U.S. telecommunications industry are particularly problematic in a technologically-dynamic environment—one in which the product market is being redefined, "rents from incumbency" are considerably diminished and market share measures, which are recognized to be a misleading indicator of market power in regulated industries, are at best yesterday's snapshot of a marketplace in rapid and largely-irreversible competitive transition.

This analysis further reveals that the technical conditions of supply that constitute the central economic argument for regulation can, under certain conditions, be relied upon to constrain market power. Because regulated telecommunications firms typically operate with high price-cost margins due to scale/scope economies, a price increase that produces even a small reduction in demand—as consumers curtail consumption and/or switch to alternative suppliers—can be expected to generate relatively large losses in contribution to joint and common costs and therefore prove unprofitable. This suggests that in evaluating the merits of deregulation, policymakers should be mindful of the fact that a relatively modest amount of competition can go a long way.

It is therefore critical that any test for deregulation be structured and dutifully applied in a manner that promotes consumer welfare rather than the welfare of individual competitors. The risk is that an improperly designed test for deregulation will serve anticompetitive rather than pro-competitive ends. Such an outcome would be wholly at odds with the express intent of the public policy for the telecommunications industry as expressed in the preamble of the 1996 Telecommunications Act: To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.

APPENDIX A
STATUS OF DEREGULATION IN THE STATES

State	Services / Business Residential	Regulatory / Legislative	Summary
Alabama		Legislative SB 114	Deregulates service except for basic service. Limited automatic price increases allowed for basic service.
Alaska		Regulatory	Alaska has not deregulated the local carriers at this time, but does have relaxed regulation. Some optional services de-tariffed. All large incumbents and most small ones are under rate-of-return regulation.
Arizona		Regulatory Dockets T-01051B-03-0454 T-00000D-00-0672	A settlement was reached in August 2005 that allows for a Renewed Price Cap Plan for Qwest. Qwest must make Switched Access Charge reductions totaling $12 million at the start of the Renewed Price Cap Plan. Limited price changes will be allowed.
Arkansas		Legislative Arkansas Code Annotated Section 23-17-400	Effectively deregulated in 1998. Any rate increases will be ameliorated by the creation of a statewide fund that will partially offset such rate increases.
California		Regulatory	Implemented a performance incentive plan for SBC to ensure that it is providing CLECs with non-discriminatory access to the SBC local service infrastructure. Competitive services flexibly priced. Other incumbents are under fully-tariffed rate-of-return regulation. CLEC rates are presumed competitive.
Colorado		Regulatory Dockets 04A-411T and 04D-440T	The commission shall consider changing to forms of price regulation other than rate-of-return regulation for any telecommunications provider that provides regulated services. Under “Market Regulation,” no tariffs will be filed for services, although these services will remain in their current statutory classifications. General tariff provisions shall not apply to services subject to Market Regulation. The Commission will not actively monitor maximum or minimum prices. All packages and bundles are detariffed and not subject to a price cap.
Connecticut			SBC Noncompetitive services are under caps indexed to GDP-PI. Caps don't change– except by 1/2 any GDP-PI increase above 5% annually. Competitive services flexibly priced. Other incumbents remain under fully tariffed rate-of-return regulation. CLEC rates presumed to be competitive.

State	Services / Business Residential	Regulatory / Legislative	Summary
Delaware			Verizon's basic services under caps indexed to GNP-PI minus 3%. Competitive services flexibly priced. CLEC rates are presumed competitive if they remain above incremental cost.
Florida		Legislative SB 1322	Bellsouth, Verizon, and Sprint have basic services under caps indexed to GDP-PI minus 1%. Non-regulated communications including VoIP, wireless, and broadband, are subject to the state's business regulation, deceptive trade practices and consumer protection laws.
Georgia		Legislative SR 298	Establishes that advanced technologies (broadband, wireless and VoIP) and any facilities used to provide such services are exempt from any regulation, except for interconnection agreement authority. Commission orders on DSL over UNE-P voided in 2006. Protects access charge authority. The bill did not pass out of committee and a study committee was set up to examine the issues. Bellsouth basic rates under caps indexed to GDP-PI, access charges capped at interstate rate. All other retail service rates deregulated.
Hawaii		Regulatory	The commission granted Verizon Hawaii's petition to reclassify intraLATA toll service from partially competitive to fully competitive.
Idaho		Legislative HB 224	Deregulates local services after a three-year transition period on a company-by-company basis, although the commission may extend this period for up to two years. During the transition, rates are capped, but may increase up to $1.75 per month, per line. Commission retains non-economic regulatory authority relating only to basic service for all companies providing such service. Filing of tariffs would be voluntary.
Illinois		Legislative SB 1700	Three-year rate cap on basic residential telephone service, at rates not to exceed those in effect on February 1, 2005, if purchased on a stand-alone basis. Bundles and packages of services are effectively deregulated. All services and packages subject to a price floor equal to long-run service incremental cost. This bill came out of the Senate committee in 2005, but was never called for a full vote in the House. Instead, the legislature voted to extend the current act until July 1, 2007.

State	Services / Business Residential	Regulatory / Legislative	Summary
Indiana		Legislative SB 381	Commission would cease oversight of non-basic services on June 30, 2007, and would cease oversight of pricing, terms, and conditions of basic service on June 30, 2010. Filing of tariffs would be voluntary. Commission may not impose any more stringent requirements on basic service than are already in effect, and basic service quality requirements must apply to all providers.
Iowa	Both	Legislative HF 277	Deregulates except for basic service. Basic service deregulated after July 1, 2008, although the commission may extend its authority for two more years if it is in the public interest. In the interim, basic service rates would be capped, but allowed to increase by annual increments ($1 for residential, $2 for business) until 2008.
Kansas			SBC and Sprint have all services under caps indexed to GDP-PI minus 3.15% for basic services and 1.5% for optional and discretionary services. Firms can petition for rate deregulation of competitive services in markets where competitors operate. In June 2005, SBC was granted rate deregulation for bundled services in Kansas City and Wichita and for multiline business services in Wichita. Other incumbents remain under fully tariffed rate-of-return regulation. CLEC rates presumed to be competitive.
Kentucky			Bellsouth basic service rates are under caps indexed to GDP-PI. Access capped at interstate levels. Rates for competitive services deregulated. Cincinnati Bell Basic local rates frozen. Rates for some vertical services and specialty business services frozen through 2006, then can rise to cap set at double initial rate. All other retail rates flexibly priced. Other incumbents remain under fully tariffed rate-of-return regulation. CLEC rates presumed to be competitive.
Louisiana		Regulatory	Bellsouth rates for residential and single-line business basic services under nonindexed caps, except series of rate changes intended to consolidate 8 local rate groups into one by 2006. After 2006, BellSouth may raise basic service rates by up to 10% a year in competitive urban markets. Rates for competitive services deregulated. Other incumbents' basic and access services are under nonindexed caps. Other services flexibly priced. CLEC rates presumed competitive.

State	Services / Business Residential	Regulatory / Legislative	Summary
Maine		Regulatory Docket 99-851	Verizon was given the ability to flexibly price all services other than basic exchange service. Verizon can petition for basic service rate increases due to external factors, and to petition for rate deregulation of business services to customers over 10 lines in markets qualifying as competitive.
Maryland		Regulatory	The Public Service Commission does not regulate rates charged by CLECs and IXCs, but has not fully deregulated any part of the industry.
Massachusetts		Regulatory	The DTE largely deregulated business services on May 8, 2002. Full upward pricing flexibility is allowed, and downward pricing flexibility is subject only to a UNE-based price floor. All tariffing requirements still apply.
Michigan	Both	Legislative SB 5237	Provides for broad price deregulation for most voice services and bundles. Commission will retain regulatory oversight for residential, stand-alone primary basic local exchange service. The new law deregulates all bundled services and allows the market to dictate pricing. Price freeze for single line residential service only.
Minnesota			Qwest has local exchange and access services under nonindexed caps. Other basic and emerging competitive services flexibly priced. Sprint and Citizens/Frontier have basic services under nonindexed caps. Nonbasic and emerging competitive services flexibly priced. Rates deregulated for fully competitive services (including Qwest). Other incumbents, all under 50,000 lines, can elect flexible pricing system letting them price basic services to market unless greater of 500 or 5% of ratepayers seek PUC review of rate change. CLEC rates presumed competitive.
Mississippi			Bellsouth basic service rates frozen. All other services can rise up to 20% a year. Access capped at interstate rate. Other incumbents remain under fully-tariffed rate-of-return regulation. CLEC rates presumed competitive.
Missouri		Legislative SB 237	Changes the standards by which services are deemed competitive. Commission may review services classified as competitive at least every two years or if the ILEC raises rates. Establishes that any rate that does not exceed the price cap shall be deemed just and reasonable. Allows customer-specific pricing for businesses.

State	Services / Business Residential	Regulatory / Legislative	Summary
Montana			All investor-owned incumbents under rate-of-return regulation. Rural telephone co-ops fully deregulated. CLEC rates presumed competitive.
Nebraska		Legislative LB 835	LB 835 generally deregulated carriers on January 1, 1987. Incumbent and CLEC rates are not reviewed.
Nevada			Basic services for Sprint are under nonindexed caps. Rate cuts allowed, but not increases. Nonbasic services can rise up to 5% annually to cumulative total 20% increase. Competitive services flexibly priced. SBC basic services are under nonindexed caps, access charges capped at interstate rate. Other services can be priced at any point above cost floor. Other incumbents operate under fully tariffed rate-of-return regulation. CLEC rates presumed competitive.
New Hampshire			Verizon and others under rate-of-return regulation. State law effective July 1, 2005 gives incumbents other than Verizon the option of same regulation as CLECs if they prove to PUC most customers have access to competitive wireline, wireless or IP-based service providers. CLEC rates presumed competitive. CLECs must file price schedules and give one day's notice of price changes; changes normally not reviewed.
New Jersey		Regulatory Docket T001020095	A modified price cap plan for Verizon includes: (1) the reclassification of multi-line business services as competitive services, resulting in full pricing flexibility for those services (subject to a price floor), (2) pricing flexibility to adjust rates by 10 percent per year for all services except basic line rate provided to customers with between two and four lines, and (3) a freeze of residential basic exchange rates at current levels.
New Mexico		Legislative HB 750 SB 672	Companies may provide price lists for non-basic service rate decreases. Increases for non-basic rates and all rates for basic residential and business would be set according to ILEC's alternative-form-of regulation plan.
New York		Regulatory Cases 00-C-1945 and 98-C-1357	The Verizon Incentive Plan (VIP) was adopted on February 27, 2002, granting Verizon pricing flexibility for most services. There is no cap for increases except for flat-rate residential services. The total increase in the price of 1FR service cannot be more than $2.00-$3.00 in one year depending on the year of the plan and the rate group. Annual revenue increases associated with pricing flexibility are capped at 3%.

State	Services / Business Residential	Regulatory / Legislative	Summary
North Carolina		Regulatory Docket P-55	Greater price flexibility for more services, eliminates "I – X" mechanism. Bellsouth basic service rates can rise up to 10%, subject to a revenue cap for basic basket equal to 1.5 times annual GDP-PI. Vertical and nonbasic services can rise up to 20%, subject to basket revenue cap equal to 2.5 times annual GDP-PI. Competitive services rates deregulated. BellSouth business services are classified as competitive except basic exchange and installation, which will be classified as competitive in December 2006.
North Dakota		Legislative SB 2216 SB 2091 HB 1156	Maintains the current residential cap of $18 for a primary residential line, but removes the price cap for business lines. Intrastate access charges continue to be regulated. Detariffs all telecommunications services except essential services. Streamlines entry regulation.
Ohio		Legislative HB 218	SBC, Sprint, Cincinnati Bell, CenturyTel, Alltel, Western Reserve, Chillicothe opted for generic alternative price regulation framework PUC adopted April 2002. Plan indefinitely freezes basic local rates. Rates for certain vertical services and specialty business services frozen 2 years from effective date of individual company's plan, and then can rise up to double initial rate. All other retail rates flexibly priced. To authorize an exemption or establish alternative regulatory requirements with respect to basic local exchange service, the commission shall find that there are no barriers to entry.
Oklahoma			SBC has all services under nonindexed caps. Regulators in July 2005 approved new regulation plan that would let SBC set retail rates anywhere above cost floor–except in rural areas, where local rate increases are limited to $2 per year. Other incumbents are under streamlined form of rate-of-return. CLEC rates presumed competitive.
Oregon		Legislative SB 600	Allows the commission to exempt from regulation services that are deemed to be competitive. The commission may require utilities to file price lists for essential or nonessential services in areas deemed to be competitive. The commission may re-regulate a service previously deemed competitive.
Pennsylvania		Legislative Act 183 of 2004 (HB 30)	Allows a LEC to declare a service competitive (not subject to rate regulation), but allows third parties to petition the commission to reclassify the service as noncompetitive.

State	Services / Business Residential	Regulatory / Legislative	Summary
Rhode Island	Residential/ Business	Regulatory Docket 3445	Alternative regulation for Verizon includes (1) the elimination of an inflation-minus-X annual adjustment to the price cap index, (2) pricing flexibility for business services, including business basic exchange service, subject only to a long run incremental cost price floor, (3) a maximum increase each year of $1 per month in basic residential prices for two years with an option for a third year, and (4) an annual maximum price change for non-basic residential services, ranging from 5 to 15 percent.
South Carolina		Legislative HB 3633	Bill proposes deregulation of all local telephone services. Vote by legislature is pending. Prices for service bundles deregulated for companies under alternative form of regulation. Bellsouth, Sprint, and Verizon are subject to price caps for basic service with other services flexibly priced. CLEC rates are not reviewed.
South Dakota	Retail	Regulatory Notice of Entry TC03-057	The PUC agreed that Qwest's retail local exchange services are fully competitive. Flexible prices for local exchange services were permitted, with the exception of a transitional cost-based price floor.
Tennessee		Legislative SB 182	Removes regulation of the retail offering of bundled products or services. Allows for price discrimination.
Texas		Legislative SB 5	Provides for deregulation of residential basic exchange service in a markets with population greater than 100,000, independent of competitors' footprint. [Business services previously deregulated under prior legislation.] Deregulated companies cannot raise rates for basic service until September 1, 2007, and must apply rates evenly across a market, consistent with pricing flexibility that was available in August 2005.
Utah		Legislative SB 108	Removes residential rate cap in competitive exchanges, although ILECs serving fewer than 30,000 customers must petition for deregulation. ILEC basic service rates capped through 2007 elsewhere.
Vermont		Legislative HB 495	All services subject to non-indexed caps initialized at September 2005 levels. Legislation would eliminate most regulation of carriers that serve fewer than ten percent of subscriber lines statewide and has been designated an eligible carrier in a service area where a competitive eligible carrier has also been designated.

State	Services / Business Residential	Regulatory / Legislative	Summary
Virginia		Regulatory	Verizon's basic service rates capped at 1994 levels, adjusted annually for inflation. Nonbasic rates can rise up to 10% the first year and 1% more each succeeding year the program runs. Revenue-neutral price changes can be sought any time if at least a year has passed since the last rate increase. Price cuts are subject to cost floor. CLECs must obtain state certificate and file tariffs. Rates of telephone cooperatives deregulated.
Washington		Regulatory Docket UT-030614	The Commission determined that analog business services (including local exchange service) were effectively competitive statewide. Competitive services priced flexibly.
West Virginia			Allows for Verizon and Frontier a form of Incentive Regulation, with basic rates under nonindexed caps, vertical services allowed to rise by rate of inflation, and competitive service rates deregulated. Other incumbents remain under fully-tariffed rate-of-return regulation. CLEC rates presumed competitive and are flexibly regulated.
Wisconsin	Business	Regulatory Case 6720-TI-173	Price flexibility and deregulation given to all business services. SBC's noncompetitive services under caps indexed to GDP-PI minus 3%. Competitive services flexibly priced.
Wyoming		Regulatory	Mechanisms in place to ensure that Qwest's local market in Wyoming remains open to competition. All incumbents free to set rates for retail services at any level above TSLRIC cost floor. Incumbents that price basic service above state-wide benchmark rate of $23.10 subject to review of universal service support.

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APPENDIX B—STATUS OF FORBEARANCE IN CANADA

In Telecom Public Notice CRTC 2005-2,[215] the Commission initiated a proceeding to develop a framework for forbearance from regulation of residential and business local exchange services.

> The Commission considers that there is a need to establish a framework for local forbearance, including clear criteria that it can use to determine when it is appropriate to forbear from regulating local exchange services.[216]

The Commission is primarily interested in developing a bright-line test that delineates sufficient conditions for forbearance to take place. The Commission framed this proceeding around seven key questions.

1. What local exchange services should be within the scope of this proceeding?
2. What is/are the appropriate relevant market(s) for forbearance from the regulation of local exchange services, taking into consideration both services and geographic areas?
3. What are the appropriate criteria to be applied to determine whether the relevant market(s) is/are sufficiently competitive for forbearance?
4. What Commission powers and duties should be forborne?
5. What post-forbearance criteria and conditions should apply and why?
6. What is the appropriate process for future applications for forbearance from the regulation of local exchange services?
7. Should there be a transitional regime that provides ILECs with more regulatory flexibility prior to forbearance?

This proceeding was motivated in part by a forbearance application received from Alliant Telecom Inc. on April 7, 2004. In this application, Alliant requested forbearance from the regulation of specified residential wireline local services in 32 exchanges. The company cited substantial competition in these exchanges as the reason for its request. In its application, Alliant also requested expedited relief from various competitive safeguards, including (i) removal of the 12-month no contact restriction under the winback rules; (ii) suspension of the moratorium on promotions involving wireline services; (iii) reinstatement of the *ex parte* filing of tariff applications for promotions; and (iv) waiver of service charges from residential local winbacks in the 32 exchanges.

Evidence in the proceeding was filed in June of 2005 and public hearings were held in September 2005. A decision in this docket is expected in the Spring/Summer of 2006.

ENDNOTES

1 Telecommunications regulation can be partitioned into three broad types: economic, technical and social. The principles articulated herein are concerned exclusively with economic regulation and associated price and quality issues. Henceforth, the terms regulation and economic regulation are used interchangeably.

2 See, for example, Alfred E. Kahn, "The Uneasy Marriage of Regulation and Competition." *Telematics*, Vol. 1, Number 5, pp. 1-17; Dennis L. Weisman, "Asymmetrical Regulation," *Telecommunications Policy*, Vol. 18(7), October 1994, pp. 499-505; and John R. Haring, "Implications of Asymmetric Regulation for Competition Policy Analysis. Working Paper 14, Office of Plans and Policy, Federal Communications Commission, 1984.

3 Alfred E. Kahn, "The Uneasy Marriage of Regulation and Competition." *Telematics*, Vol. 1, Number 5, p. 8.

4 Market power is generally defined as the ability of a firm to profitably raise price above competitive levels for more than a transitory period of time. See Department of Justice and the Federal Trade Commission. *Horizontal Merger Guidelines*, 1992 [Inclusive of April 8, 1997 Revisions], § 0.1. In other words, any firm can raise price above competitive levels, but only a firm with market power can do so profitably. For the purposes of this discussion, market power is presumed to be binary in nature—either there is market power in which case regulation is warranted or there is no market power in which case deregulation is warranted.

5 It is important to recognize that prices for basic wireline telephone service tend to be politically sensitive and, at least in certain markets, regulators have set these prices below cost to address universal service and affordability concerns. See, for example, Robert W. Crandall and Leonard Waverman. *Who Pays for Universal Service?*, Washington D. C.: Brookings Institution, 2000. Hence, it is possible that an incumbent provider could marginally raise prices *post-deregulation* without such actions being indicative of market power. And yet, in a recent forbearance proceeding in Canada, the Competition Bureau stated that:

> Similarly, in assessing forbearance, the Bureau is of the preliminary view that the base price that should be used to postulate a price increase is the prevailing regulated price. The forbearance analysis seeks to assess the likelihood that price will increase, above the prevailing regulated level, if regulatory constraints are removed.

Canadian Radio-Television and Telecommunications Commission (CRTC), Telecom Public Notice CRTC 2005-2, *Forbearance from Regulation of Telecommunications Services*, Evidence of The Commissioner of Competition, June 22, 2005, ¶ 166.

6 Alfred E. Kahn, Lessons From Deregulation: *Airlines and Telecommunications After the Crunch.* Washington D.C: AEI-Brookings Joint Center For Regulatory Studies, 2004, p. 38.

7 Preamble, 1996 Telecommunications Act of 1996. Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C.)

8 For a critique of the FCC's implementation of the Telecommunications Act, see Alfred E. Kahn, Timothy J. Tardiff and Dennis L. Weisman. "The 1996 Telecommunications Act At Three Years: An Economic Evaluation of Its Implementation By The FCC." *Information Economics and Policy*, Vol. 11, No. 4, December 1999, pp. 319-365; Dennis L. Weisman, "Did The High Court Reach An Economic Low in *Verizon v. FCC*?" *The Review of Network Economics*, Vol. 1(2), September 2002, pp. 90-105; and Dale E. Lehman and Dennis L. Weisman, *The Telecommunications Act of 1996*: *The "Costs" of Managed Competition*. Boston: Kluwer, 2000.

9 There is movement afoot to substantially revise, if not replace, the 1996 Telecommunications Act with new telecommunications reform legislation. See, in particular, the efforts of the Digital Age Communications Act (DACA) Project being carried out under the auspices of the Progress and Freedom Foundation and available at http://www.pff.org/daca/. On December 15, 2005, Senator James DeMint (R-SC) introduced the "Digital Age Communications Act of 2005". This bill proposes a market oriented, competition-based, regulatory approach to the telecommunications industry and reflects a number of the proposals that have been put forth as part of the DACA project.

10 *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers* (CC Docket No. 01-338), *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996* (CC Docket No. 96-98), *In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Ca-*

pability (CC Docket No. 98-147); Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36 (released August 21, 2003) ("Triennial Review Order" or "TRO") at ¶ 659.

11 The estimated economic welfare gains from the deregulation of the airlines in the U.S. exceeds $20 billion annually. See Steven A Morrison and Clifford Winston, "The Remaining Role for Government Policy in the Deregulated Airline Industry" in *Deregulation of Network Industries,* eds. Sam Peltzman and Clifford Winston, Washington D.C.: AEI-Brooking Joint Center for Regulatory Studies, 2000, p. 2.

12 See Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*. New York. Vol. I, John Wiley and Sons, 1970, pp. 11-12.

13 An essential facility exhibits three basic characteristics: it is necessary for production of the retail service (e.g., basic telephone service), it is monopoly provided and it cannot be economically duplicated or self-supplied by a competitor. For a comprehensive, legal analysis of the essential facilities doctrine, see Abbot B Lipsky Jr. and J. Gregory Sidak, "Essential Facilities," *Stanford Law Review*, Volume 51, Number 5 May 1999, pp. 1187-1248.

14 There are any number of examples in which essential services are provided through competitive markets. These include food, housing, transportation, education and, in some cases, medical care.

15 Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*. New York. Vol. I, John Wiley and Sons, 1970, p. 11.

16 See the related discussion associated with Competition Principle C-1 *infra*.

17 Robert H. Bork, *The Antitrust Paradox*, New York: Macmillan, 1978, p. 47.

18 Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*. New York. Vol. I, John Wiley and Sons, 1970, p. 17.

19 Professor Bonbright observes that "Regulation, then, as I conceive it, is indeed a substitute for competition; and it is even a partly imitative substitute." James C. Bonbright, *Principles of Public Utility Rates.* Columbia University Press: New York, 1961, p. 107.

20 See Richard Posner, "Taxation by Regulation," *Bell Journal of Economics*, 2, Spring 1971, 22-50.

21 See, for example, Daniel Yergin and Joseph Stanislaw, *Commanding Heights.* Simon & Schuster: New York, 1998.

22 See David E. M. Sappington, "Price Regulation" in Martin Cave, Sumit Majumdar, and Ingo Vogelsang, eds. *Handbook of Telecommunications Economics*. North-Holland: Amsterdam, 2002, Chapter 7, pp. 225-293. See also Ingo Vogelsang, "Incentive Regulation and Competition in Public Utility Markets: A 20-Year Perspective," *Journal of Regulatory Economics*, Volume 22(1), July 2002, pp. 6-27.

23 In commenting recently on the "boom and bust" in telecommunications markets and the regulators' culpability in it, Michael Powell, the immediate past chairman of the FCC, had the following observations:

> Suddenly we go from natural monopoly to wanting hundreds and thousands of these guys jumping up tomorrow, and in hindsight, it looks like wide-eyed optimism, probably tainted by the dot-com boom that was going on simultaneously, that led people to really overdrink the Kool Aid about what was possible without going through the hard economics of whether that was going to be viable. I definitely think there was some irrational exuberance in the space and wild-eyed ambition.
>
> I think regulators are partially culpable. They wanted it to happen so bad. They called it wonderful things like "jump-starting competition," but what we were really doing was driving entry prices down to nearly zero so that hundreds of these guys would show up. But what you have to really think through is, are you really setting up something that's long-term and economically sustainable?
>
> Guys can't come to the party with nothing. Those are arbitragers. They can come for a while. Hundreds came come for a while. In some ways, regulators were partially culpable because they were anxious to see the results and anxious to see them fast.
>
> I think we're very impatient sometimes when we have new goals. Every economist will tell you, if the price of ice cream is zero, there'll be a whole lot of people in line to get ice cream. In a lot of ways we tried to make the cost of entry not quite zero, but awful close to it - and in some cases it was because of universal service and nobody really thought through how that subverted the incentives. They all went to businesses where the prices were purposely inflated to pay

universal service to residences, and that's where all the CLECs went.

"Powell Recommends Simplicity in New Law for IP Services." *Telecommunications Reports*, April 1, 2005.

24 Jonathan E. Neuchterlein and Philip J. Weiser, *Digital Crossroads, American Telecommunications Policy in the Internet Age*. Cambridge MA: The MIT Press, 2005, pp. 10-22.

25 The term *naturally oligopolistic* in this context refers to conditions in which the most efficient industry structure entails more than one firm but still relatively few firms in the market. For a discussion of the relationship between sunk costs and the equilibrium number of firms in the market, see John Sutton, *Sunk Costs and Market Structure*, Cambridge MA: The MIT Press, 1991, Chapters 2 and 3.

26 Joseph A. Schumpeter, *Capitalism, Socialism and Democracy*. Harper and Row: New York, 1942, p. 106.

27 *Id.* p. 104.

28 F. A. Hayek, *Individualism and Economic Order*, The University of Chicago Press: Chicago, 1948, p. 92.

29 Dennis L. Weisman, "The (In)Efficiency of the 'Efficient-Firm' Cost Standard." *The Antitrust Bulletin*, Vol. XLV(1), Spring 2000, p. 197.

30 A thought-provoking discussion and historical account of this important distinction is P. J. McNulty, *Economic Theory and the Meaning of Competition*. *Quarterly Journal of Economics*, Vol. LXXXII, 1968, pp. 639-656. In a particularly prophetic passage, McNulty observes that with respect to the classical school:

> their concept of competition was a disequilibrium one of market activity, . . . Perfect competition, on the other hand, is an equilibrium situation in which price becomes a parameter from the standpoint of the individual firm and no market activity is possible. Thus the classical concept of competition as a guiding force, to which we earlier referred, is not only different from that of the neoclassical concept of competition as a state of affairs; the two are incompatible in a fundamental sense, reflecting precisely the difference between a condition of equilibrium and the behavioral pattern leading to it (p. 649).

31 Dennis L. Weisman, "The (In)Efficiency of the 'Efficient-Firm' Cost Standard." *The Antitrust Bulletin*, Vol. XLV(1), Spring 2000, p. 210.

32 As I have argued elsewhere, "the ILECs were never guaranteed recovery of historical costs—not even under traditional rate-of-return regulation, and their 'entitlements' under price cap regulation were lesser still." Dennis L. Weisman, "Did The High Court Reach An Economic Low in *Verizon v. FCC*?" *The Review of Network Economics*, Vol. 1(2), September 2002, p. 91. [ILEC is the acronym for incumbent local exchange carrier.]

33 For a comprehensive examination of this issue, see J. Gregory Sidak and Daniel F. Spulber, *Deregulatory Takings and the Regulatory Contract*. Cambridge University Press: Cambridge MA, 1997.

34 Dennis L. Weisman, "Did The High Court Reach An Economic Low in *Verizon v. FCC*?" *The Review of Network Economics*, Vol. 1(2), September 2002, p. 101.

35 Dennis L. Weisman, "Is There *'Hope'* For Price Cap Regulation?" *Information Economics and Policy*, Vol. 14(3), September 2002, pp. 366-367.

36 James C. Bonbright, *Principles of Public Utility Rates.* Columbia University Press: New York, 1961, Chapter II.

37 David E. M. Sappington and Dennis L. Weisman. *Designing Incentive Regulation for the Telecommunications Industry*. Cambridge MA: MIT Press and Washington D.C.: AEI Press, 1996, p. 100.

38 Whereas the economics literature recognizes that market power is necessary for the practice of price discrimination, this statement must be qualified accordingly. To wit, the long-distance and wireless markets in the U.S. are generally recognized to be competitive. Nonetheless, price discrimination in the form of volume discounts (second-degree price discrimination) and customer segmentation (third-degree price discrimination) is more the rule than the exception. The ratio of incremental cost to fixed costs is typically quite small in these markets. As a result, firms have strong incentives to introduce differential pricing plans that increase network utilization while contributing to the joint and common costs of the network.

39 On this score, it should be noted that AT&T went from being the largest corporation in the world to a take-over target by one of its former children (SBC) in the course of just over two decades. SBC has recently been renamed "at&t."

40 For example, Professor Jerry Hausman estimated the economic cost of regulatory delays in the in-

troduction of voice message services to be $1.27 billion in 1994 while the annual cost of the delay in implementing cellular telephone service was estimated at more than $25 billion. Jerry Hausman "Valuing the Effect of Regulation on New Services in Telecommunications," *Brookings Papers on Economic Activity: Microeconomics,* Brookings Institution, 1997, pp. 1–38.

41 See the related discussion in Section 2 *supra*.

42 Adam Smith, *The Wealth of Nations*. The Modern Library: New York, 1937 (originally published in 1776), p. 423.

43 Daniel Yergin and Joseph Stanislaw, *Commanding Heights.* Simon & Schuster: New York, 1998, p. 273.

44 A market failure refers to conditions in which market forces alone are insufficient to provide for an efficient allocation of resources. Economies of scale/scope and production/consumption externalities can give rise to market failures.

45 In certain cases, the process may be biased in favor of a regulatory default rather than a market default. For example, in a number of state jurisdictions, the operating budgets for the state regulatory commissions are based on a percentage of regulated revenues. Hence, a decision on the part of the state regulatory commission to deregulate a service necessarily leads to a reduced operating budget for that regulatory commission, everything else held constant.

46 Ronald R. Braeutigam, "Optimal Policies for Natural Monopolies" in *Handbook of Industrial Organization*, ed. by Richard Schmalensee and Robert Willig, Amsterdam: North-Holland, Vol. 1, 1989, p. 1291.

47 These costs include any deleterious effect on the competitive process as well as what are commonly referred to in the economics of regulation literature as rent-seeking/defending costs. Economic rent is defined as the difference between the amount that firms are willing to pay for an input and the minimum amount necessary to obtain that input. Economic rent is essentially a return that the firm earns on a scare input to production. This input may consist of a reputation, creative/entrepreneurial talent, a franchise, or a natural resource. The expenditure of resources to attain (sustain) a monopoly is called rent-seeking (defending) because firms will compete to earn a "rent" on the source of the monopoly. These costs represent socially-unproductive expenditures on securing market outcomes that are privately beneficial but socially detrimental. These social costs can take numerous forms that include: (1) A diversion of resources from the marketplace to the hearing room; (2) Compliance costs; (3) Strategic use of the regulatory process that may serve to delay the introduction of new services or establish artificially high price floors for the incumbent provider; and (4) Competitors developing a dependence on the regulatory process for their very survival. See, for example, Fred S. McChesney. *Money for Nothing: Politicians, Rent Extraction, and Political Extortion.* Cambridge MA: Harvard University Press, 1997.

48 This definition is in the spirit of that offered by Judges Posner and Easterbrook: 'Competition' may be read as a short hand expression, a term of art, designating any state of affairs in which consumer welfare cannot be increased by moving to an alternative state of affairs through judicial decree. Richard A. Posner and Frank H. Easterbrook. *Antitrust: Cases, Notes and Other Materials*. St. Paul Minnesota, West Publishing, 1981 (Second Edition), p. 166. Professor Clark offers a similar perspective: One may hope that the government need not assume the burden of doing something about every departure from the model of perfect competition. J. M. Clark, "Toward a Concept of Workable Competition," *American Economic Review*, Volume 30(2), June 1940, pp. 241-256.

49 One implication of the *Heisenberg Uncertainty Principle* is expressed as follows:

> The notion of the observer becoming a part of the observed system is fundamentally new in physics. In quantum physics, the observer is no longer external and neutral, but through the act of measurement he becomes himself a part of observed reality.

See http://www.thebigview.com/spacetime/index.html.

50 This is similar to the *Hawthorne Effect*, which recognizes that an individual's behavior may be altered when the individual knows s/he is being studied. The very act of measurement influences what is being measured. See http://www.envisionsoftware.com/articles/Hawthorne_Effect.html.

51 Dennis L. Weisman, "Competitive Markets and Carriers of Last Resort," *Public Utilities Fortnightly*, Volume 124, Number 1, July 6, 1989, p. 18.

52 A recent case in point is that of a rule in Texas that requires telephone companies to seek local rather than statewide approval to offer TV service. The cable companies apparently lobbied to keep this rule in place and thereby slow the rollout of televi-

sions services by their chief rivals in Texas, SBC and Verizon. See Peter Grant, Amy Schatz and Dionne Searcey, "Verizon, SBC Lose TV Fight With Texas Bill," *The Wall Street Journal*, May 31, 2005, p. B1.

53 See Fred S. McChesney. "Talking 'Bout My Antitrust Generation: Competition for and in the Field of Competition Law," 52 *Emory Law Journal*, 1401, Summer 2003. A shorter version of this article is Fred S. McChesney, "Talking 'Bout My Antitrust Generation" *Regulation*, Vol. 27(3) Fall 2004, pp. 48-55.

54 *Id.*, at 1411-1412.

55 *Id.*, at 1413.

56 For example, prices that are too high and quality that is too low will set in motion the seeds of their own destruction in the form of competitive market forces. Conversely, prices that are too low and quality that is too high will forestall competitive entry resulting in prolonged market distortions.

57 Frank Easterbrook, "The Limits of Antitrust," *Texas Law Review*, Volume 63, August 1984, p. 15.

58 Joel I. Klein, "The Importance of Antitrust Enforcement In The New Economy," Before the New York State Bar Association, Antitrust Law Section Program, New York, NY, January 29, 1998, p. 12.

59 Jonathan E. Neuchterlein and Philip J. Weiser, *Digital Crossroads, American Telecommunications Policy in the Internet Age*. Cambridge MA: The MIT Press, 2005, p. 192.

60 Federal Communications Commission, *Memorandum Opinion and Order*, In the Matter of Vonage Holdings Corporation Petition for Declaratory Ruling Concerning an Order of the Minnesota Public Utilities Commission, WC Docket No. 03-211, Released November 12, 2004.

61 Telecom Decision CRTC 2005-28, Regulatory Framework for Voice Communication Services Using Internet Protocol, Ottawa, Canada, 12 May 2005.

62 Glen O. Robinson, "The Titanic Remembered: AT&T and the Changing World of Telecommunications." Book Review Essay, *Telecommunications In Turmoil* By Gerald R. Faulhaber. *Yale Journal on Regulation*, 1988, Volume 5, p. 544.

63 "How the Internet Killed the Phone Business." *The Economist*, September 17, 2005, p. 11.

64 Jonathan E. Neuchterlein and Philip J. Weiser, *Digital Crossroads, American Telecommunications Policy in the Internet Age*. Cambridge MA: The MIT Press, 2005, pp. 191.

65 *Id.*, p. 192.

66 *Id.*, p. 193.

67 Ken Brown, "Cablevision to Offer Internet Phone-Call Bundle." *The Wall Street Journal*, June 21, 2004, p. B5.

68 John D. deButts. "An Unusual Obligation." Speech Before The National Association of Regulatory Utility Commissioners, Seattle, Washington, September 20, 1973.

69 Richard A. Posner, *Antitrust Law*. Chicago: University of Chicago Press, 2001.

70 Alfred E. Kahn, "The Uneasy Marriage of Regulation and Competition." *Telematics*, Vol. 1, Number 5, 1984, p. 9.

71 A moral hazard is a particular incentive problem that arises when the economic agent does not bear the full costs of a loss and, as a result, fails to put forth the efficient level of effort (which cannot be observed directly) to avoid that loss. For example, an individual may not take adequate precautions in locking the doors on his rental car or parking the rental car so as to avoid parking lot damage because he does not pay the full cost in the event of theft or damage. The moral hazard problem explains why most insurance policies require co-payments or deductibles.

72 For example, in commenting on the barriers to attracting new customers in a recent forbearance proceeding in Canada, the Canadian Cable Telecommunications Association observed that:

> Customers are accustomed to receiving a reliable, low-priced service from the ILECs. While there exists in any market a small percentage of customers who are prepared to try a new service or service provider, the majority of customers are unlikely to seek out alternatives, particularly when their level of satisfaction with their current supplier is high.

Canadian Radio-Television and Telecommunications Commission (CRTC), Telecom Public Notice CRTC 2005-2, *Forbearance from Regulation of Telecommunications Services*, Argument of The Canadian Cable Telecommunications Association, September 15, 2005, ¶ 100. The intimation here, of course, is that the regulator should do something about these barriers. And yet, for an economist price and quality are inextricably related—two sides of the same coin. It makes no more sense for a regulator to peg the ILEC's prices at artificially-high levels than it does to order them to reduce their service quality so that their rivals

will have an easier time attracting customers. In other words, it is not the role of the regulator to handicap the incumbent provider in order to aid its rivals, but rather it is the responsibility of those rivals to develop products and services that are of sufficiently high value to attract customers on the merits.

73 For an overview of the literature, see David E. M. Sappington and Dennis L. Weisman. *Designing Incentive Regulation for the Telecommunications Industry*. Cambridge: MIT Press and Washington D.C.: AEI Press, 1996, Chapter 8.

74 John Haring, "The FCC, the OCCs and the Exploitation of Affection," Working Paper No. 17, FCC Office of Plans and Policy, June 1985. This paper was written, in part, as a response to a study that suggested the prospects for effective competition in the long distance market were in severe jeopardy. *See* Booz, Allen and Hamilton, Inc., "Prospects for Major Facilities-Based Other Common Carriers," 1985. A number of the OCCs concurred in the findings of this study.

75 For a critique of the FCC's role in promoting competition in long-distance markets, see Paul W. MacAvoy, *The Failure of Antitrust and Regulation To Establish Competition in Long-Distance Telephone Services*. Cambridge MA: MIT Press and Washington D.C.: AEI Press, 1996.

76 Mark S. Fowler, Albert Halprin, and James D. Schlichting. "'Back To The Future': A Model For Telecommunications." *Federal Communications Law Journal*, Volume 38, Number 2, 1986, pp. 193-194. [At the time this article was written, the authors were, respectively Chairman, Chief, Common Carrier Bureau, and Special Counsel, Common Carrier Bureau, Federal Communications Commission.]

77 In *Verizon v. FCC*, the Supreme Court did not find that there was an opportunistic switch in regulatory regimes of the type that would raise constitutional questions. That narrow legal determination, however, cannot belie the facts on the ground. The facts are that hypothetical TELRIC enables state commissions to renege on their price cap agreements with the incumbent providers, apparently with impunity. Whether this constitutes a "switch" in regulatory regimes or simply "regulatory opportunism" is a distinction without a difference, at least insofar as the pertinent economic issues are concerned. *See* Dennis L. Weisman, "Did the High Court Reach an Economic Low in *Verizon v. FCC*?" *The Review of Network Economics*, Vol. 1(2), September 2002, pp. 90-105.

78 In fact, some state public service commissions have been rather open about the opportunities that price cap regulation affords to lower wholesale prices with "impunity." For example, in an open meeting of the Texas Public Utilities Commission ("TPUC"), the record indicates that the Commissioners noted that Southwestern Bell had "freely elected into" price cap regulation and would therefore have no recourse to the Commission should a reduction in wholesale rates, purportedly to move them closer to "cost-based" levels, create an earnings deficiency. The implications, of course, are that (1) because price cap regulation is in place, the state commissions can move unilaterally to reduce wholesale rates without suffering any adverse consequences, such as upward pressure on below-cost local service rates, and (2) state commissions can circumvent limitations on their authority to require reductions in retail rates by prescribing reduced wholesale rates in the hope that at least some of the reductions will be shared with consumers. Texas Public Utilities Commission, Open Meeting, Agenda Item No. 1, Docket Nos. 16189, 16196. 16226, 16285, 16290, 16455 17065, June 18, 1997, pp. 208-19. As I have observed elsewhere, this type of regulatory opportunism is akin to a basketball game in which the regulator agrees not to raise the height of the basket, but makes no corresponding commitment not to lower the floor. See Dennis L. Weisman, "Did The High Court Reach An Economic Low in *Verizon v. FCC*?" *The Review of Network Economics*, Vol. 1(2), September 2002, p. 101.

79 Indeed, there is some empirical evidence to suggest that the prices for unbundled network elements are influenced by the type of retail regulation under which the incumbent provider operates. One such study found that unbundled local loop rates are significantly lower (in excess of 3 dollars per month) in price cap states than in states that operate under some form of earnings regulation. Dale E. Lehman and Dennis L. Weisman, *The Telecommunications Act of 1996*: *The "Costs" of Managed Competition*. Boston: Kluwer, 2000, Chapter 7. "Pure price cap regulation is a superior regulatory regime in that it provides the incumbent firm with ideal (high-powered) incentives for cost-minimization. This suggests that, under pure price cap regulation, we should expect the firm's actual costs to be a closer approximation to the "efficient level." Dale E. Lehman and Dennis L. Weisman, "The Political Economy of Price Cap Regulation." *Review of Industrial Organization*, 16, 2000, p. 349. The fact that state decisions have been the opposite of what might have been expected suggests that

the open-ended nature of hypothetical TELRIC may create opportunities for strategic behavior on the part of state regulators that works at cross-purposes with the goals of the 1996 Telecommunications Act.

80 Raymond L. Gifford. "Regulatory Impressionism: What Regulators Can and Cannot Do." *The Review of Network Economics*, Volume 2(4) December 2003, p. 475.

81 Alfred E. Kahn, "The Uneasy Marriage of Regulation and Competition." *Telematics*, Vol. 1, Number 5, 1984, p. 15.

82 Stephen Breyer, Anticipating Antitrust's Centennial: Antitrust, Deregulation, and the Newly Liberated Marketplace, *California Law Review*, Volume 75, 1987 at 1018.

83 Such inertial tendencies do not necessarily serve to reduce the intensity of competition; in some cases, they may actually enhance it. For example, a new entrant may have to offer special pricing and promotions to entice the customer to leave the incumbent firm. The incumbent firm will then have to respond in a manner that is likely to encourage the customer to remain. This is precisely the problem with current policies that limit customer contact and promotional pricing. Because the incumbent providers are constrained in responding to competitors, these competitors are purportedly able to offer consumers lower value than they would have if the incumbent were free to respond. This is the critical distinction between policies that protect competitors and policies that preserve the integrity of the competitive process. In their efforts to protect competitors from the competitive responses of the incumbent provider, regulators likely succeed only in ensuring that the competitive process yields lower benefits to consumers than would otherwise be the case.

84 In Canada, an ILEC that loses a customer to a rival is prohibited from contacting that customer for purposes of attracting them back for a period of one year. Similar policies exist in the United States, but typically for shorter periods of time.

85 Jonathan E. Neuchterlein and Philip J. Weiser, *Digital Crossroads, American Telecommunications Policy in the Internet Age*. Cambridge MA: The MIT Press, 2005, pp. 194-195. See also the Statement of Dr. Robert Crandall, Appendix 2 to TELUS' Comments of 22 June 2005 in proceeding initiated by Telecom Public Notice CRTC 2005-2, *Forbearance from regulation of local exchange services* at ¶s 49 and 50.

86 Peter Grant and Almar Latour, "In Risky Move, a New AT&T Bets on Internet Technology." *The Wall Street Journal*, November 21, 2005, p. A1.

87 Differential customer acquisition costs may constitute a barrier to entry, but it is unclear that it is a barrier to entry that regulators should necessarily do anything about. For example, suppose a firm engenders high customer loyalty because it provides stellar customer service and otherwise provides consumers with a high-value product. Consumers of this firm's products and services may well exhibit high degrees of inertia. If other firms want to wrest these customers away, they too must offer a high-value product. If the regulator intervenes in this process to somehow reduce this inertia, it will likely serve only to undermine the competitive process. The incumbent firm may have weaker incentives to cultivate customer loyalty because it knows the regulator will intervene if it does "too good of a job." Similarly, competing firms will have to work less hard to wrest customers away, recognizing that the regulator will, in part, do the job for them. In the end, the regulator's intervention into the competitive process has served only to hurt consumers by weakening the incentives firms have to compete in a manner that can be expected to engender customer loyalty.

88 Rebuttal Testimony of Paul B. Vasington on Behalf of Verizon Vermont, *Investigation into a Successor Incentive Regulation Plan for Verizon New England Inc. d/b/a Verizon Vermont*, Docket No. 6959, February 25, 2005, p. 41.

89 Professor Alfred Kahn was perhaps the first to recognize this problem in the context of MCI selectively entering the market for long-distance telephone service. See Alfred E. Kahn, *The Economics of Regulation*. Cambridge MA: MIT Press, Vol. 2, 1988, p. 238.

90 In certain cases, the discussion is framed in terms of static efficiency (which includes both allocative and productive efficiency) and dynamic efficiency.

91 For example, over the period from the mid 1960's to the early 1990's, communications infrastructure investment contributed 8.5 percent of annual total factor productivity growth for the Canadian manufacturing sector. See Jeffrey I. Bernstein, "Canadian Manufacturing, Communication Infrastructure, and U.S. R&D Spillovers, *Review of Economics and Statistics*, Vol. 82, 2000, pp. 608-615. Notably, a key objective of the 1996 Telecommunications Act is to "encourage the rapid deployment of new telecommunications technologies." Furthermore, Section 7 (a) of the Canadian Telecommunications Act rec-

ognizes that one of the key objectives of Canadian Telecommunications Policy is "to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions."

92 A study by Professor Dale Jorgenson of Harvard University reports that information technology is playing an increasingly prominent role in the growth of the U.S. economy. He estimates that information technology is responsible for adding 0.5 percentage points to the growth of total factor productivity in the U.S over the 1995-1999 period. This compares with 0.25 percentage points over the 1990-1995 period. See Dale W. Jorgenson, "Information Technology and the U.S. Economy." *American Economic Review*, Vol. 91, No. 1, March 2001, pp. 1-32.

93 Joseph A. Schumpeter. *Capitalism, Socialism and Democracy*, Harper Torchbooks, 1975, p. 84.

94 James C. Bonbright, *Principles of Public Utility Rates.* Columbia University Press: New York, 1961, p. 53.

95 See, for example, Alfred E. Kahn, Timothy J. Tardiff and Dennis L. Weisman. "The 1996 Telecommunications Act At Three Years: An Economic Evaluation of Its Implementation By The FCC." *Information Economics and Policy*, Vol. 11, No. 4, December 1999, pp. 319-365.

96 *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket 96-98, First Report and Order, FCC 96-325, Released August 8, 1996, ¶ 679.

97 For a critical appraisal of the FCC's "efficient firm" costing standard and the competitive distortions that it creates, see Dennis L. Weisman, "The (In)Efficiency of the 'Efficient-Firm' Cost Standard." *The Antitrust Bulletin*, Vol. XLV(1), Spring, 2000, pp. 195-211; and Alfred E. Kahn, Timothy J. Tardiff and Dennis L. Weisman, "The 1996 Telecommunications Act At Three Years: An Economic Evaluation of Its Implementation By The FCC." *Information Economics and Policy*, Vol. 11(4), December 1999, pp. 319-365.

98 *Iowa Utilities Board v. FCC*, 525 U.S. 366, 424 (1999).

99 UNE is the acronym for unbundled network element.

100 The UNE-Platform ("UNE-P") is a special type of resale in which the network inputs are combined for the entrant by the incumbent provider. The price for UNE-P is lower than that of pure resale because it is based on TELRIC rather than avoided cost, but the two are functionally indistinguishable otherwise.

101 A recent study concludes that the share price of both the ILECs and telecommunications equipment manufacturers declined upon announcement of the FCC's decision to liberalize unbundling rules.

> Second, both leading suppliers of narrowband (voice) infrastructure, Nortel and Lucent, exhibit a pattern of returns similar to the ILECs. This suggests that enhanced UNE-P rules are not only a negative for incumbent carriers but also for equipment manufacturers supplying switches and other network infrastructure. This evidence is consistent either with the theory that generous UNE-P opportunities lead incumbent and competitive carriers to substitute out of network infrastructure, or the rent-seeking explanation of resale competition developed above, or both. It is inconsistent, however, with the view that UNE-P helps facilitate competitive entry that will result in increased network investment.

"Thomas W. Hazlett and Arthur M. Havenner, "The Arbitrage Mirage: Regulated Access Prices with Free Entry in Local Telecommunications Markets. " *The Review of Network Economics*, Volume 2(4) December 2003, p. 447.

102 *UNE Remand Order*, 15 FCC Rcd 3696 at ¶ 112.

103 TRO at ¶ 3.

104 This passage speaks not only to the disincentives for investment created by unbundling requirements, but also to the relationship between the incentives to invest and the prices for unbundled network elements. To wit, there must exist a sufficiently high price for unbundled network elements that would tend to encourage rather than discourage investment. Hence, it is not the unbundling requirement *per se* that discourages investment, but the unbundling requirement in combination with artificially-low prices for network elements. Thus, the intimation on the part of the Commission is that lower prices for unbundled network elements tend to discourage investment, everything else held constant.

105 TRRO at ¶ 204.

106 *In the Matter of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange* Carriers, WC Docket No. 03-173, Notice of Proposed Rulemaking,, Released September 15, 2003 at § 2.

107 *Id.* at § 3.

108 *United States Telecommunications Association v. FCC,* 290 F.3d at 427.

109 Joseph A. Schumpeter. *Capitalism, Socialism and Democracy*, Harper Torchbooks, 1975, pp. 104-05.

110 Alfred E. Kahn, "Reforming the FCC and Its Mission: Lessons from the Airline Experience," *Journal on Telecommunications and High Technology Law*, Vol. 4(1), 2005, pp. 48-49.

111 On this point, see the recent comments of former FCC Chairman Michael Powell at note 23 *supra*.

112 FCC, CC Docket No. 01-338. *In the Matter of Unbundled Access to Network Elements,*

Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers. Order on Remand, February 4, 2005 at ¶'s 199-206.

113 A recent study finds that, contrary to expectations, expansive network unbundling leads to disinvestment in the telecommunications sector. See Thomas W. Hazlett, "Rivalrous Telecommunications Networks With and Without Mandatory Network Sharing." AEI-Brookings Joint Center for Regulatory Studies, Working Paper 05-07, March 2005, pp. 14-17. See also Robert W. Crandall, Allan T. Ingraham and Hal J. Singer. "Do Unbundling Policies Discourage CLEC Facilities-Based Investment." *The B.E. Journals in Economic Analysis and Policy*, Manuscript 1136, Vol. 4(1), 2004, Article 14, pp. 1-25.

114 See Dennis L. Weisman, "The (In)Efficiency of the 'Efficient-Firm' Cost Standard." *The Antitrust Bulletin*, Vol. XLV(1), Spring 2000, p. 195-211.

115 *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers* (CC Docket No. 01-338, Order on Remand (released February 4, 2005) ("Triennial Review Order on Remand" or "TRRO").

116 Telecom Decision CRTC 94-19, Review of Regulatory Framework, *Decision*, Ottawa, Canada, 16 September 1994, Section III.

117 See Department of Justice and the Federal Trade Commission. *Horizontal Merger Guidelines*, 1992 [Inclusive of April 8, 1997 Revisions], § 0.1.

118 In Telecom Public Notice CRTC 2005-2 at ¶ 14, the Canadian Regulatory Commission notes that "High market share is a necessary but not sufficient condition for market power; other factors must be present to enable a firm with market power to act anticompetitively."

119 In Telecom Public Notice CRTC 2005-2, the Canadian Regulatory Commission observes at ¶ 17 that "The first step is the identification of the relevant market . . . The definition of the relevant market is based on the substitutability of the services in question."

120 The product market methodology (and a separate but similar geographic market methodology) is a conceptual process to identify a gap in the chain of substitute products by starting with the most narrow set of products imaginable and then adding products to the set until the set contains all close substitutes. The conceptual test that defines "close substitutes" is whether a hypothetical monopolist of the set of products could profitably impose a small but significant, non-transitory increase in price above the market level. Thus, a properly defined market will include products to which consumers would switch in substantial numbers if a supplier attempted to charge *supra-competitive* prices.

121 ABA Section of Antitrust Law, Antitrust Market Power Handbook (2005), p. 54.

122 *Id.*

123 The *Horizontal Merger Guidelines* (§ 1.2.1) consider firms at different locations to be in the same market when a potential price increase by one firm (assuming other firms maintain their current prices) would be unprofitable, because customers would shift to the products of firms at other locations in the same geographic market.

124 Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization*, Third edition, (2000), New York: Addison-Wesley, at 615.

125 *Id.*, p. 70.

126 The contra-positive of this statement implies that when market shares are not reflective of economic forces, defining a market and calculating market shares is of little, if any, real value.

127 Michael L. Katz and Carl Shapiro, "Critical Loss: Let's Tell the Whole Story." *The Antitrust Magazine*, Spring 2003, p. 54.

128 Michael L. Katz and Carl Shapiro, "Further Thoughts On Critical Loss Analysis." *The Antitrust Source*, March 2004. www.antitrustsource.com.

129 In the Applications of NYNEX Corporation Transferor, and Bell Atlantic Corporation Transferee, for Consent to Transfer Control of NYNEX Corporation and its Subsidiaries, File No. NSD-L-96-10, *Memorandum Opinion and Order*, Released August 14, 1997 ("*Bell Atlantic-NYNEX Order*") at ¶¶ 54-55 [footnotes omitted].

130 In general, an elasticity is a measure of the sensitivity of one variable with respect to a change in another variable. For example, the demand elasticity is measured as the ratio on the percentage change in quantity demanded to the percentage change in price. The supply elasticity is measured as the ratio of the percentage change in quantity supplied to the percentage change in price.

131 The classic reference is William W. Landes and Richard A. Posner. "Market Power in Antitrust Cases." *Harvard Law Review*, Volume 94, Number 5, March 1981, pp. 937-996.

132 *In the Matter of Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, 11 FCC Rcd. 3271 (1995) at ¶ 58.

133 *In the Matter of Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, 11 FCC Rcd. 3271 (1995) at ¶ 57.

134 *In the Matter of Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, 11 FCC Rcd. 3271 (1995) at ¶ 68.

135 The combination of pervasive unbundling and cost-based prices for unbundled network elements can be expected to result in relatively high supply elasticities in local exchange markets. This suggests that, at least under certain conditions, wholesale regulation may obviate the need for retail regulation.

> Smoothly functioning wholesale regulation (sharing the incumbent's network, including the so-called platform …) permits and indeed almost demands retail deregulation. If multiple providers can compete for a customer's business and promptly supply it at a reasonable overall cost, even if they do so by leasing the incumbent's facilities, then it would seem that prompt deregulation of all charges to the provider's end-user will be appropriate. If a carrier tries to charge *too much overall* to the end-user then another will undercut, and by hypothesis this can happen quickly. If a carrier tries to charge a reasonable amount overall but *in an inefficient manner*, then another carrier can offer a more profitable alternative pricing package that is also better for the end-user. There should be no need for regulators to resolve the difficult issue of "how" end-users want to pay the cost of service — how much in flat charges, how much in usage charges, how much for special features, etc.
>
> Joseph Farrell, Chief Economist, Federal Communications Commission. "Prospects for Deregulation in Telecommunications," FCC Washington D.C. May 9, 1997, Section 4. See also Alfred E. Kahn, *Letting Go: Deregulating the Process of Deregulation*, Michigan State University Institute of Public Utilities: East Lansing, 1998, pp. 56-58; and Mark Kolesar and Dennis L. Weisman, "Accommodative Competitive Entry Policies and Telecommunications Regulation." *info*, Vol. 5(1), Spring 2003, pp. 34-40.

136 Massachusetts Department of Telecommunications and Energy. D.T.E. 01-31-Phase I. Investigation by the Department of Telecommunications and Energy on its own Motion into the Appropriate Regulatory Plan to succeed Price Cap Regulation for Verizon New England, Inc. d/b/a Verizon Massachusetts' intrastate retail telecommunications services in the Commonwealth of Massachusetts, May 8, 2002, p. 9.

137 Paul B. Vasington, "Incentive Regulation in Practice: A Massachusetts Case Study." *Review of Network Economics*, Vol. 2, Issue 4, December 2003, p. 462.

138 William W. Landes and Richard A. Posner. "Market Power in Antitrust Cases." *Harvard Law Review*, Volume 94, Number 5, March 1981, p. 975.

139 *Id*., pp. 948 - 949.

140 Canadian Radio-Television and Telecommunications Commission (CRTC), Telecom Public Notice CRTC 2005-2, *Forbearance from Regulation of Telecommunications Services*, Argument of The Commissioner of Competition, September 15, 2005, ¶ 61.

141 *Id*., ¶ 62.

142 HHI is the acronym for Hirschman-Herfindahl Index. The HHI is computed as the sum of the squared market shares of each firm in the market. The HHI ranges from effectively 0 in the case of atomistic competition to 10,000 in the case of a monopoly.

143 FCC, In the Matter of Applications of AT&T Wireless, Inc. and Cingular Wireless Corporation for Consent to Transfer Control of Licenses and Authorizations, etc, WT Docket Nos. 04-70, 04-254, and 04-323, *Memorandum Opinion and Order*, October 26, 2004, ¶ 148.

144 Richard A. Posner, "The Effects of Deregulation on Competition," *Fordham International Law Journal*, Volume 23, 2000, p. 18.

145 Joseph A. Schumpeter. *Capitalism, Socialism and Democracy*, Harper Torchbooks, 1975, p. 85.

146 The following discussion is instructive:

> For example, in many regulated industries firms are compelled to charge uniform prices in different product or geographical markets despite the different costs of serving the market. As a result, price may be above marginal cost in some markets and below marginal cost in others. In the latter group of markets, the regulated firm is apt to have 100% market share. The reason is not that it has market power but that the market is so unattractive to other sellers that the only firm that will serve it is one that is either forbidden by regulatory fiat to leave the market or that is induced to remain in it by the opportunity to recoup its losses in other markets, where the policy of uniform pricing yields revenues in excess of costs. In these circumstances, a 100% market share is a symptom of a lack, rather than the possession, of market power. (footnotes omitted)

William W. Landes and Richard A. Posner. "Market Power in Antitrust Cases." *Harvard Law Review*, Volume 94, Number 5, March 1981, p. 976.

147 *United States Telecommunications Association v. FCC,* 290 F.3d at 422.

148 Quote attributed to Mr. Powell by *Telecommunications Reports*, 5 March 2001, p. 10.

149 Jonathan E. Neuchterlein and Philip J. Weiser, *Digital Crossroads, American Telecommunications Policy in the Internet Age*. Cambridge MA: The MIT Press, 2005, chapter 6.

150 See Richard Schmalensee, "Antitrust Issues in Schumpeterian Industries," *American Economic Review*, Vol. 90, No. 2, May 2000, pp. 192-194.

151 See, for example, Section 1.5 of the U.S. Department of Justice and Federal Trade Commission *Horizontal Merger* Guidelines, 1992 [Inclusive of April 8, 1997 Revisions] and Section 4.17 of *the Merger Enforcement Guidelines* of the Competition Bureau, Canada, September 2004.

152 The Lerner Index is one measure of market power and is equal to (P-MC)/P, where P is price and MC is marginal cost. The equilibrium condition for a perfectly competitive firm is given by P = MC. Hence, the larger the Lerner Index, the greater the deviation from competitive market conditions.

153 In fact, when high margins are necessary for a firm to realize normal profits (i.e., when fixed and sunk costs are a large proportion of total costs) then competition can be so intense as to result in the "destructive competition" that in the past was the rationale for regulating industries such as transportation. See, for example, Alfred E. Kahn, *The Economics of Regulation*, Cambridge: The MIT Press, 1988, Vol. II, Chapter 5. In these circumstances firms with high margins tend not to charge *supra-competitive* prices and their volumes and profits are vulnerable to severe erosion during the "price wars" that occur in such industries.

154 Indeed, it would seem difficult to argue that a regulated firm with high margins but subject to a *de facto* zero profit constraint is exercising market power. This suggests that the elasticity of demand facing the incumbent provider may be quite high at price levels in excess of those required to satisfy the firm's financial viability (zero-profit) constraint.

155 In Telecom Public Notice CRTC 2005-2 at ¶ 13, the Canadian Regulatory Commission observes that "the determination of whether or not to forbear from regulating a service or class of services is based on a determination of the relevant market in which the service(s) is/are offered and on whether a firm has market power in that market."

156 David E. M. Sappington, "Price Regulation" in Martin Cave, Sumit Majumdar, and Ingo Vogelsang, eds. *Handbook of Telecommunications Economics*. North-Holland: Amsterdam, 2002, Chapter 7, p. 265, note 58.

157 As Mitchell and Vogelsang observe:

> In telecommunications networks, production facilities have well-determined capacities, and the costs of operation are nearly independent of the flow of services through those facilities . . . Consequently, . . . variable costs are very small.

Bridger M. Mitchell and Ingo Vogelsang, *Telecommunications Pricing: Theory and Evidence.* New York: Cambridge University Press, 1991, p. 9.

158 The market price elasticity and the firm price elasticity are one and the same, pre-competition. In the current environment, the market elasticity for local telephone service may still be quite low while the firm's price elasticity is likely to be relatively high—reflecting a multitude of substitute services available in the market.

159 Jerry A. Hausman., "Regulated Costs and Prices in Telecommunications," in Gary Madden (ed.), *International Handbook of Telecommunications Economics, Volume 2: Emerging Telecommunications Networks*, 2003, p. 226.

160 $100 = 100 × ($5 -$1) - $300.

161 This discussion is based on Jerry A. Hausman, Gregory K. Leonard and Christopher A. Vellturo, "Market Definition Under Price Discrimination," *Antitrust Law Journal*, 64(2), pp. 367-386; and Jerry A. Hausman, "Regulated Costs and Prices in Telecommunications," in Gary Madden (ed.), *International Handbook of Telecommunications Economics, Volume 2: Emerging Telecommunications Networks*, 2003, p. 226. See also Jerry A. Hausman and J. Gregory Sidak, 'A Consumer-Welfare Approach to Mandatory Unbundling of Telecommunications Networks,' 109 *Yale Law Journal* (1999) at 477-79. The material in this section is based on Dennis L.Weisman, "When Can Regulation Defer to Competition for Constraining Market Power?: Complements and Critical Elasticities." *Journal of Competition Law & Economics*, March 2006, pp. 1-12.

162 5.25 = 1.05 × 5.

163 94.12 = (1 - 0.0588) × 100.

164 $100 = 94.12 × ($5.25 - $1) - $300.

165 The price elasticity of demand is defined by e = -(%Δquantity demanded)/(%Δ price). Hence, e = 1.176 = -(-5.88)/(5).

166 It is straightforward to verify that if fixed costs are $200 rather than $300 and incremental cost is $2 rather than $1, the baseline level of profits is again $100. In this case, however, the break-even decrease in demand is 7.69 percent rather than 5.88 percent and the critical price elasticity is 1.538 rather 1.176. What this implies is that the lower the price-cost margin, the higher the critical price elasticity, everything else held constant.

167 Professor Hausman used an analysis of this type to suggest that wireless may exert sufficient competitive discipline on wireline pricing to justify deregulation of wireline. See Jerry A. Hausman, "From 2G to 3G: Wireless Competition for Internet-Related Services." In *Broadband: Should We Regulate High-Speed Internet Access?* Eds. Robert W. Crandall and James H. Alleman, AEI-Brookings Joint Center for Regulatory Studies, Washington D.C. 2002, pp. 106-128.

168 In general, any two goods may be substitutes, complements or independent. For example, local telephone service, long distance telephone service and vertical services are considered complements because the services tend to be used in combination with one another. There is presently an ongoing debate as to whether wireline and wireless are substitutes or complements.

169 This is particularly the case in the current environment wherein market participants are striving to be one-stop providers of the entire portfolio of telecommunications services. See, for example, Harold Ware. "Competition and Diversification Trends in Telecommunications: Regulatory, Technological and Market Pressures," *Journal of Regulatory Economics*, Vol. 13(1), January 1998, pp. 59-94.

170 In the last price cap proceeding in Canada, the CRTC received numerous letters from customers indicating a willingness to switch long distance, wireless, and Internet service providers if local telephone companies increased prices and/or decreased quality for basic local telephone service. See Canadian Radio-television and Telephone Commission, Public Notice CRTC 2001-37, *Price Cap Review and Related Issues*.

171 For a general discussion of the role of demand complementarities in constraining market power, see Dennis L. Weisman, "Assessing Market Power: Market Concentration and Multi-Market Participation." *Journal of Competition Law & Economics*, Vol. 1(2), 2005, pp. 339-354; and Dennis L. Weisman, "A Generalized Measure of Market Power," KSU Working Paper, November 2005.

172 $200 = 100 × [($5 - $1) + (0.50)($2)] - $300.

173 The new level of profits for the (de)regulated firm following the 5 percent price increase for the core service is $200 = 100 × [1 - 0.04762] × [($5.25 - $1) + 0.5($2)] - $300.

174 The computation for the price elasticity is given by e = -(-4.762)/5 = 0.9524.

175 Recall from the above discussion that prior to introducing the complementary service, the critical demand reduction was 5.88 percent and the associated price elasticity was 1.176.

176 In addition, to the extent that the digitalization/packetization of new-generation telecommunications networks is characterized by decreasing ratios of variable to fixed costs, we should expect to observe relatively high price-cost margins.

177 In certain cases, it may not be necessary to estimate firm-specific elasticities and compare them with critical elasticities in order to determine whether the incumbent provider would have incentives to raise prices post-deregulation. For example, in a recent regulatory proceeding in Canada to establish a "bright-line" test for forbearance, the Competition Bureau took the position that "the following set of conditions may be sufficient" for forbearance from regulation (i) Consumers have access to two independent facilities-based service providers offering similar services, functionalities and quality of access; (ii) The variable costs of the two service providers are similar,

or the variable costs of the entrant are lower, and neither competitor is capacity constrained; (iii) There is evidence of rivalry between these firms, and the entrant is able to retain its customer base; and (iv) Industry characteristics are such that ILECs are unlikely to engage in anticompetitive activity. Canadian Radio-Television and Telecommunications Commission (CRTC), Telecom Public Notice CRTC 2005-2, *Forbearance from Regulation of Telecommunications Services*, Argument of The Commissioner of Competition, September 15, 2005, ¶ 29. TELUS Communications Inc., a Canadian ILEC, had put forth a proposal that was similar in many respects to that proffered by the Competition Bureau. The FCC also underscored the significance of a second facilities-based provider in its recent decision to forbear from requiring Qwest to provide unbundled loops and transport in selected wire centers in the Omaha Metropolitan Statistic Area. See Federal Communications Commission, *Memorandum Opinion and Order*, In the Matter of Petition of Qwest Corporation for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Omaha Metropolitan Statistical Area, WC-Docket Number 04-223. Released December 2, 2005 at ¶ 59.

178 Moreover, as Schmalensee points out, in markets that are "fragile" due to rapid technological advance, it is important to ask whether the alleged predator could expect to have monopoly power long enough to recoup the costs of predation? See Richard Schmalensee, "Antitrust Issues in Schumpeterian Industries," *American Economic Review*, Vol. 90, No. 2, p. 193. In this context, it should be recognized that VoIP and other technological advances tend to augment this fragility.

179 See, for example, John S. McGee, "Predatory Pricing Revisited," *Journal of Law and Economics*, Volume 23, October 1980, pp. 296-297; and Paul Joskow and Alvin Klevorick, "A Framework for Analyzing Predatory Pricing Policy," *Yale Law Journal*, Volume 89, 1979, pp. 213-270.

180 Dennis L. Weisman, "The Law and Economics of Price Floors in Regulated Industries, " *The Antitrust Bulletin*, Vol. XLVII(1), Spring 2002, p. 112.

181 Moreover, as Schmalensee points out, in markets that are "fragile" due to rapid technological advance, it is important to ask whether the alleged predator could expect to have monopoly power long enough to recoup the costs of predation? See Richard Schmalensee, "Antitrust Issues in Schumpeterian Industries," *American Economic Review*, Vol. 90, No. 2, May 2000, p. 193. In this context, it should be recognized that VoIP and other technological advances tend to augment this fragility.

182 In a recent proceeding on local forbearance in Canada, the Competition Bureau observed that:

> It seems unlikely that predation is going to induce exit in cases where the rival has invested in a sunk network that is ubiquitous and exists for other reasons, not only to supply telecommunications services.

Commissioner of Competition's Comments of 22 June 2005 in proceeding initiated by Telecom Public Notice CRTC 2005-2, *Forbearance from regulation of local exchange services* at ¶ 266.

183 For a review of this literature, see Jean Tirole, *The Theory of Industrial* Organization, Cambridge MA: The MIT Press, 1988, Chapter 9; and Patrick Bolton, Joseph F. Brodley and Michael H. Riordan. "Predatory Pricing: Strategic Theory and Legal Policy." *Georgetown Law Journal*, Vol. 88, 2000, pp. 2239 - 2330.

184 Paul Milgrom, "Predatory Pricing," in the *New Palgrave Dictionary of Economics*, Vol. 3, ed. by John Eatwell, Murray Milgate and Peter Newman, London: The Macmillan Press Limited., 1987, p. 938.

185 Patrick Bolton, Joseph F. Brodley and Michael H. Riordan. "Predatory Pricing: Strategic Theory and Legal Policy." *Georgetown Law Journal*, Vol. 88, 2000, p. 54.

186 *Id.*, p. 57.

187 *Id.*, p. 74.

188 *Id.*, p. 75.

189 *Id.*, p. 100.

190 William J. Baumol. "Predation and the Logic of the Average Variable Cost Test." *Journal of Law and Economics*, Vol. XXXIX, April 1996, p. 51.

191 *Id.*

192 See also Robert H. Bork. *The Antitrust Paradox*. New York: The Free Press, 1978, pp. 144-160; and W. Kip Viscusi, John M. Vernon and Joseph E. Harrington, Jr. *Economics of Regulation and Antitrust*. Cambridge MA: MIT Press, 1995, Chapter 9.

193 *Matushita v. Zenith*, 475 U.S. 574 (1986).

194 *U.S. v. Eastman Kodak*, 853 F. Supp. 1454 (W.D.N.Y. 1994) at 81.

195 *Matsushita Electric Industrial Co., Ltd. V. Zenith Corp., et al. 106 S. Ct. 1348 (1986)* at 1360.

196 *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2D 227, 231 (1st Cir. 1983).

197 *Wal-Mart Stores v. American Drugs, Inc*., No. 94-235, Supreme Court of Arkansas, 319 Ark. 214; 891 S.W.2d 30; 1995 Ark. LEXIS I; 1995-1 Trade Cas. (CCH) P70, 853 January 8, 1995, Opinion Delivered, as Amended.

198 *United States v. AMR Corp*., 2003 U.S. App. LEXIS 13530 (10th Cir. Kans., July 3, 2003.)

199 *Id*., at 151.

200 *Id*., at 178.

201 *Id*., at 190.

202 Jonathan E. Neuchterlein and Philip J. Weiser, *Digital Crossroads, American Telecommunications Policy in the Internet Age*. Cambridge MA: The MIT Press, 2005, p. 195 - 196; and Statement of Dr. Robert Crandall, Appendix 2 to TELUS' Comments of 22 June 2005 in proceeding initiated by Telecom Public Notice CRTC 2005-2, *Forbearance from regulation of local exchange services* at ¶ 22.

203 The Anarchist's Cookbook (Addendum) – Start Your Own Telco! A Seaboard How-To Guide. *Research & Trends*, Seaboard Group, May 2005, p. 1.

204 *Id.*, p. 2.

205 In a recent local forbearance proceeding in Canada, the Competition Bureau observed that:

> It is not obvious that the conditions required for ex ante concern sufficient to restrict downward price flexibility by the ILECs are applicable when forbearance is based on entry into a well defined antitrust market by a rival network."

Commissioner of Competition's Comments of 22 June 2005 in proceeding initiated by Telecom Public Notice CRTC 2005-2, *Forbearance from regulation of local exchange services* at ¶ 266.

206 In a recent local forbearance proceeding in Canada, the Competition Bureau observed that:

> Furthermore, it also seems unlikely that the signaling/reputation models provide a basis for which predation is rational when the entrant is a cable company because it generally has a presence in most markets already and VoIP and economies of scope may well provide it with a cost advantage.

Commissioner of Competition's Comments of 22 June 2005 in proceeding initiated by Telecom Public Notice CRTC 2005-2, *Forbearance from regulation of local exchange services* at ¶ 267.

207 Jonathan E. Neuchterlein and Philip J. Weiser, *Digital Crossroads, American Telecommunications Policy in the Internet Age*. Cambridge MA: The MIT Press, 2005, p. 193.

208 See, for example, Dennis L. Weisman, "The Law and Economics of Price Floors In Regulated Industries." *The Antitrust Bulletin*, Vol. XLVII(1), Spring 2002, pp. 107-131.

209 For a discussion of Type I and Type II errors as it applies to predatory pricing, see Paul Joskow and Alvin Klevorick, "A Framework for Analyzing Predatory Pricing Policy," *Yale Law Journal*, Volume 89, 1979, pp. 213-270.

210 Due to their inability to replicate predation in laboratory experiments considered favorable to its emergence, Professors Isaac and Smith observe that "we feel that they alter the burden of proof for those who would design public policy as though predation were a robust phenomenon." R. Mark Isaac and Vernon L. Smith, "In Search of Predatory Pricing," *Journal of Political Economy*, Volume 93, 1985, p. 321, note 1.

211 Judge Richard Posner's classic examination of the so-called "rent-seeking" problem and the associated cost of regulation led him to the striking conclusion that the costs of public regulation probably exceed the social costs of private monopoly. Richard A. Posner, "The Social Costs of Monopoly and Regulation," *Journal of Political Economy*, Vol. 83(4), 1975, pp. 807-827.

212 Joseph Farrell, Chief Economist, Federal Communications Commission. "Prospects for Deregulation in Telecommunications," FCC Washington D.C. May 9, 1997, Section 4. See also note 135 *supra*.

213 In CRTC 2005-2, the Competition Bureau and TELUS supported a similar test for forbearance from regulation of local exchange services. See note 177 *supra*.

214 See note 9 *supra*.

215 Telecom Public Notice CRTC 2005-2, Forbearance from Regulation of Local Exchange Services, Ottawa, Canada, 28 April 2005.

216 *Id*., ¶ 9.

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