

**Before the
Commerce Commission
Wellington, New Zealand**

**Competition, Efficiency, and the
Long-Term Benefit of End-Users**

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I. QUALIFICATIONS AND STATEMENT OF ASSIGNMENT

1. My name is Michael L. Katz, and I am the Sarin Professor of Strategy and Leadership at the University of California, Berkeley. I hold a joint appointment in the Haas School of Business Administration and the Department of Economics. I have also served on the faculty of the Department of Economics at Princeton University. I received my A.B. from Harvard University *summa cum laude* and my doctorate from Oxford University. Both degrees are in Economics.

2. I specialize in the economics of industrial organization, which includes the study of antitrust and regulatory policies. I regularly teach courses on microeconomics and business strategy. I am the co-author of a microeconomics textbook, and I have published numerous articles in academic journals and books. I have written academic articles on issues regarding the economics of network industries, systems markets, telecommunications policy, and antitrust enforcement. My curriculum vitae is attached to this report as Attachment 1. It lists all professional publications that I have authored or co-authored, with the exception of a few letters to the editor on telecommunications and antitrust policy. I am recognized as one of the pioneers in extending the theory of network effects to competitive settings. I am a co-editor of the *Journal of Economics and Management Strategy* and serve on the editorial boards of the *California Management Review* and *Information Economics and Policy*.

3. In addition to my academic experience, I have consulted on the application of economic analysis to issues of antitrust and regulatory policy. I have served as a consultant to both the U.S. Department of Justice and the U.S. Federal Communications Commission on issues of antitrust and regulatory policy. I have served as an expert witness before state and federal courts in the United States and a federal court in

Australia. I have also provided expert testimony before a state regulatory commission and the U.S. Congress.

4. From January 1994 through January 1996, I served as the Chief Economist of the Federal Communications Commission. I participated in the formulation and analysis of policies toward all industries under the commission's jurisdiction. As Chief Economist, I oversaw both qualitative and quantitative policy analyses.

5. From September 2001 through January 2003, I served as the Deputy Assistant Attorney General for Economic Analysis at the U.S. Department of Justice. I directed a staff of approximately fifty economists conducting analyses of economic issues arising in both merger and non-merger enforcement. Our principal professional focus was on understanding and projecting the impacts of various business practices and public policy decisions on consumers' economic welfare. My title as Deputy Assistant Attorney General notwithstanding, I am not an attorney.

6. I have been asked by Telecom New Zealand to address certain methodological issues raised by the Commerce Commission's *Draft Report on whether mobile termination should become a designated or specified service* ("Draft Report"). The fundamental question that the Commerce Commission faces in this matter is whether regulating mobile termination promotes competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand. I conclude that the *Draft Report* misconstrues the concept of long-term benefit of end-users and uses an inappropriate methodology to project the likely effects on end-user benefits of regulating mobile termination rates. Consequently, the *Draft Report's* analysis does not provide a reliable basis for choosing to regulate mobile termination

rates. This report explains the factual and logical analysis that leads to these conclusions.

II. OVERVIEW OF OPINION

7. Briefly, my findings with respect to measuring competition are the following:

- *End-users have a broad, long-term economic interest in regulatory policies that promote efficiency.* The pursuit of regulatory policies that promote efficiency will maximize the total benefits that are available to end-users in their roles as consumers, workers, and owners. A common view among economists is that, although market outcomes are not necessarily fair, it is sensible to have a division of labor among policies under which economy-wide tax schemes are used to redistribute income and market-specific governmental intervention is limited to correcting market failures or their effects.
- *The long-term benefits of end-users depend on the full set of price changes induced by regulation or forbearance.* When an action affects multiple prices, it is misleading to focus solely on one price change or a subset of the overall changes.
- *The Draft Report fails to take into account the increases in mobile services prices that its proposed policy would induce.* The *Draft Report* refers to the effects on other mobile service prices as the “waterbed effect” and dismisses it on two grounds, both of which are mistaken. A correct analysis would take into account the effects on end-users and efficiency of the full set of price changes that would be induced by the proposed regulation.
- *The long-term benefits of end-users depend on supplier investments, which can be adversely affected by price reductions.* Consumers will not benefit from a price ceiling if the ceiling leads suppliers to cease offering the service or degrades the quality of that service. One form of degradation is a reduced number of mobile subscribers, which then makes interconnected communications networks less valuable to other end-users.
- *The Draft Report attempts to address some of these dynamic efficiency issues but the proposed policies would distort competition and very likely reduce both efficiency and long-term end-user benefits.* A policy of exempting 3G networks would distort substitution between 3G and earlier technological generations of mobile services. Such a policy would also raise serious time-consistency or credibility issues regarding the Commerce Commission’s policies, which would have adverse effects on investment incentives.
- *In a two-sided market, such as for a telecommunications service, the long-term benefits of end-users depend on the price structure.* Any given telephone call involves a calling party and (at least one) called party who communicate through the services provided by one or more telecommunications carriers. Settings in which suppliers match two sides of a transaction have become known as “two-sided markets.” It is well established in economics that: (a) the benefits enjoyed by end-users on one side of the market depend on the prices charged to *both* sides

of the market, and (b) purely cost-based rules (e.g., “set the price charged to the cost-causer at marginal cost”) are unlikely to maximize either efficiency or end-user benefits.

- *The Draft Report fails to take two-sided market considerations properly into account in calculating long-term benefits of end-users.* The Draft Report hypothesizes a situation in which the prices on one side of the market are lowered, but it fails to consider properly the effects on the other side. In principle, the net result predicted by a full analysis could be that all end-users would be worse off as a result of the proposed regulation.
- *When a regulatory decision would harm some end-users and benefits others, there is a need to aggregate the gains and losses to make an overall determination of the net effects of the policy.* Applied microeconomics, such as policy analysis, often measures aggregate benefits in monetary terms using the concepts of economic surplus.
- *The Draft Report’s treatment of distributional issues risks harming end-users, is poorly explained, and is very likely internally inconsistent.* It appears that the Draft Report intends to apply equal weighting to the surplus levels of all consumers, but there is no explicit discussion of this issue.¹ If all individuals get equal weight in their role as consumers, it is logically inconsistent to assert that the *same people* should be treated differently in their roles as the owners or employees of telecommunications carriers or, indeed, in their roles as end-users of other telecommunications services provided by these carriers. A more consistent approach would be to exclude wealth transfers from the calculation of regulatory costs and benefits.
- *Economists generally favor competition because of the efficiency benefits that it generates in many circumstances.* Economists generally believe that competition promotes efficiency and, consequently, overall end-user benefits.
- *The Draft Report implies that the principal benefit of competition is the elimination of excess supplier profits, which is not an efficiency benefit.* The elimination of excess supplier profits through either pure waste or the transfer of wealth is not an efficiency benefit under either of the two leading economic conceptions of efficiency.
- *Because of the deficiencies identified above, the Draft Report’s calculations do not provide an accurate or reliable projection of the long-term end-user benefits (or harms) from its proposed policies.* A central implication of this conclusion is that the calculations described in Section 5 of the Draft Report are not a sound basis for a designation decision.

8. The remainder of this report explains these conclusions in greater depth and provides details of the facts and analysis that led me to reach them.

¹ I say “intends” because the practical effect of the Draft Report’s approach is to give zero weight to the long-term benefits of mobile telecommunications end-users. See Section VI.A below.

III. IMPORTANT DEFINITIONS

9. Section 18 of the Telecommunications Act 2001 describes the purpose of Part 2 and Schedules 1 to 3 as follows:

18 Purpose

(1) The purpose of this Part and Schedules 1 to 3 is to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand by regulating, and providing for the regulation of, the supply of certain telecommunications services between service providers.

(2) In determining whether or not, or the extent to which, any act or omission will result, or will be likely to result, in competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand, the efficiencies that will result, or will be likely to result, from that act or omission must be considered.

(3) Except as otherwise expressly provided, nothing in this Act limits the application of this section.

(4) Subsection (3) is for the avoidance of doubt.

10. From the perspective of economics, this text raises two fundamental issues of interpretation:

- How does one define and measure “long-term benefit of end-users”?
- How does one define and measure “efficiencies”?

11. In the remainder of this section, I briefly review what economists mean by the terms “long-term benefit of end-users” and “efficiency.” I then discuss the relationships between these concepts.

A. The Long-Term Benefit of End-Users

12. “Long-term benefit of end-users” is not an economics term of art. But economics can provide valuable guidance as to reasonable meanings of the term for policy purposes.

1. *The Definition of End-User*

13. Consider first the meaning of “end-user.” The Telecommunications Act (s 5) provides a specific definition of end-user:

“end-user”, in relation to a telecommunications service, means a person who is the ultimate recipient of that service or of another service whose provision is dependent on that service.

For purposes of the discussion below, I utilize this definition. There are, however, three points that should be noted about telecommunications end-users.

14. First, a given end-user may purchase multiple telecommunications services. An end-user’s economic welfare depends on the prices of all of these services. Moreover, even when an end-user purchases what is recognized in the market as a single service, there may be multiple dimensions or components to the service and these components may be separately priced (*e.g.*, subscription, termination, and origination can be viewed as components of mobile services). These component prices all are relevant to the end-user’s economic welfare. Further, although these components may be separately priced, an economically rational consumer will take them all into account simultaneously in choosing which service provider to patronize.

15. Second, end-users may be corporate or other commercial enterprises. For example, a law firm may purchase mobile telephone services for its solicitors. This fact points out that an end-user/supplier or producer/consumer dichotomy is not equivalent to a household/business dichotomy.

16. Third, end-users generally value the ability to communicate with other end-users. All else equal, an actual or potential subscriber places greater value on a service that allows communication with a greater number of end-users. This positive relationship between network size (as measured by the number and variety of end-users) and consumer valuation is an example of a more general phenomenon that economists refer

to as a “network effect.”² Network effects arise when, the greater the number of users on a system, the more valuable the system is to an individual user.

17. One consequence of network effects is the following. If an action triggers a reduction in the set of end-users subscribing to mobile services, it will reduce their availability to communicate with other end-users, and the economic welfare of those other end-users will be reduced.

2. *The Meaning of Long-Term Benefit*

18. Next, consider the issue of the meaning of “long-term benefit.” From the perspective of economics, there are two sets of issues regarding this concept. First, at the level of the individual consumer, how should benefit be measured? Second, when a policy has differential benefits across different consumers, how should aggregate consumer benefit be calculated?

19. Begin by considering the issues associated with a single consumer. The costs and benefits that a consumer derives from an act of regulation or forbearance can be determined only by taking into account the full range of effects on prices and product or service offerings. This general statement has several specific implications.

20. First, policy analysis should consider the full range of affected prices. Looking at the effects of a policy on only some of the prices that are affected can lead to seriously misleading conclusions. For example, if a regulatory action would lower the price of service *A* and raise the price of service *B* but have no other price or quality effects, then a policy analysis that focused solely on a single price change could reach any conclusion one wanted simply through the choice of product on which to focus. An analysis

² For a survey of the economics of network effects, see Michael L. Katz and Carl Shapiro, “Systems Competition and Network Effects,” *Journal of Economic Perspectives*, 8, No. 2 (Spring

focusing solely on service *A* would conclude that the policy was beneficial to consumers, while an analysis focusing solely on service *B* would reach the opposite conclusion.

Manifestly, either one of these two narrow analyses would present a misleading view of the end-user benefits of the regulation.

21. Second, policy analysis should not simply assume that the set of available goods and services is fixed. Investments typically are needed to bring products to market. If suppliers are not rewarded for making these investments, then they will not choose to invest. In the long-run, consumer welfare can be severely harmed. This is the logic that underlies the patent system, which grants inventors exclusive property rights for a specified period of time in order to generate economic incentives to innovate.

22. A similar logic applies to process innovations as well as product or service innovations. A cost-based cap on termination charges would reduce incentives to lower costs because a reduction in costs will lead to a decrease in the allowable charges. Thus, the long-run effect of the policy could be to discourage innovation with the result that the capped prices would end up being higher than what would have been the uncapped prices.

23. Lastly, policy analysis needs to deal with the fact that costs and benefit flows may be uncertain or spread over time. In those cases where these uncertain inter-temporal flows of costs and benefits are reduced to a single number, one faces issues of how to calculate expected costs and benefits on a net present value basis.

24. Now, consider the issues that arise when a policy helps some end-users and harms others. This fact pattern raises the question of how to calculate the aggregate or net change in overall consumer benefits. Should one simply add up the gains and losses

according to some monetary measure? Or should the economic welfare of some consumers get more weight than that of others?

25. As will be discussed in the next subsection, much of economics analysis concerns itself solely with questions of whether any given end-user is better or worse off, and the analysis does not attempt to assign magnitudes or make inter-personal comparisons. However, particularly for policy analysis, it is often useful to have a quantitative or monetary measure that allows one to make statements about the aggregate welfare of a group of individuals. Thus, economists have developed tools to use in making such comparisons.

B. Efficiency

26. Although public policy makers often speak of “efficiencies,” economists generally speaks in terms of “efficiency.” From the perspective of economics, a sensible interpretation of “efficiencies” is “an improvement in the measure of efficiency.” That is the interpretation I take in this report.

27. The term “efficiency” is generally used in economics to refer to one of two closely related, but distinct, concepts: Pareto optimality and total-surplus maximization. Consider each in turn.

1. Pareto Optimality

28. The most fundamental concept of efficiency in economics is what is known as Pareto efficiency.³ According to a well-known dictionary of economic terms,⁴

Analysis of efficiency in the context of resource allocation has been a central concern of economic theory from ancient times, and is an essential element of modern microeconomic theory. ... In this context efficiency means going as far as possible in the satisfaction of wants within resource and technological constraints. This is expressed by the concept of Pareto optimality... .

An outcome is Pareto optimal (or Pareto efficient) if it is impossible to make anyone in society better off without making at least one other person worse off. In their principles of economics textbook, for example, Professors Nordhaus and Samuelson offer the following definition:⁵

Allocative efficiency (or efficiency) occurs when no possible reorganization of production can make anyone better off without making someone else worse off. Under conditions of allocative efficiency, one person's satisfaction or utility can be increased only by lowering someone else's utility.⁶ [footnote added]

29. The logic of Pareto optimality can be seen by considering a situation that is not Pareto efficient: If the economy is in such a position, then it is possible to make at least

³ In my microeconomics textbook, my co-author and I wrote that "When economists use the word *efficient*, they generally have Pareto efficiency in mind." (Michael L. Katz and Harvey S. Rosen, *Microeconomics, Third Edition*, Boston, MA: Irwin McGraw-Hill, 1998, at 387 [emphasis in original].) Similarly, another microeconomics textbook states that "One useful criterion for comparing the outcomes of different economic institutions is a concept known as Pareto efficiency or *economic efficiency*." (Hal Varian, *Intermediate Microeconomics, A Modern Approach, Fourth Edition*, New York, NY: W.W. Norton & Company, 1996, at 15 [footnote omitted and emphasis added].)

⁴ *The New Palgrave: A Dictionary of Economics* at 107. New York, NY: Stockton Press Ltd, 1998.

⁵ Paul A. Samuelson and William D. Nordhaus, *Microeconomics*, Boston, Mass.: Irwin McGraw Hill, 1998, at 148.

someone in society better off without making anyone else in society worse off. There is a powerful sense in which the original outcome is wasteful, or inefficient.

30. An appealing feature of the Pareto optimality criterion is that it does not require making value judgments about which members of society are more deserving than others. Instead, it looks for the possibility of win-win situations, or what might be called win-tie situations (in which some members gain and others remain at the same level). This feature comes at a cost, however. Many different outcomes may be Pareto efficient simultaneously, and for that reason economists often make use of other notions of efficiency.

2. *Total Surplus*

31. The most widely used alternative approach is to use the level of “total surplus” as a measure of economic welfare and to describe an outcome as efficient if it maximizes total surplus. “Total surplus” is defined as the sum of “consumer surplus” and “producer surplus.” Consumer surplus is, in turn, defined as the difference between what a consumer is willing to pay for a good or service and what he or she actually pays. Producer surplus is defined as the amount of income a producer receives in excess of what it would require in order to supply a given number of units of a good or service. Intuitively, producer surplus can be thought of as economic profit. Another way of

⁶ Economists also consider the concept of efficiency restricted to certain aspects of the economy, such as the efficiency of the allocation of goods and services among consumers, or the efficiency of the means by which goods and services are produced. The notions of allocative efficiency, productive (or technical efficiency), and dynamic efficiency are useful heuristics of this type. In an economy with so-called “complete markets” (that is, an economy with full insurance markets and futures markets), these different notions of efficiency collapse down to the concept of allocative efficiency.

thinking about total surplus is that it is consumption benefits measured in dollars minus the costs of production.⁷

32. Economic decision makers often face constraints, such as limited information. For these reasons, economists often focus on “constrained efficient” outcomes, which are also known as “second-best” outcomes. When total surplus is the welfare measure, a second-best solution is one that maximizes total surplus given some constraint. In contrast, a “first-best” outcome is one that maximizes total surplus without regard for the constraint in question.⁸

33. Industries with economies of scale provide a good example of the difference between first- and second-best outcomes. Under some conditions, pricing at marginal or incremental cost would maximize total surplus, but this pricing would lead to suppliers’ suffering losses because their average costs would exceed price. In many situations, suppliers cannot be forced to remain in business. Hence, the relevant question would be: How can one maximize total surplus subject to the constraint that suppliers remain economically viable?⁹

⁷ There are several technical issues with the use of total surplus that arise in the presence of income effects and multiple commodities. For a discussion of some of these issues, see Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green, *Microeconomic Theory*, New York, NY: Oxford University Press, 1995, Section 10.C, and Jean Tirole, *The Theory of Industrial Organization*, Cambridge, MA: The MIT Press, 1993, at 7-12.

⁸ The notion of constrained efficiency can also be applied to Pareto optimality. For example, in the presence of asymmetric information, it may be impossible to make anyone else better off without making someone else worse off even though everyone could be made better off in the absence of the informational asymmetries. In this case, the outcome would be constrained Pareto efficient, but not unconstrained Pareto efficient.

⁹ It should be apparent that, even if one put zero weight on the welfare of suppliers and their owners, one might still allow suppliers to charge “high” prices to keep them from ceasing production altogether.

34. In summary, although the maximization of total surplus is not the only valid interpretation of “efficiency,” total surplus is widely used by economists, particularly in applied microeconomics, such as policy analysis.

C. Relationship between Long-Term End-User Benefits and Efficiency

35. Maximizing consumer benefits is not logically equivalent to maximizing total surplus. The difference is that the latter includes effects on producer surplus, while the former does not. In terms of their policy implications, however, the two concepts are closely linked because end-users have a strong interest in policies that promote efficiency.

36. Using either Pareto optimality or total-surplus maximization as the concept of efficiency, wealth transfers do not generate efficiency benefits. What matters for efficiency is the allocation of real resources (*e.g.*, production and consumption levels for various goods and services). A transfer of wealth from one party to another clearly is not a Pareto improvement; the party receiving the transfer gains but the party paying the transfer loses. Similarly, as the *Draft Report* (§308) observes, a transfer of wealth does not raise total surplus; the gains to the party receiving the transfer are exactly offset by the losses to the party paying the transfer.

39. The fact that wealth transfers are not efficiencies would seem to indicate a potential tension between efficiency and end-user benefits. Specifically, one can identify settings in which a regulatory policy would have the effect of transferring wealth to consumers of a particular service in a way that creates losses for the producers of that service (and possibly for consumers of other services) that exceed the gains enjoyed by

the first group of consumers.¹⁰ In other words, the benefits for the identified group of end-users would rise, but total surplus would fall.

37. Although one can construct such examples, in which a specific group of consumers would benefit from a particular public policy that lowered total surplus, this is a misleading perspective. In the long run, end-users' interests are generally best served by the pursuit of efficiency. Even though certain consumers could benefit from particular inefficient policies, a policy-making approach that did not seek to maximize efficiency could be expected to harm consumers overall.

38. This is so for two reasons. First, a given end-user will gain from some inefficient public policies and will be harmed by others. When individual policies reduce total surplus, the balance of the effects from the full collection of public policies on end-user welfare is likely to be negative because each end-user will tend to be harmed by specific policies more often than not. Hence, from a broad or long-term perspective, an end-user's interests are best served by an approach to public policy that pursues efficient outcomes. Second, as discussed in Sections III.A.2 and VI.B, end-users will tend to be harmed in the long run if suppliers' investment and production incentives are distorted.

39. The New Zealand Treasury similarly identified end-users' interests in efficiency and investment incentives, stating that:¹¹

An efficiency based approach is best aligned with the purpose of the Act, as the long run interests of consumers is served by allowing producer surplus to incentivise innovation and entry into the market.

40. Lastly, officials of the Ministry of Economic Development have also made statements that, viewed through the lens of economics, support the conclusion that end-

¹⁰ In other words, the policy would give rise to deadweight losses.

¹¹ Treasury Report, *Briefing for EDC Local Loop Unbundling and Fixed PDN in New Zealand*, 10 May 2004, ¶18.

users have an economic interest in, and benefit from, efficiency. Ministry of Economic Development (“MED”) officials stated that “‘Efficient telecommunications markets for the long term benefit of end users’ (used in cl 15) is equivalent to ‘net economic benefits’.”¹² They also stated “The current purpose statement is intended to be a robust proxy for the whole of society. Consequently, efficiency gains would be measured for the whole of society.”¹³ Similarly, in their briefing paper on the purpose clause, MED officials reiterated that “The Telecommunications Bill uses the phrase ‘long term benefit of end-users of telecommunications services’. The [phrase is] commonly accepted as a proxy for net benefit to New Zealand.”¹⁴ From the perspective of economics, in each case, the stated policy objective corresponds to one of maximizing total surplus and does not appear to leave any scope for counting wealth transfers from New Zealand producers to New Zealand consumers as net benefits.

IV. THE ROLE OF COMPETITION IN PROMOTING EFFICIENCY AND LONG-TERM END-USER BENEFITS

41. Economic theory and empirical observation demonstrate that competition can play an important role in promoting efficiency and consumer welfare. The *Draft Report*, however, identifies a primary role for competition that diverges from that identified by mainstream economics.

42. In this section, I begin by defining competition and then address the standard economic rationale for promoting it.

¹² *Clause by Clause Analysis*, at 13.

¹³ *Clause by Clause Analysis*, at 16.

¹⁴ *Telecommunications Bill - Purpose Clause*, 15 August 2001, ¶6.

A. The Definition of Competition

43. One authoritative economics dictionary defines competition broadly as follows:

“Competition is a rivalry between individuals (or groups or nations), and it arises whenever two or more parties strive for something that all cannot obtain.”¹⁵ In economics, competition generally refers to a rivalry among the participants on one side of a market to attract partners from the other side for some sort of economic exchange. Economists also talk about whether a market is “competitive,” meaning that there is high degree of rivalry among the sellers and among the buyers.

44. There is a set of conditions along these lines that gives rise to a formal model that economists call “perfect competition.” In their principles of economics textbook, Professors Nordhaus and Samuelson write “What is meant by perfect competition? It means that all goods and services have a price and are traded on markets. It also means that no firm or consumer is large enough to affect the market price.”¹⁶ In contrast, a firm or consumer that can affect the market price is said to have “market power.” A supplier with a significant level of market power is said to possess “monopoly power.”

45. It is important to recognize that the real world may be more complex than textbook situations. In the textbook model of perfect competition, price is equal to marginal cost and the price-cost margin is zero.¹⁷ The provision of wireless telecommunications services does not fit the textbook model of perfect competition in several respects. One of them is the fact that supply is subject to economies of scale and

¹⁵ *The New Palgrave: A Dictionary of Economics*, New York, NY: Stockton Press Ltd, 1998, at 531.

¹⁶ Paul A. Samuelson and William D. Nordhaus, *Economics*, Boston, Mass.: Irwin McGraw Hill, 1998, at 35.

¹⁷ See Michael L. Katz and Harvey S. Rosen, *Microeconomics, Third Edition*, Boston, MA: Irwin McGraw-Hill, 1998, Chapter 11.

thus marginal cost is less than average cost. In markets with economies of scale, marginal cost pricing is unsustainable—suppliers would suffer persistent losses because their service prices would be below their average costs. In such markets, the competitive benchmark is more appropriately taken to be pricing at average cost, and the corresponding margin is positive. This point is an example of finding a second-best optimum.

46. Because the conditions necessary for the formal model of perfect competition are rarely satisfied in practice, policy makers must often address questions such as “how competitive is competitive enough?” or “when is there effective competition even if not perfect competition?” The answer to these questions can properly be understood only in reference to an appropriate benchmark. Thus, a useful way to pose the question is to ask “when is a market competitive enough that consumers are better served by allowing market forces to operate rather than subjecting suppliers to extensive regulation?”¹⁸

B. The Role of Competition in Promoting Efficiency and End-User Benefits

47. Economists generally think of competition as a means not an end.¹⁹ There is a consensus among economists that equilibrium outcomes in competitive markets generally possess desirable efficiency characteristics in the absence of certain so-called “market failures,” such as externalities (also known as missing markets) or asymmetric information (*e.g.*, moral hazard and adverse selection).

¹⁸ Of course, some degree of governmental intervention is almost always needed. There is a consensus among economists that government intervention is fundamental to the existence of well-functioning markets. Governments define property rights and enforce contracts, which greatly facilitate private commercial activity. This type of intervention is very different than what is typically meant by “regulation” in discussions of telecommunications policy.

¹⁹ As discussed below, however, economics does not prescribe what policy makers’ goals should be. Rather, economics assists in determining the effects of various policies on the attainment of policymakers’ goals.

48. One of the central economic rationales for antitrust policy enforcement is that competition typically promotes efficiency, which generally benefits consumers.

49. The *Draft Report* takes the position that the benefit calculus should be different when regulation is used as a replacement or substitute for competition:

60. The threshold test for intervention by way of regulation requires the Commission to reach a view that competitive forces do not operate fully in the relevant market, so that it is unlikely to be possible to rely on the interplay of competitive forces to ensure appropriate treatment of any monopoly profits. Control as a regulatory mechanism has a different philosophical base from competition as a regulatory mechanism. It is precisely because there is a concern about monopoly profits, and a lack of competition to drive them out, that control might be justified. In such an environment, the Commission considers that the scheme and context of the Act means that it must explicitly address distributive issues. The Commission considers that to the extent to which the erosion of producer surplus may have a negative impact on efficiency, it can be considered in the context of dynamic efficiency.

50. If the specific public policy objective is to eliminate monopoly profits through regulation, then *by definition* it is true that control as a regulatory mechanism should seek to eliminate monopoly profits. But if, as most economists would reason, the virtue of competition is that it promotes efficiency and that—where regulation is used—it should seek to replicate the benefits of competition in promoting efficiency, then this statement badly misses the mark.

51. The efficiency role of competition is very different from the *Draft Report's* contention that the primary benefit of competition is that it eliminates monopoly profits.²⁰ Efficiency concerns the allocation of real resources, not wealth transfers or the existence of monopoly profits. What matters for efficiency is whether prices provide the

²⁰ Indeed, the *Draft Report* itself recognizes this distinction by identifying static efficiency and excess returns as two distinct concepts in Diagram 4 and the accompanying analysis.

incentives for suppliers and consumers to engage in mutually beneficial trades to the extent possible given tastes and technology.

52. By treating wealth transfers as the primary benefit derived from competition and competitive pricing, the *Draft Report* risks confusing two distinct roles that prices play in a market economy. One is to provide incentives to producers and consumers that help guide their investment, production, and consumption decisions. The other is to transfer wealth among various parties to an economic transaction. Efficiency effects arise from the former, not the latter.

53. As a general matter, public policy makers can pursue objectives other than competition and efficiency. However, promoting efficiency through competition is widely recognized as the most effective means to promote overall consumer welfare in most markets.²¹ Hence, antitrust policy seeks to promote competition and efficiency. Similarly, many regulatory policies (*e.g.*, the U.S. Telecommunications Act of 1996) are aimed at promoting competition for the efficiency benefits it brings to consumers.²²

C. Understanding a Consumer Welfare Standard in the Context of Promoting Competition

54. Perhaps surprisingly, insight into the relationship between efficiency and long-term end-user benefits can be gained by considering antitrust policy and its focus on harm to competition. The focus on harm to competition is important because the notion of harm to competition is closely tied to efficiency considerations.

55. Section 36 of New Zealand's Commerce Act of 1986 reads, in part:

²¹ Historically, some public policies have favored atomistic competition even at the expense of efficiency (*e.g.*, the Robinson-Patman Act in the United States and some merger policy decisions from several decades ago), but that approach is anachronistic.

²² Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996). The 1996 Act amends the Communications Act of 1934, 47 U.S.C. §§ 151 et. seq.

- (2) A person that has a substantial degree of power in a market must not take advantage of that power for the purpose of—
 - (a) restricting the entry of a person into that or any other market; or
 - (b) preventing or deterring a person from engaging in competitive conduct in that or any other market; or
 - (c) eliminating a person from that or any other market.

For present purposes, the notable feature of this text is that it focuses on acts that would harm the competitive process. The possession of monopoly power or the exercise of monopoly power to charge “high” prices is not illegal under competition policy. What is illegal is harming the competitive process itself. Simply lowering or raising prices charged to end-users does not promote or harm competition. Thus, New Zealand’s competition policy is not focused on transferring rents to consumers. Rather, the concern is with preventing anticompetitive actions that would harm efficiency and, thus, harm consumers.

56. The situation in the United States is similar. Federal competition policy statutes largely promulgate a consumer welfare standard, which is very similar to the concept of long-term end-user benefits. In applying this standard, U.S. competition policy does not pursue enforcement actions simply because they would transfer wealth to consumers. This point can be seen most dramatically from the fact that it is not illegal for a producer to raise prices to transfer rents from consumers to itself. A recent U.S. Supreme Court decision summarized the situation as follows:²³

The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices—at least for a short period—is what attracts “business acumen” in the first place; it induces risk taking that produces innovation and economic growth.

²³ *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*. U.S. Supreme Court, No. 02-682, opinion issued 13 January 2004.

As does New Zealand's competition policy, U.S. competition policy focuses on blocking actions that would harm competition. It does so because harm to competition would be expected to lead to harm to consumers.

57. Although regulation and competition policy are two different forms of governmental intervention, the differences between the two do not justify a conclusion that regulation should promote wealth transfers in ways that competition policy would not.

58. The *Draft Report* apparently takes the view that distributional concerns, specifically the treatment of wealth transfers from producers to consumers as a social benefit, arise under regulation but not competition policy generally. Without commenting on the validity of this view from the perspective of law, I observe that it appears to make little sense as a matter of economics. If the political decision has been made not to count wealth transfers as a net benefit in one case, then I am unaware of any economic rationale for treating the other case differently. Paragraph 60 of the *Draft Report* might be read as an attempt to identify limited competition as a distinguishing feature that justifies consideration of wealth transfers. However, Section 36 of the Commerce Act ("Taking advantage of market power") manifestly applies to situations of limited competition as well. Thus, the *Draft Report* fails to identify an economically sound distinction

59. Stated differently, if the public policy objective is to promote efficiency, then it is incorrect to assert that finding competition to be limited somehow justifies pursuing regulatory policies with the objective of reducing profits or transferring surplus from producers to consumers. Even where competition is limited, positive margins—and even

what ex post might appear to be positive economic profits—can serve socially useful functions by providing incentives to undertake costly and/or risky investments.

60. At a minimum, it is wise for policy makers to be cautious and to recognize:

- How hard it is to judge whether competition is limited;
- How hard it is to judge whether there are pure economic rents, or whether these amounts in fact are returns to risky investments; and
- Even in the case of pure rents, policies that eliminate those rents may induce other distortions that can have adverse consequences for end-user welfare.

V. THE DRAFT REPORT'S TREATMENT OF DISTRIBUTIONAL CONCERNS RISKS HARMING END-USERS, IS POORLY EXPLAINED, AND IS VERY LIKELY INTERNALLY INCONSISTENT

61. As noted above, the *Draft Report* (e.g., ¶¶310) takes the view that rent transfers from suppliers to end-users are a social benefit.²⁴ The *Draft Report* also implicitly takes the views that all individuals should get equal weight in welfare calculations in their roles as consumers. This section discusses some of the issues associated with distribution concerns.

A. The *Draft Report* Fails to Undertake a Sensible Division of Labor

62. As a general matter, policy makers may wish to pursue a variety of objectives. Although economists often have strong opinions on the subject, economics as a discipline does not say what objectives policy makers should pursue. Nevertheless, economics can play an important role in discerning the relationship between social objectives and a policy's effects. In their textbook, Professors Nordhaus and Samuelson offered the following example of these principles: "Economics cannot answer questions

²⁴ My analysis in this report is from the perspective of economics. I do not address the issues of whether the position taken in the *Draft Report* with respect to the treatment of wealth transfers is legally defensible or is consistent with other government policies and previous legal decisions.

of how much poverty is acceptable and fair, but it can help design more effective programs to increase the incomes of the poor.”²⁵

63. A common rationale for the use of total surplus as a measure of social welfare in the face of potential distributional concerns is the following. If one outcome yields greater total surplus than the other, then it should be possible to design a system of wealth transfers such that at least one person is better off and no one is worse off. This notion is sometimes referred to as the Kaldor-Hicks criterion.²⁶ I expressed this idea more colloquially in my textbook as follows:²⁷

The justification for this approach is that once total surplus is maximized, it can be redistributed later in accord with the community’s notions of fairness—make the pie as big as possible and then worry about dividing it.

64. The hypothetical compensation underlying the Kaldor-Hicks criterion typically is not made in practice. Indeed, in practice such compensation often is impossible to make given the limited available information about individual consumers’ and producers’ welfare levels. Hence, the argument for using total surplus as a public policy objective often takes a slightly different form.

65. This form of the argument for using total surplus as a policy objective is that there can be a useful division of labor between sector-specific regulatory policies used to promote efficiency and other policies that redistribute income and ensure social equity (*e.g.*, taxation policy and subsidy schemes). There are two virtues of this approach. First, it avoids the danger that, although various groups gain from particular inefficient

²⁵ Paul A. Samuelson and William D. Nordhaus, *Microeconomics*, Boston, Mass.: Irwin McGraw Hill, 1998, at 38.

²⁶ There are also technical conditions regarding the size of income effects that may come into play.

²⁷ Michael L. Katz and Harvey S. Rosen, *Microeconomics, Third Edition*, Boston, MA: Irwin McGraw-Hill, 1998, at 362.

policies, in the end everyone is worse off as a result of the full collection of such policies. Second, although policy makers may not consider the existing distribution of income to be optimal and may wish to change it, sector-specific regulations can be a very imperfect way to do so. As discussed in Section V.B below, the distribution of incomes among end-users and the owners and workers of producers may be complex and difficult to determine. Targeted tax policies are much more likely to have the intended distributional effects than are sector-specific pricing regulations that are, at best, very blunt and imperfect tools.

66. The New Zealand Treasury similarly identified the desirability of a policy division of labor in achieving efficiency and addressing distributional concerns, stating that:²⁸

Treasury disagrees with the approach the Commission has taken, as including distribution effects in a cost benefit analysis could justify regulation where there is an inefficient outcome, but offsetting wealth transfers... We consider regulation is best used to improve the efficiency of markets. The Government has other policy instruments to address concerns about distribution of income.

B. Other Problems with the *Draft Report's* Approach

67. Concerns about income distribution and fairness are recognized by economics as legitimate policy objectives if they are objectives that policy makers choose to pursue. Nevertheless, the approach taken in the *Draft Report* raises a number of concerns. One concern is whether the approach taken in the *Draft Report* is consistent with the underlying statute. This is largely a legal question, but from the perspective of economics one can clearly state the following: If the intent of the Telecommunications

²⁸ Treasury Report, *Briefing for EDC Local Loop Unbundling and Fixed PDN in New Zealand*, 10 May 2004, ¶18.

Act 2001 is for regulation to promote efficiency or to maximize the long-term benefits that end-users derive from mobile telecommunications services, then the approach taken in the *Draft Report* is incorrect.

68. Another concern is that the proposed policy would benefit certain telecommunications customers and harm others, but the *Draft Report* contains no explicit analysis of how it weighs the overall effects. It appears that the *Draft Report* intends to put equal monetary weights on the surplus levels of all consumers. But if all individuals get equal weight in their role as consumers, it is logically inconsistent to assert that the *same people* should be treated differently in their roles as the owners of telecommunications carriers. If the *Draft Report* were consistent, it would conclude that wealth transfers (*e.g.*, area B in Diagram 4 of the *Draft Report*) should not be considered a benefit of regulation.

69. One might try to argue that wealth transfers from producers to end-users should be counted as a benefit of regulation because they redistribute income from the wealthy to the less wealthy. For several reasons, however, this argument is on shaky ground. First, regulatory policies that induce wealth transfers from producers to end-users may have adverse effects on the economic welfare of the producers' employees, as well as owners. Hence, a thorough analysis of distributional effects would consider employment effects. Second, the shares of a company like New Zealand Telecom are held by a large number of investors, often through pension funds. Thus, far from all being wealthy investors, it is likely that many owners are working-class households. It follows that policy analyses should not jump to conclusions about the effects of producer-to-end-user

wealth transfers on New Zealand's income distribution. Indeed, in my microeconomics textbook, I wrote that²⁹

The average shareholder in a company that sells cellular telephones could well have a lower income than the average cellular phone buyer. This simple example warns us that we have to be careful when thinking through the equity consequences of a change in the market outcome.

70. This last point is strengthened by the fact that telecommunications end-users include both businesses and residential consumers.³⁰ As a general matter, I am unaware of any economic basis for concluding that the owners, customers, and employees of companies purchasing fixed-to-mobile calling services from a fixed-line carrier are more deserving than the owners, employees, and customers of New Zealand's mobile services providers. Of course, if policy makers make such a determination through the political process, then economics does not say whether this determination is right or wrong. However, it is my understanding that no such determination has been made in either the Commerce Act or the Telecommunications Act. In any event, the *Draft Report* points to no such determination.

VI. METHODOLOGICAL DEFICIENCIES RENDER THE *DRAFT REPORT'S* CONCLUSIONS REGARDING LONG-TERM END-USER BENEFITS UNRELIABLE

71. The Commerce Commission views its regulations as a substitute for competition in the provision of fixed-to-mobile termination services. And economics demonstrates that price ceilings can in some circumstances act as a partial substitute for competition to promote efficiency. But this is so only if relevant features of the market are taken into account and prices are set appropriately. In some cases, setting price equal to marginal

²⁹ Michael L. Katz and Harvey S. Rosen, *Microeconomics, Third Edition*, Boston, MA: Irwin McGraw-Hill, 1998, at 425.

³⁰ *Draft Report*, ¶72.

or incremental cost can lead to efficient outcomes that serve end-users well over the long run. The services involved in the present matter, however, are not such cases.

Simplistic attempts to marginal- or incremental-cost pricing will fail to promote efficiency or the long-term benefits of end-users.

72. Termination fees affect the prices charged by carriers to their customers, both those of originating carriers and those of terminating carriers. Thus, to understand the effects of termination fees, it is important to understand the role of prices in guiding economic behavior. In many situations, setting the prices of goods and services equal to their marginal costs will send signals that guide consumers and suppliers to make efficient consumption and production decisions. Several features of mobile telephony raise complex issues for pricing. Economists generally agree that in settings with economies of scale and scope, joint costs, and two-sided benefits, total-surplus maximizing prices cannot be determined with regard to cost information alone—one must also consider benefits or demands.

73. The analysis of the *Draft Report* fails to address these issues fully. These methodological deficiencies render unreliable the *Draft Report's* conclusions regarding the effects of its proposed regulatory policies on the long-term benefits of telecommunications end-users.

A. The *Draft Report* Ignores Harms that its Proposed Policy would Impose on Mobile Services End-Users

74. The *Draft Report's* projections of the effects of regulating mobile termination charges include the effects on fixed-to-mobile calling prices but not other relevant prices. Thus, the projections are unreliable.

1. *The Draft Report Fails to Account for the Full Effects on Prices, Efficiency, and Long-Term End-User Benefits*

75. As summarized by the *Draft Report*,

15. The Commission considered whether reductions in mobile termination rates would lead to corresponding reductions in fixed-to-mobile prices. The Commission considers the behaviour of operators retailing fixed-to-mobile calls indicates that the price of those calls has declined during periods when the mobile termination rate has decreased.

16. The Commission's cost-benefit analysis indicates that substantial net benefits to end-users of fixed-to-mobile services are likely to arise from regulating mobile termination.

76. The *Draft Report's* approach identifies one short-term benefit to certain types of consumers (*i.e.*, those end-users who both: (a) do not subscribe to mobile services, and (b) make fixed-to-mobile calls to end-users who will not be induced to drop their mobile services). However, the approach fails to take into account the effects of mobile termination regulation on the prices of other services associated with mobile telephony and on the consequent effects on wireless subscription decisions. Although fixed-to-mobile calling prices might fall, wireless services prices would very likely rise as the result of the *Draft Report's* proposed policy. Indeed, there might be welfare losses even among consumers of fixed services as they found that the parties that they wished to call had dropped their mobile services. Thus, the approach in the *Draft Report* fails to measure appropriately even short-term effects on consumer surplus, let alone long-term effects.

2. *The Draft Report's Reasons for Dismissing the Waterbed Effect are Unsound*

77. The *Draft Report* refers to the effects of mobile termination regulation on other mobile service prices as the "waterbed effect" and dismisses it on two grounds: (a) that these effects arise only in the presence of strong competition, and (b) that various price

changes induced by the regulation, such as for mobile-to-mobile calling, will cancel one another out. Both of the *Draft Report's* arguments are mistaken.

78. First, consider the *Draft Report's* (§340; see also §427) assertion that

the waterbed argument relies on competition at the retail or subscription end to be sufficient to compete away the economic profits earned on termination.

Several parties have submitted filings in this proceeding in which they argue that competition in the proper relevant markets is vigorous. But even if, for the sake of argument, one accepted that competition was weak, the *Draft Report's* assertion would still be incorrect. It is well established that, whether by this or some other name, the same type of effect arises even in the case of pure monopoly.

79. In essence, the waterbed effect is nothing more than the well-known pass through effect: when a firm's marginal costs change, its profit-maximizing output prices typically change.³¹ In the present context, the revenues collected from fixed-to-mobile termination can be viewed as reducing the mobile service provider's costs of providing subscriptions to its end-user customers. Hence, a mandatory reduction in fixed-to-mobile termination fees is equivalent in this regard to a cost increase.

80. In response to an industry-wide change in marginal costs, a profit maximizing producer—whether a perfect competitor or a monopolist—will pass through some or all of the cost change to its customers in the form of higher prices. Economic theory does not offer a general prediction that the prices charged by a producer with more market power will be less sensitive to cost changes than would be the prices charged by a producer with less market power.³² In some cases they will be more sensitive, in others

³¹ The *Draft Report* (e.g., §317) recognizes the existence of pass-through effects.

³² See Paul L. Yde and Michael G. Vita, "Merger Efficiencies: Reconsidering the 'Passing On' Requirement," (1996) *Antitrust Law Journal*, 735, or virtually any microeconomics text book.

less. Indeed, in some cases that amount of pass through by a producer with market power will exceed 100 percent.

81. The implications of the economic analysis are clear. If a wireless service provider expects to earn lower contribution from its provision of fixed-to-mobile termination services, then the value of attracting and retaining subscribers is reduced. A profit-seeking service provider will thus have incentives to raise prices and/or lower non-price efforts to appeal to end-users. Because an economically rational end-user will consider both subscription prices and origination charges in choosing whether to patronize a particular wireless carrier, the wireless service provider can be expected to have incentives to raise either subscription prices, origination charges, or both.

82. For the reasons just described, the *Draft Report's* (§340) statement that the Commission “is not convinced that there is sufficient competition in this market to ensure that termination profits are competed away and transferred to mobile subscribers” is largely irrelevant to the waterbed issue. There is no basis in economics for using this doubt as a reason to deny the existence of pass-through or waterbed effects.³³

83. The *Draft Report's* second argument against considering changes in prices other than fixed-to-mobile termination is the incorrect claim that various other price changes, such as for mobile-to-mobile calling, will cancel one another out. Specifically, the *Draft Report* (§337) states that “there may be little effect on the price of mobile-originated calls, due to the offsetting effect of reduced mobile termination charges.”³⁴ There is, however, a fundamental adding-up constraint that the *Draft Report* fails to recognize. If

³³ The *Draft Report's* statement would be logically correct if the sole source of waterbed effects were related to the need to obtain financing. I offer no opinion on the empirical question of whether competition would be sufficiently intense to generate a waterbed effect through a purely finance-based mechanism.

³⁴ See also, *Draft Report*, §333.

fixed-to-mobile compensation falls, then the total revenues collected by wireless carriers will fall if all other prices are held equal.³⁵ This relationship holds regardless of what happens to transfers among wireless carriers through mobile-to-mobile termination prices because those transfers net out to zero for the wireless industry as a whole. As discussed above, the fall in revenues is equivalent to a cost increase, which will trigger price increases and have direct and indirect adverse effects on mobile telecommunications end-users.

84. Although it is difficult to discern, the *Draft Report* may also offer a third argument against recognition of the waterbed effect. Like the other two arguments, this one is incorrect. The *Draft Report* states

336. The waterbed effect arising from regulating mobile termination rates has sometimes been characterised as the consequential removal of connection subsidies offered to mobile customers. In other words, high termination rates are used to subsidise connection costs (including the cost of handsets). The operation of the ‘waterbed effect’ would suggest that a regulated reduction in mobile termination rates could lead to a reduction in these connection subsidies.

337. However, the submissions from Vodafone and Telecom state that there are no cross-subsidies in the mobile sector in New Zealand. In other words, all mobile services are priced above their incremental cost, and make some contribution towards common costs. According to Telecom and Vodafone, mobile termination regulation is therefore likely to lead to an increase in the mark-up over incremental cost for mobile origination and mobile subscription services. This will have the effect of raising the retail price of mobile services. As noted above, however, there may be little effect on the price of mobile-originated calls, due to the offsetting effect of reduced mobile termination charges.

³⁵ The prediction that total revenues would fall with the fixed-to-mobile termination rate is based on the *Draft Report*'s statements that the demand for fixed-to-mobile termination services is inelastic (¶¶443-451), that fixed-line carriers earn non-negative margins on fixed-to-mobile calls, and that the pass-through rate will be no more than 100 percent (¶¶452-487). I have not conducted an independent analysis of these factors.

85. This text appears to indicate that the presence or absence of cross-subsidies is relevant to the existence of a waterbed effect. However, whether certain component prices of mobile services are above or below incremental costs does not change the fact that some or all of these prices could be expected to rise and that these effects should be taken into account in projecting the efficiency and long-term end-user benefit effects of regulating mobile termination rates.³⁶

B. The *Draft Report's* Proposed Policy will Distort Dynamic Competition and Investment, Harming both Efficiency and End-Users

86. Suppliers will invest (in plant and equipment, R&D, or some other asset) only if they expect to get a sufficient return on their investment. In the presence of economies of scale (say, due to fixed costs), marginal- or incremental-cost pricing does not allow suppliers to cover their costs, and thus suppliers will be unwilling to make investments to continue serving end-users or develop new services. Thus, a focus on price-cost margins can present a very misleading view of supplier profitability and whether the market outcome is inefficient. In response to these considerations, competition policy authorities and regulators often take average-cost pricing to be a more appropriate competitive benchmark than marginal-cost pricing.

87. Similarly, it is recognized by competition policy authorities and regulators in a number of countries that it generally is in consumers' long-term interests to allow firms to earn positive returns on their investments and that what appear to be “excess” returns in hindsight might simply represent the fact that risky projects generate stochastic

³⁶ Of course, the efficiency effects of the resulting price increases might depend on the relationship between prices and incremental costs, as well as the presence of network effects and two-sided market considerations. This dependence is not a logical reason to ignore these effects entirely, as the *Draft Report* has chosen to do.

returns.³⁷ What matters for investment incentives are the expected returns at the time the investment is made, not the specific realizations of returns. A long-shot project with very low expected returns might nonetheless offer a huge payoff in the small chance that it succeeded. It would be a mistake to point to those cases in which the projected succeeded and claim that the investors enjoyed excess returns.

88. The *Draft Report* addresses concerns regarding dynamic efficiency:

17. The Commission considered the impact of regulation of mobile termination on the incentive of mobile operators to innovate and invest, primarily in new technologies such as those required to support 3G services and further service enhancements.

18. The Commission does not accept that a dynamic efficiency detriment arises from the regulation of termination on existing non-3G networks merely because a mobile operator has less revenue available to support its investment in a 3G network.

19. However, the Commission believes that regulation of future 3G networks is likely to increase the risk of delay, or restrict investment in 3G networks and cause a significant dynamic efficiency detriment.

20. The Commission concludes, therefore, that there are likely to be significant net benefits to consumers from the regulation of mobile termination rates on existing non-3G networks but not future 3G networks.

89. Although the *Draft Report* recognizes the potential adverse effects of price regulation on dynamic efficiency and the desirability of avoiding such effects, the *Draft Report* nevertheless proposes a policy that very likely would have adverse effects. These adverse effects would arise through two mechanisms.

³⁷ For this reason, Area B in Diagram 4 of the *Draft Report* is properly labeled “excess returns” only if p_1 has been set based on cost measures that fully account for sunk investments and the risks associated with them. Moreover, in the presence of multi-product cost- and demand-side linkages, one cannot determine whether there are excess returns without considering the full range of services involved.

90. First, the proposed policy would potentially distort competition between 3G networks and those wireless networks relying on earlier generations of technology. The differential treatment of competing suppliers raises the fundamental worry that regulation—rather than the ability to satisfy end-user demands efficiently—would determine which suppliers or technologies prevail in the marketplace. The results could be lower quality, innovation, and investment, and higher costs and prices. This issue arose, for example, with the regulation of AT&T as a dominant provider in the U.S. market for domestic long-distance telephony. One of the Federal Communications Commission’s motivations for ending this treatment of AT&T was the concern that regulation artificially handicapped AT&T and weakened competition.³⁸ In the present context, the concerns would be twofold. One, investors might find it less attractive to fund improvements in existing networks than to invest in exempt 3G networks, even when the former would be more efficient. Two, restrictions on pricing structures might handicap non-3G networks in competition with 3G networks.

91. The second mechanism for adverse dynamic efficiency effects can be seen by analogy to the patent system. Arguably, policy makers could promote efficiency by invalidating all existing patents while at the same time promising to honor all future patents. Invalidating existing patents would make the covered intellectual property available at its marginal cost of zero, and the associated research and development costs already are sunk. Moreover, if potential inventors believed the promise that the policy would not change again, then they would continue to have incentives to invest in innovation. The problem, of course, is that potential inventors would very likely suspect

³⁸ For example, AT&T and others had long argued that asymmetric tariff filing requirements limited AT&T’s incentive and ability to compete aggressively on price. See *In the Matter of Motion of*

that the government would later do the same thing to them, and innovation incentives would be attenuated. Hence, patent authorities do not periodically invalidate all existing patents while promising not to repeat the pattern in the future.

92. A similar time-consistency or credibility problem would very likely arise if the Commerce Commission were to provide less favorable regulatory treatment to networks that have a greater proportion of their costs already sunk. Specifically, 3G service providers or other suppliers potentially subject to regulation by the Commerce Commission could be expected to take note of the Commission's behavior. An economically rational conclusion on their part would be that the Commission will similarly disfavor them once their investments are sufficiently sunk. Anticipating this treatment, their current investment incentives would be reduced.

C. The *Draft Report* Fails to Address Two-Sided Benefits and Joint Costs Appropriately

93. Consumption of telephone services generally involves two sides of the transaction—a calling party and a called party—each of whom takes actions, receives benefits, and bears costs. Moreover, the decisions made by one side of the transaction generally affect the economic well being of the other. One consequence of these network effects is that, if a regulatory action triggers a reduction in the set of end-users subscribing to mobile services, then that action will reduce the abilities of other end-users to communicate with those who terminate their subscriptions. The result will be a fall in end-user benefits.

94. The fact that each side of a call needs to take actions in order for a transaction to take place raises the possibility each side will make privately optimal, but socially

inefficient, decisions because each will fail to take into account effects on the other side of the transaction. The prices that carriers charge for subscription, origination, and termination play a role in determining the incentives for end users to subscribe to telephone services and to originate and receive calls. This role encompasses balancing the costs and benefits of the two sides of a transaction.

95. Both commercially and socially optimal pricing entail making trade offs in terms of the effects that various price structures will have on end-user telephone service subscription, call origination, and call acceptance. An important lesson of this analysis is that, in general, making the socially optimal tradeoff depends on the benefits realized by each side of the transaction (also known as the demand conditions), as well as the costs of transactions.³⁹

96. The *Draft Report's* actions (*e.g.*, the omission of these effects from the formal cost-benefit analysis and the recommendation to impose cost-based termination charges without regard to demand conditions) suggest that the *Draft Report* has failed to recognize the two-sided nature of mobile telephony and the economic role played by termination charges.

97. In many ways, the issues are similar to those associated with the waterbed effect and the failure to consider the full range of effects on the long-term benefits of end-users.

98. Two-sided market demand considerations are also closely related to certain production-side issues that arise in this industry. A telecommunications carrier cannot offer termination services to facilitate communication with an end-user unless the end-

October 23, 1995) and references therein.

³⁹ For recent work on the pricing in the presence of two-sided benefits, see Jean Tirole and Jean-Charles Rochet, "Two-Sided Markets: An Overview," 2004, and references therein. See also, Benjamin E. Hermalin and Michael L. Katz, "Sender or Receiver: Who Should Pay to Exchange an Electronic Message?" *Rand Journal of Economics*, Autumn 2004.

user has chosen to subscribe to that carrier. Hence, many of the costs of providing termination services and subscriptions services cannot be separated: producing one service triggers some or all of the costs required to produce the other. Because of this linkage, such costs are said to be “joint costs.”

99. In the presence of joint costs, or of economies of scope more generally, cost considerations alone do not determine the prices that maximize total or consumer surplus subject to the need to cover overall costs. Instead, one must take demand conditions into account (so-called Ramsey pricing). The *Draft Report* identifies this issue (¶403) but then fails to take it into account (¶414).

VII. CONCLUSION

100. Competitive market forces generally promote economic efficiency and, thus, long-term end-user benefits. Regulatory policies that distort competition run the risk of harming consumers rather than helping them. For this reason, sound regulatory policy making examines the strength and nature of competition in the absence of regulation and attempts to assess the likely consequences of regulatory intervention, both intended and otherwise.

101. Although the *Draft Report* undertakes these steps at a broad level, the specific approach it follows is severely flawed. In this report, I have identified problems with the *Draft Report*'s interpretation and measurement of long-term end-user benefits.

102. A hypothetical example serves to summarize much of what is wrong with the *Draft Report*'s approach and to illustrate the harm that pursuing this approach could do New Zealand's economy. Under the *Draft Report*'s proposed approach, the following policy intervention would be found beneficial. Suppose that everyone in a group of 100 end-users purchases both fixed-line and mobile services. And suppose that regulatory

intervention would lead to decreases in fixed-to-mobile termination charges but increases in other mobile services charges. Specifically, suppose that the net benefits to end-users from the lower fixed-to-mobile charges would be 100 units, but the loss to consumers from higher mobile service prices would be 200 units. One reason for the difference could be that fixed service providers increased their margins as a result of the regulatory intervention. Another would be the new price structure resulted in inefficiencies or deadweight losses. Suppose that mobile service providers' profits would fall by 90 units. Lastly, suppose that fixed service providers would see their profits rise by 60 units. The net effect on each consumer would be a *loss* of 1 unit, for a total *loss* to consumers of 100 units. The net loss to society as measured by total surplus would be $100 - 200 - 90 + 60 = -130$. Yet the *Draft Report's* approach would conclude that the policy created benefits of 1 per consumer, for a total of 100.

103. Two points are particularly striking. First, under the *Draft Report's* approach, even a policy that harmed every consumer could be projected to be in consumers' interests! Second, different numbers could be used to show that the approach is willing to sacrifice a large amount of total surplus to obtain even a tiny increase in consumer surplus. Of course, this should not be surprising in the light of the example above, where the approach leads to a sacrifice of a large amount of total surplus in order to *reduce* consumer surplus.

104. Because of the deficiencies identified above, the *Draft Report's* calculations do not provide an accurate or reliable measure of end-user benefits from its policies. A central implication of this conclusion is that the calculations in Section 5 of the *Draft Report* are not a sound basis for a designation decision.