Unbundling the Local Loop in New Zealand

Some economic issues raised by Telecom's evidence

Report Prepared for TelstraClear

by

Geoff Bertram

November 2003

Simon Terry Associates

1. Introduction

TelstraClear Ltd has asked me to comment on certain sections of a submission tabled on 29 October 2003 by Telecom NZ Ltd in response to the Commerce Commission's draft decision of 18 September 2003 (as amended at 14 October)[1], and on passages in a report dated 29 October 2003, prepared for Telecom by its consultants CRA[2].

In particular TelstraClear has requested comments on the following matters:

- The argument presented by Telecom in *Telecom Response* paragraphs 114-116 regarding an alleged "tension between the goal of promoting competition and regulation as the means" in the context of Local Loop Unbundling (LLU);
- A set of claims about Telecom's productive efficiency, and the allegedly deleterious effects of LLU on that productive efficiency, put forward in *CRA Critique* section 3.8.3;
- The proposition that the Commission may have erred in law and/or economic theory in its treatment of wealth transfers to consumers as a net benefit; this argument is advanced, in slightly different forms, in *Telecom Response* section 5.1 and *CRA Critique* section 3.3.
- A review by Professor Neil Quigley of a recent paper, by de Fontenay, Savin and Kiss[3], which was appended to TelstraClear's submission on the Commission's draft decision.

Sections 3, 4, 5 and 6 of this paper address these matters in order. As a preliminary step, section 2 tackles the issue of the interpretation placed on the term "competition" in Telecom's submission, as this underlies some of the passages to be reviewed later.

2. "Real Competitors", "True Competitors", and "Meaningful Competition"

I have two comments about the treatment of the term "competition" in paragraph 5 of Telecom's submission.

In its paragraph 5, Telecom argues that

> "Competition requires real competitors. Firms which rely on a regulated share of the assets of their competitors are not true competitors."

---

1 *Telecom's Response to the Commerce Commission's Draft Report*, 29 October 2003 [Public Version]. Referred to hereinafter as "*Telecom Response*".

2 Charles River Associates (Asia Pacific) Ltd, *Economic and Technical Critique of the OXERA Unbundling Cost Benefit Analysis*, report for Telecom, 29 October 2003, included in Appendix A to *Telecom Response*. Referred to hereinafter as "*CRA Critique*".

3 De Fontenay, Savin and Kiss, *Reply Submission to the Draft Report of the Commerce Commission on its Investigation into Unbundling the Local Loop Network and the Fixed Public Data Network Conducted Pursuant to Section 64 of the Telecommunications Act 2001*, 28 October 2003.

This amounts to blanket rejection of a central plank of New Zealand competition law and policy over the past twenty years, cloaked in a concept of "true" or "real" competition which differs starkly from the usual commonsense applications of the term, and from its general usage in the economic literature. In effect Telecom is defining "true competition" to mean "facilities-based competition", so that firms whose inputs include transportation service on the assets of a vertically-integrated firm with which they compete in downstream markets are categorised as not "real competitors". If this interpretation were to be accepted, it would follow that the expression "promotion of competition" would be drained of its usual meaning and would become synonymous with "promotion of facilities-based competition". The Telecommunications Act 2001 would then be interpreted as having had the purpose of promoting the construction of duplicate bypass network facilities, even where those duplicate facilities are socially redundant and economically wasteful. I do not believe that that was Parliament's intent.

In New Zealand an important component of the competition policy reforms of the 1980s and 1990s, embodied in s.36 of the Commerce Act 1986, is the proposition that where duplication of existing bottleneck facilities is uneconomic, competition (in the sense of the competitive process in those markets where it is applicable) is promoted by opening-up those facilities to third-party access. The explicit intent of such arrangements is the promotion of competition, in the usual sense of that term.

For example, prior to the 1998 restructuring of the electricity industry (which secured open access to lines networks by forced divestment) the "light-handed" regulatory philosophy was that multiple electricity retailers should have non-discriminatory access to lines networks owned by their retail competitors, and this was widely promoted as a pro-competitive arrangement. Similarly in the gas industry, open access to pipelines has always been regarded as being mandated by s.36, and a great deal of work has been done over the past decade on the design of access terms and conditions which maintain competitive neutrality among multiple network users in circumstances where one of those users is the network owner. I am not aware of any suggestion that the objective (and intended outcome) of these arrangements is anything other than "real competition".

In telecommunications the so-called Baumol-Willig or Efficient Component Pricing Rule (ECPR), which was promoted vigorously by Telecom before the New Zealand courts in the 1990s, has its basis in a theoretical model of competitive neutrality in the downstream market, in the sense that any interconnected competitor which is as productively efficient as the network-owning incumbent's own downstream affiliate should earn a normal ("competitive") profit on its business, no more and no less. While the Rule itself has been rejected by the New Zealand Parliament (for reasons unrelated to the issue of competition *per se*) the arguments advanced by Telecom in its defence could never have been sustained, and indeed could never have been credibly advanced, in tandem with any proposition that competition between Telecom and Clear on the basis of network interconnection was not "real competition". Interconnection is merely one of a number of means (including LLU) by which competitors gain access to assets of their competitors in a vertically-integrated setting.

Also in paragraph 5 of its submission, Telecom advances the proposition that "it is from the unshared, not the shared, portions of the enterprise that meaningful competition would likely emerge." As I understand it, this is a trivial insight, in the context of open access to the network assets of a vertically integrated incumbent. The reason for mandating sharing of the shared portion (the network) is to enable competition to occur on the unshared portion (the many levels of the supply chain lying upstream and downstream of the shared network). The problem addressed by regulation in this case is the foreclosure of meaningful competition by denial of access to potentially-shared bottleneck facilities. This observation does not carry the implication which Telecom appears to propose, that access to a "shared portion" in some way invalidates the process of "true competition" on the unshared portion. Indeed, the opposite implication would seem to flow from Telecom's own use of the term "meaningful competition" in the last line of paragraph 5.

3. Tension Between Regulation and Competition

In paragraphs 114-116 of its submission, Telecom argues that there exists some necessary "tension" between (i) the goal of promoting competition and (ii) the instrument of regulation. Using the second to promote the first apparently (in Telecom's view) involves some logical inconsistency or incoherence. The argument is not developed, but is supported by three brief quotations from overseas authorities.

On a careful reading, it is difficult to distill any coherent proposition from Telecom's paragraphs 114-116, consisting as they do of a pair of one-line remarks extracted from works by US authors, and a slightly longer quotation from Breyer which seems to have no bearing on the issue. Both the context, and the rhetorical tone of other parts of Telecom's submission, suggest that Telecom perceives some "deep" problem with the use of regulation to facilitate competition. The literature cited by Telecom, however, does not suffice to establish any such problem.

In fact, there is nothing in the existing body of economic theory which, to my knowledge, establishes any such deep problem as a matter of principle. Economic theory generally tends to argue for regulation to be withheld from markets in which the competitive process is proceeding in a workable fashion, but for it to be contemplated in markets where workable competition is absent or where other market failures are present. (This principled prescription in favour of regulatory intervention to correct for market failure is usually qualified by reference to the need to establish, in each case, that the social costs of regulation itself do not outweigh the social benefits gained.)

There are certain schools of thought within economics which argue that both in theory and in reality, regulators often fail to advance society's welfare in the manner envisaged by mainstream neoclassical economic theory. One example is the Chicago School which includes Stigler – the economist from whose work Telecom has gleaned the expression "rhetorical friends and deadly enemies" in its paragraph 115. Stigler is well-known as a proponent of the view that in the real world, regulatory capture is the norm and effective regulation the exception: "as a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit ….. Onerous regulations are exceptional"[4]. It should be noted, however, that Stigler does not reject either the basic economic justification for regulation itself or the acceptability in principle of implementing regulation where appropriate. His actual policy proposals have been directed at the efficient implementation of regulation by introducing appropriate incentives for regulators.[5]

Stigler certainly has perceived a tension between the ostensible goals of regulation and the actual outcomes achieved by regulators; the essence of this tension is the failure of regulators to achieve outcomes which resemble those of competitive markets, and his policy proposals have focused on regulatory reforms to improve those outcomes.

That is not, however, the "tension" to which Telecom apparently seeks to draw the Commission's attention. I do not believe that Stigler's views on regulation can be appropriately characterised as proposing any inherent tension between competition and regulation <u>in market situations where competition is already absent or seriously limited in its ability to discipline monopolistic behaviour.</u> Consequently I believe that Telecom has taken Stigler out of context in its use of his work to substantiate its claim that <u>in the context of the local loop unbundling case</u> the Commerce Commission should "bear in mind" (paragraph 117) some inherent basic conflict between the regulatory means and the competitive end.

Telecom also cites Kahn (a US economist who has himself acted with distinction as a regulator) as describing the relationship of regulation to competition as "competitive rather than complementary". It is unclear how this particular quotation gives support to Telecom's proposition of a basic and inevitable "tension" between regulation as a means and competition as an end. However, it is certainly appropriate to turn to Kahn as an eminent authority on the economics of regulation.

Telecom does not provide the full citation to its "competitive rather than complementary" quotation from Kahn's classic *Economics of Regulation*, but those familiar with the book will recognise it as coming from the opening section of Volume II Chapter 1[6]. Placed in the context of that chapter, and of the book as a whole, the quoted passage is immediately stripped of any relevance to the local-loop-unbundling situation and ceases to provide any support for generalisations about regulation and competition.

The chapter, entitled "Monopoly and Protectionism", is addressed to situations in which the regulatory power of government is deployed to protect selected market participants by means of regulatory restrictions on competition. Examples of this type of regulation discussed in the chapter include franchises, patents, licensing of medical practitioners, restricted entry into air transportation, and regulation of interstate road transport. In all these cases a tension between regulation and competition is immediate. These are situations in which, in Kahn's words[7],

4 Stigler, G., *The Citizen and the State: Essays on Regulation*, University of Chicago Press 1975, p.114.

5 Ibid p.176.

6 Kahn, A.E., *The Economics of Regulation: Principles and Institutions*, MIT Press, 1988 p.1/II.

7 Ibid p.1/II.

> the decision to regulate is, typically, a decision also to restrict competition, not just to supplement it in some way or another, but to *supplant* it. Whether this essentially competitive rather than complementary relationship between these two alternative systems of social control is inescapable or is the result of bad policy, the fact remains that as it has evolved historically, regulation has consisted largely in the imposition and administration of restrictions on entry and on what might otherwise have been independent and competitive price and output decisions". [Emphasis added.]

Two particular examples of this sort of anti-competitive regulation discussed by Kahn in that chapter may merit brief mention here. The first is the regulatory protection of public utility operators from "cream-skimming":[8]

> Regulatory agencies frequently intervene … to prevent the practice known as *cream-*skimming. The contention is that if entry if free, competitors will naturally choose to come into only the lucrative markets, 'skimming the cream' of the business, negligently leaving to the established common carriers the burden of providing continuing service to the poorer and thinner markets – the isolated communities generating only small volumes of traffic, the off-peak business, and the like. The same kind of reasoning is used to oppose free price competition, which would likewise be expected to focus on the creamy markets.

In a footnote[9] Kahn responds that "the case for restricting competitive cream-skimming thus far presented is a case for preserving a pattern of internal subsidization, a practice that we demonstrated was economically indefensible in Volume 1…. [though] in fact some defenses can be erected on economic grounds" (those defences are discussed in detail later in his book[10]).

The other interesting regulatory restriction on competition considered by Kahn is the historic prohibition on "foreign attachments" to telephones in the Bell Telephone system:[11]

> A[n] argument has been offered by the Bell companies to justify their historic policy of prohibiting "foreign attachments" to telephones - independently produced accessories and equipment of one kind or another….. To permit independent equipment manufacturers this free competitive access and subscribers with such free choice would, [the Bell companies] have asserted, lead to deterioration in the quality of the telephone service…. [T]he alleged threat is not merely to the quality of the service enjoyed by the customer who chooses to install the equipment – in which event there would seem little justification to abandon the protection of *caveat emptor* – but also to the service of innocent third parties, whose reception might be subjected to all sorts of obscure interference…

8 Ibid. p.7/II.
9 Ibid p.8/II footnote 11.
10 Ibid pp.223/II – 243/II.
11 Ibid p.6/II.

It should be apparent by now that the "competitive versus complementary relationship" quotation from Kahn, used by Telecom in its paragraph 115, has been taken completely out of its proper context, namely a chapter devoted to anti-competitive regulatory interference with market competition. In contrast interconnection, local loop unbundling, mandatory wholesaling and other such structural reforms in the telecommunications industry involve the elimination, not the imposition, of the type of regulation at which Kahn's remark was addressed. To use this quotation in defence of Telecom's case for protecting its local loop from open access by competitors is, to say the least, unscholarly.

In fairness to Kahn, it seems worth reproducing, without misrepresentation of the context, some statements from his book which relate more directly to the issues before the current inquiry. Early in his book, discussing "the economic rationale" for regulation, Kahn includes as an "economic justification" the case of "natural monopolies"[12]: "their costs will be lower if they consist in a single supplier. This creates the efficiency case for monopolistic organization and, along with the importance of the service and the consequent inelasticity of demand, the need for regulation to protect the consuming public" [emphasis added].

In the introduction to his Volume II, dealing with regulatory institutions, Kahn notes that "the two principal instruments of social control in a private enterprise economy are competition and regulation"[13], and sets out at some length his view of the appropriate role and design of regulation and the striking of an appropriate balance between the two instruments when competition alone fails to meet society's needs[14]:

> We obviously want our industries to achieve a lot more than such allocational and distributional equity as can be achieved by the mere equating of prices and marginal costs ….. Specifically, we want industry:
>
> 1. To be efficient in the technical sense, that is, to keep the costs (social as well as private) to which price is to be equated as low as possible.
> 2. To improve its efficiency as rapidly as is economical – perpetually to devote efforts to improvements in efficiency so long as the incremental costs of those efforts are exceeded by the (discounted current) value of the cost savings thus achieved.
> 3. To engage in product or service innovation with an intensity subject to the same economic test.
>
> The listing of these … goals …. tell[s] us absolutely nothing about *how to achieve* these results. This is what we mean by the institutional problems of regulation …. By what kinds of institutional arrangements can we obtain the maximum assurance (compatible with such noneconomic values as security, freedom, due process of law, and so on) that the goals will in fact be achieved? How do we *get* prices down to marginal cost, services extended as widely, and the efficiency of production and

12 Ibid. p.11/I.
13 Ibid p.iii/II.
14 Ibid. pp.i/II-ii/II.

> quality of service kept as high and improved as rapidly as the pure theory of markets tells us is economically desirable?..... There are no clear-cut principles or proofs, no answers that are demonstrably right or wrong; the only available tool is judgment informed by economic theory and experience……
>
> If the search for the proper mix of competition and regulation is to be made intelligently, it can only be in full recognition of the inherent characteristics and problems of the regulatory device itself…

The authority of Kahn, it transpires, cannot be cited in support of any proposition that regulation is inherently unsuited as an instrument for the promotion of competition, nor that there is any necessary tension between the two. Kahn clearly and explicitly acknowledges the economic justification for regulation, recognises the difficulties of good regulatory design (emphasising that commonsense is more relevant than any appeal to some general principles), describes the ideal relationship between competition and regulation as a "proper mix", and emphasises the need to work from the particular situation in each regulated industry rather than seeking over-general, one-size-fits-all principles.

No universal conflict between regulation and competition, nor even any necessary tension between them in the case of local loop unbundling in New Zealand, can be substantiated by reference to Kahn.

I turn now to the quotation from Breyer in Telecom's paragraph 116 (cited also in paragraph 5). Without entering into the detail of the particular US case (*AT&T v Iowa Utilities Board,* 525 US 366, involving issues raised by local loop unbundling in the USA under 1996 federal legislation) it is apparent from simply reading the quoted passage that it does not propose any necessary tension between regulation and competition. Breyer makes the uncontentious point that "[r]ules that force firms to share *every* resource or element of a business would create not competition, but pervasive regulation, for the regulators, not the marketplace, would set the relevant terms." I am not aware of any suggestion that Telecom be compelled by regulation to share "every resource or element" of its business with its competitors. Certainly the Commerce Commission's draft decision to unbundle the local loop cannot be characterised in such sweeping terms, and no general proposition of relevance to the current inquiry flows from Breyer's essentially trivial point that if regulation is substituted for competition at all levels of the supply chain, then competition has not been created.

Of more relevance for the present inquiry is whether Breyer's quoted remark that "increased sharing by itself does not automatically mean increased competition" might provide authority for the claim advanced by Telecom in paragraphs 114-116. Breyer clearly is not denying the possibility that increased sharing of a facility such as the local loop could have a pro-competitive effect; he says only that this result will not <u>automatically</u> follow. In other words, whether mandatory sharing of certain facilities will have pro-competitive outcomes is a matter not of general principle but of the facts of the particular situation, and it is to these that Breyer directs his attention. The arena in which competition may emerge, consequent upon mandated sharing of some facility or facilities, is in "the unshared parts of the business". The "shared parts", in

Breyer's view, should be restricted to those parts of the supply chain where the case for sharing is compelling, and should not intrude upon the competitive arena. The quotation from Breyer thus concedes and supports the basic logic of the case for local loop unbundling.

The foregoing observations were possible on the basis of no more than the brief extract from Breyer's opinion contained in Telecom's paragraph 115. Turning to the wider context of Breyer's opinion (Part II of which is appended to this paper for easy reference), we find that, as with the two quotations in paragraph 115, Telecom is guilty of failing to bear in mind the context from which its quotation has been drawn. In his 1999 opinion, Justice Breyer (i) dissented from the majority view that the FCC had power to lay down detailed terms and conditions for access to, e.g., unbundled local-loop facilities, and then (ii) discussed at some length the rationale for the three key pro-competitive interventions of the 1996 Federal Telecommunications Act, reaching the conclusion that in its rule-making endeavours the FCC had sought to extend the scope of unbundling beyond reasonable limits, and therefore had stepped outside the mandate of the statute.

Telecom has lifted the quotation in paragraph 116 of its submission from a passage at the bottom of p.19 of Breyer's opinion. Breyer has by this stage acknowledged the intent of Congress to "introduce competition into local markets by removing legal barriers to new entry, by requiring interconnection, by requiring incumbents to sell to potential retail competitors at wholesale rates, and by requiring the sharing, or 'unbundling', of certain facilities." (Breyer p.18).

Having accepted in principle the basic pro-competitive aim of regulatory unbundling (and in the process stranded Telecom's notion of some necessary tension between regulation and competition *per se*) Breyer then sets out at some length the practical considerations that should determine the extent and scope of unbundling. His central point is uncontentious: the further up or down the supply chain the unbundling process is carried, the greater the prospect that the costs may rise to outweigh the benefits. The starting point for this argument is that there is some optimal limit to unbundling, and that unbundling should be carried to this limit but not beyond it.

As Breyer puts it (p.20)

> the statute's unbundling requirements…. require balance. Regulatory rules that go too far, expanding the definition of what must be shared beyond that which is essential … risk costs that … may make the game not worth the candle…..
>
> … A totally unbundled world – a world in which competitors share every part of an incumbent's existing system, including, say, billing, advertising, sales staff, and work force (and in which regulators set all unbundled charges) – is a world in which competitors would have little, if anything to compete about.

Breyer raises no objection to unbundling per se, nor does his discussion refer at any point to any inherent "tension between regulation and competition". His concern is that in determining which facilities are to be unbundled, the regulator must bear in mind that the object of the exercise is to promote competition in parts of the supply chain that remain "unshared", and that the positive effect of regulation on competition when unbundling is confined within appropriate limits will tend to switch to negative effects when those limits are overstepped – with the extreme situation being that of complete unbundling where no arena for competition remains. On these grounds Breyer rejected the judgments made by the FCC in drafting its Rule 19 in drawing the boundaries for unbundling, and agreed with the majority in overturning that particular Rule.

Nothing in Breyer's opinion supports Telecom's proposition that an inherent tension exists between regulation and competition. His position, on the contrary, is more consistent with the proposition that well-designed regulation within sensible limits has positive, not negative, implications for competition. The Commerce Commission's draft determination, which carefully delimits the scope of assets to be unbundled, appears to me fully consistent with the ground-rules laid down by Justice Breyer, and I doubt that he would find fault with the Draft Decision on this count.

In general it is not clear to me that any substantial or coherent argument is to be found in paragraphs 114-116 of Telecom's submission. The intent appears to be merely rhetorical – to impugn the image of regulation as an instrument of the public good, without offering any substantial grounds for rejecting the mainstream proposition that regulation should and can be deployed to correct for market failure, and that in such situations the issue is getting the mix of regulation and competition right - not any inherent "tension" between them.

Telecom may, of course, be advocating the complete abandonment of all regulatory intervention on principled grounds – for example (as foreshadowed in Telecom's paragraph 5, discussed previously) by arguing that regulated local-loop access is incapable in principle of opening the way to "true" competition. This view, while undeniably sometimes encountered in the economic literature, does not command majority (or even significant minority) assent within the economics profession, and has been implicitly rejected by the New Zealand Parliament in passing both Part IV of the Commerce Act 1986 and large parts of the Telecommunication Act 2001. The legitimacy of regulation as a means of correcting market failure and promoting competitive rivalry in provision of telecommunication services ought not to be at issue in the present inquiry.

4. Appropriate Assumptions on Productive Efficiency

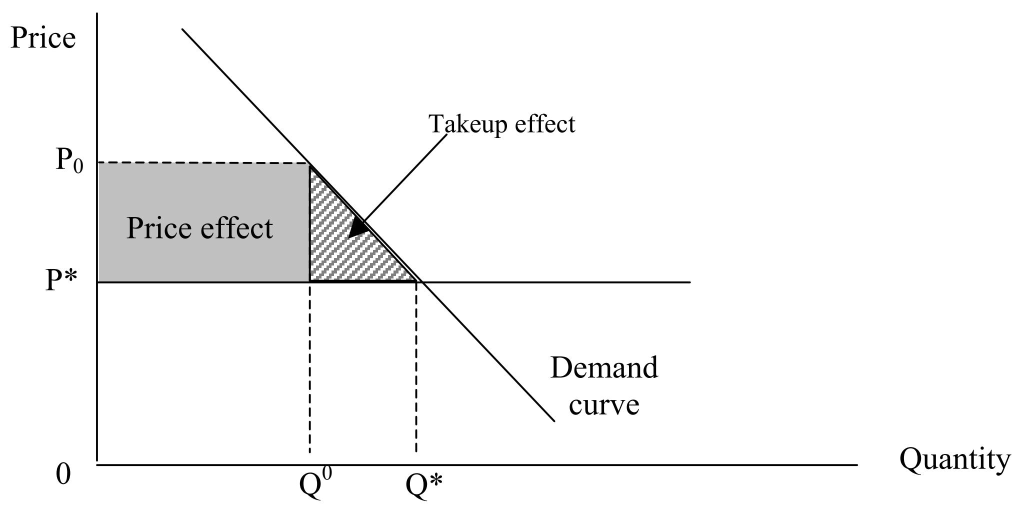
TelstraClear has asked me to comment on section 3.8.3 of CRA's *Economic and Technical Critique of the OXERA Unbundling Cost Benefit Analysis*. This forms part of section 3.8 of that document, where CRA addresses the productive efficiency estimate used by OXERA. In section 3.8.3 CRA argues against OXERA's assumption that "Telecom would be subject to significantly greater productive efficiency pressures under unbundling than under the counterfactual". The CRA view is that this is incorrect, and section 3.8.3 sets out the grounds for this view. CRA proposes that local loop unbundling would reduce, rather than increase, Telecom's productive efficiency.

Since CRA's criticisms, and my own comments on those criticisms, relate specifically to the OXERA modeling exercise, I first review key aspects of the model.

4.1 Preliminary Remarks on the Model Setup

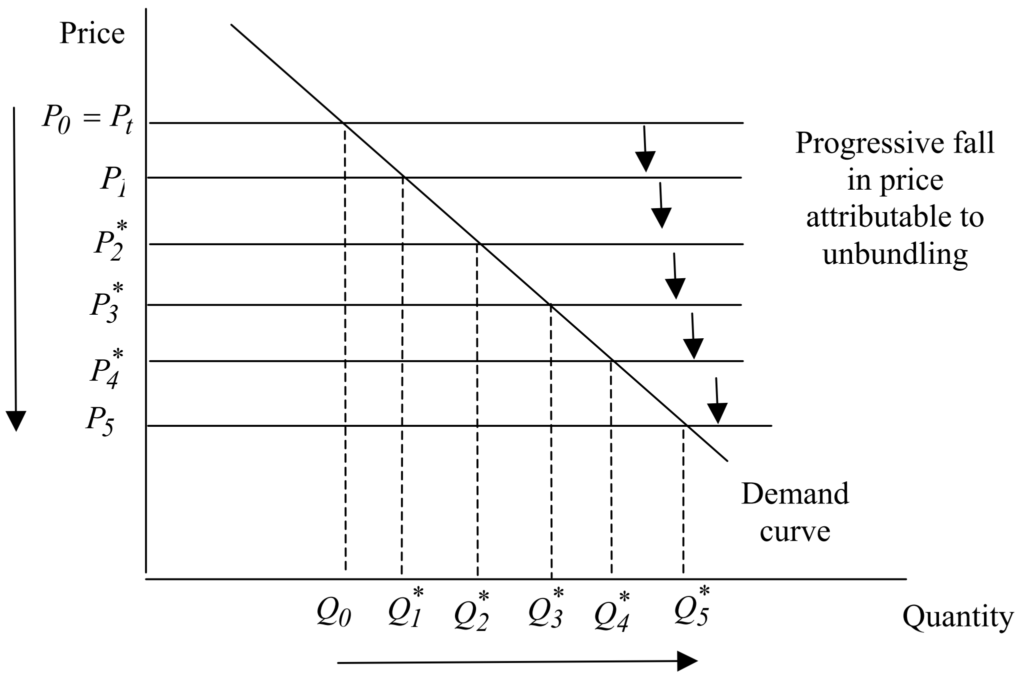
To set the scene for the discussion which follows, I reproduce the diagrammatic version of the model used by OXERA and summarise my understanding of the way in which the issues at stake in the LLU inquiry relate to this model.

Figure 1 of the OXERA Report



The market price for the relevant service or bundle of services is initially P_0, and the impact of local-loop unbundling is assumed to be pro-competitive, such that the price is driven down to P*. The entire price fall (P_0 - P*) is attributed to "productive efficiency" gains, which appear to include both savings in the resource costs of operating the supply system and compression of the margin over average operating cost currently being recovered by the incumbent. OXERA has assumed that these productive efficiency gains accrue at a rate of 3% per year relative to the counterfactual, such that P* can be shown as shifting through time as shown in the diagram below (time subscripts are applied to P* to represent the five years following an unbundling decision by the regulator).

The downward trend in price implies a steadily-increasing area of both the price effect and the takeup effect in successive years; OXERA has converted this sequence of values to a present value by a standard discounting procedure.



The analysis is conducted on a *ceteris paribus* basis; that is, all the model parameters and variables other than those directly determining (i) productive efficiency and (ii) the exogenous shift of the demand curve period by period are held constant over the period analysed. In this sense the exercise is basically comparative statics, notwithstanding the fact that the productive-efficiency-based price follows a dynamic path through time.

Two likely trends which would be predicted to follow unbundling are therefore suppressed for the purpose of the main analysis. These are

(i) the secular path which the actual market price of local-loop service would have followed under the counterfactual, and

(ii) the direct impact on both the factual and counterfactual cost-related prices P_t^* and P_t of dynamic efficiency trends - both the exogenous time-trend if any, and the change (positive or negative) in the rate of dynamic efficiency gains attributable to unbundling, which come to bear on the supply cost of local-loop service[15].

By holding both of these fixed, OXERA has made its analysis simple, transparent and readily-understood - major virtues in an exercise of this kind. Unless the pre-existing secular rate of technical progress on the local loop (the trend reduction in operating costs) is slowed rather than accelerated by unbundling, the procedure will yield conservative results, whence the Commission will be on safe ground in using, as one input to its decision, OXERA's quantitative results from its calibrated model, since the Commission will in that case not be faced with any prospect that OXERA's estimate of the gains from unbundling may be overstated due to the way the model has been specified. (This is reinforced by the observation that OXERA's analysis has not extended to the spillover benefits from local-loop unbundling for the cost and quality of the telecommunications service delivered to end-users.)

OXERA's $\left(P_0 - P_t^*\right)$ procedure for calculating the vertical height of the two effects (the price effect rectangle and the takeup effect triangle) will yield lower-bound (conservative) estimates of the actual welfare gains from unbundling, provided that unbundling itself is not expected to <u>slow down</u> any already-existing exogenous secular time-trend of productive efficiency gains being passed into prices by Telecom. Provided this is the case, OXERA's procedure of assuming a constant counterfactual price (simply holding $P_0 = P_1 = P_2 = P_3 = P_4 = P_5$ when modeling the counterfactual) will give a lower-bound result for the price effect and the takeup effect for two reasons, which I shall now outline.

First, note that OXERA calculates both effects on the basis of the volume of demand in each period and the gap between the factual and counterfactual prices. That price gap is calculated as a percentage deviation of the factual from the counterfactual. If the analysis were to be conducted incorporating a downward secular time-trend for the counterfactual price, from which the factual price would then differ in each successive year by the cumulated percentage deviations that have accrued at the assumed rate (3% per year in OXERA's central scenario), then in each year the price-effect rectangle would be expanded, relative to OXERA's basic model, by the increasing takeup of service as both factual and counterfactual cases move down the demand curve (which itself in addition moves out by some calibrated amount each period – an effect which has been incorporated in OXERA's model). By shifting the entire analysis further down each period's demand curve than OXERA has assumed, such incorporation of a secular downward exogenous price trend into the analysis would yield for each period a larger price effect than OXERA has calculated, because in each period the relevant rectangle will be wider, and its area will consequently be greater, provided only that the elasticity of demand exceeds some (very low) critical value[16]. I have not calculated that value for the purposes of this commentary, but my

15 Note that there are a large number of other dynamic efficiency gains for end-users which are expected to accrue from unbundling but which lie outside the scope of the OXERA model altogether, since, for example. the model does not explore the increased variety and quality of services that are expected to emerge once unbundling increases the incentives for new entry by providers of those new services.

16 Technically, the issue here is that by calculating the factual price as a percentage deviation rather than an absolute dollar amount, OXERA has constructed a model in which the absolute distance $\left(P_t - P_t^*\right)$ will be

impression is that this condition is easily satisfied by the elasticity values in the various reports on the public record. (For the purposes of this discussion I have assumed, as do other commentators, that the demand curve is linear and hence that the width of the takeup-effect triangle is not sensitive to any exogenous time-trend of the counterfactual price which bounds the triangle at its upper apex.)

Second, insofar as unbundling has a positive effect on the rate of dynamic efficiency improvement, the "true" factual price will fall more rapidly, relative to the counterfactual, than OXERA has modeled. The effect will be to increase both the price effect and the takeup effect relative to OXERA's calculations, since the price in the factual scenarios will fall more rapidly than it does in the basic model, whence the price effect and takeup effect for each period into the future will be larger than those actually calculated by OXERA, and hence the present value of unbundling will be greater.

Before concluding this review of the OXERA model I would note that the same framework could usefully have been applied to the wider market for telecommunication services, rather than just the local-loop component of that wider market. In that case the relevant price would be the final price of a selected service or bundle of services to end-users, and the downward trend of that price over time relative to the counterfactual would incorporate spillover gains from unbundling, in the form of the productivity gains in the competitive "unshared" levels of the industry due to the increased opportunities and sharper competitive incentives faced by both Telecom and its competitors as a result of LLU. I would expect the numerical gains from unbundling that would emerge from such an analysis would be considerably larger than those secured by OXERA's analysis of the local loop in isolation. Thus even a successful attack on OXERA's numerical results, resulting in negative rather than positive outcomes from the narrow model, need not threaten the validity of the Commission's judgment in favour of unbundling as being likely to yield long-run net benefits for consumers.

I turn now to consider CRA's critical comments on the assumptions made by OXERA in relation to productive efficiency.

4.2 Comments on CRA's section 3.8.3

In this part of its report, CRA argues that OXERA is wrong to assume that unbundling will have the effect of forcing Telecom's local loop operating costs down, relative to the counterfactual, by 3% per year. Certain parts of CRA's critique relate to the technical derivation of the 3% figure itself (paragraphs 142-143, 145-150), and I have no comment to offer on these passages as I have not had the opportunity myself to carry out the necessary research.

In paragraphs 144, 150, and 152-155, CRA addresses directly the theoretical possibility that unbundling might have a negative rather than a positive effect on Telecom's productivity. If there

smaller in the presence of an exogenous cost/price trend than in its absence; this reduction in the vertical height of the price-effect rectangle will however be small relative to the increase in the width of the rectangle, so long as the elasticity of demand exceeds the critical threshold referred to in the text.

were good reason to accept this outcome, then in the OXERA model described above the cost-related price in the factual case would rise rather than fall following unbundling, whence both the price effect and the takeup effect would be negative rather than positive.

A number of arguments are advanced by CRA in an attempt to persuade the Commission to expect such an outcome. I review these arguments in the order in which they appear.

In paragraph 144 CRA presents the interesting proposition that "liberalisation" and "privatisation" generally have a positive impact on productivity but that unbundling should be expected to have a negative effect simply because it is "the reverse of liberalisation" – "it would be a form of *reregulation*, and therefore we would expect it to result in negative productivity gains". The theme is repeated in paragraph 150, which draws a supposed contrast between privatisation and liberalisation, on the one hand, versus "the introduction of regulated competition, as the Commission is considering here". I have three comments to make on these two paragraphs.

- First, much of the force of CRA's paragraphs 144 and 150 seems merely rhetorical, a play on words which seeks to capitalise on some presumed innate hostility to regulation (and hence "reregulation") on the part of the reader, without regard to the actual merits of particular policy interventions. Such an essentially ideological approach to economic analysis is better fitted to the political platform and the debating forum than to the context of a regulatory inquiry.

- Second, I do not believe that economic theory provides any justification for the generalisation which CRA appears to be proposing, that regulation in and of itself leads to negative productivity growth. This issue is ultimately an empirical one, to be discussed in the light of experience, and at the same time a matter of good regulatory design (to ensure that the incentives created by regulatory intervention encourage productivity improvement rather than sheltering or rewarding managerial slackness).

  The empirical evidence is not conclusive one way or the other – nor should we expect it to be. The literature contains case-study examples of industries which have exhibited both positive and negative productivity changes in response to regulatory intervention, and there has been extensive work done by economists – both theorists and applied practitioners – to identify and implement regulatory structures which provide appropriate incentives to market participants. Local loop unbundling is one of the recommended regulatory practices that have emerged from that research programme. Although the central arguments for LLU revolve around wider (spillover) productivity gains for the industry as a whole rather than effects on the productive efficiency of the local loop segment itself, LLU is widely regarded as one of the most incentive-compatible ways to achieve that wider goal of rapid technical progress in the telecommunications sector.

  "Incentive compatibility" here means that, <u>relative to other means of seeking to achieve the same goal of industry-wide dynamic efficiency</u>, LLU holds out in principle a good prospect of securing access to customers for a diverse range of service providers, without creating any necessary incentives for the loop owner to become lazier than it would otherwise have been in implementing cost reductions in its business.

- Third, CRA's characterisation of local loop unbundling as "reregulation" and as "the reverse of liberalisation" raises substantial questions about the criteria that should appropriately be used to classify various policy interventions aimed to modify the structure of markets in which competition is limited. The basic point here is that a classification of policies along the "regulation/deregulation" spectrum does not map easily across to policy outcomes on a "pro-competitive/anti-competitive" or "pro-productivity/anti-productivity" dimension. Unbundling is not obviously correctly described as "reregulation"; it can as easily be classified (and indeed is often so described) as an example of "deregulation" (removal of barriers to entry which were previously shielded by regulatory protection). Semantics aside, the underlying issue here is whether there is any principled basis for supposing that certain policy instruments are universally associated with either positive or negative outcomes.

  I have already referred to the work of Kahn to illustrate the point that, although it is easy to find real-world situations where regulatory intervention limits competition, so that deregulation is "pro-competitive" in the sense of releasing market participants from constraints on competitive behaviour; it is equally easy to find real-world situations where the absence of regulation allows competition to be stifled by monopolistic practices and behaviour. Given the diversity of problems that are addressed by "regulation" and by "deregulation" in the real world, there is no reason in theory or principle to predict that "deregulation" is necessarily pro-competitive or that "regulation" and "reregulation" are necessarily anti-competitive. Insofar as it rests upon such a naïve and mechanistic pairing, CRA's approach in paragraphs 144 and 150 is open to the suggestion that it embodies a simplistic world view far removed from the actual range of problems confronted by competition law and policy in countries such as New Zealand.

In paragraphs 152 - 154, CRA turns to a more sophisticated and constructive approach to the issue of the productivity effects of unbundling.

- In paragraph 152 CRA lists six reasons for believing that Telecom is already so productively efficient in its local-loop operation that no amount of regulatory or competitive pressure could be expected to squeeze out any further cost reductions. In paragraph 153 CRA argues that one of these pressures – free dial-up combined with facilities-based broadband competition - gives Telecom adequate cost-cutting incentives to ensure that its local loop business carries no fat in the counterfactual, whence it would follow that the factual cannot exhibit lower costs.

- In paragraph 154 CRA advances five reasons for expecting that unbundling might actually increase the operating costs of Telecom's local loop.

- In paragraph 155 CRA states that in its view, the overall effect of the factors outlined in the preceding three paragraphs would be to lower Telecom's productivity and hence increase the cost of the local-loop component in the prices paid by end-users for final services.

4.2.1 "Reasons why Telecom should be considered productively efficient without unbundling"

In paragraphs 152 and 153 CRA sets out six grounds on which it claims the Commission should accept that Telecom is and will remain fully productively efficient even without unbundling. With no room remaining for further cost reductions, there could be no prospect that the pressures on Telecom management resulting from unbundling could drive down operating costs, and hence the charges for use of the unbundled loop, any further. Hence the benefits from unbundling (if any) must lie elsewhere than in the direct cost (hence price) of local-loop service.

The arguments advanced fall into two groups. First, CRA argues that merely by virtue of its privatised status, Telecom should be presumed to be fully productively efficient. Second, CRA lists various competitive pressures of the sort commonly encountered by the management of commercial operations in any competitive market, and asserts that these competitive pressures give assurance that Telecom's operating costs are at all times at fully efficient levels.

The specific processes listed in the last five bullet points of paragraph 152 seem uncontentious. Telecom does indeed purchase its technology in a competitive global marketplace, outsource the provision of much investment, face uncertainty about the intensity of future technology-based competition, have incentives to grow its market by price reductions, and have incentives to persuade existing customers to move up to from free dial-up to more expensive broadband by narrowing the price/quality gap between the two.

A recurrent theme in the economic literature, however, is that there is widespread empirical evidence of productive inefficiency occurring in firms which operate in competitive markets (let alone monopoly markets) and face comparably strong incentives to cut costs. The familiar principal-agent problem revolves around the incentives for management to increase (or fail to reduce) costs when it would be in the interests of shareholders to see costs reduced. CRA offers no evidence that Telecom has been uniquely successful in solving its principal-agent problem, nor that it has exhibited unusually strong responsiveness to the sort of competitive pressures commonly encountered in most marketplaces (all the more so given that Telecom faces limited competition in many of its markets). Consequently it is not at all obvious that the various pressures enumerated by CRA suffice, in and of themselves, to guarantee that Telecom has no unexploited opportunities for cost reduction.

The equation of privatisation with productive efficiency (the first bullet point in CRA's paragraph 152) is a proposition of an entirely different type. What appears to be suggested is that the fact of privatisation in 1990 in some way rendered Telecom more effective in cutting its costs to the bone than other companies which were already private prior to 1990 and which have never been through a privatisation process. Some suspension of disbelief is required to accept such a proposition. Privatisation was promoted in the 1980s as an appropriate policy response to perceived inefficiencies in the old state-owned sectors of the New Zealand economy, but it would be truly extraordinary if the legacy of decades of previous history could be shed so quickly that within two years (cf CRA's footnote 47) no fat remained. Such a proposition is even less credible in the context of an entrenched monopolist, as Telecom was at that time, vigorously defending its privileged inherited position in the New Zealand market against would-be competitive entrants.

The long record of Telecom's vigorous self-interested participation in both litigation and regulatory proceedings[17] does, however, draw attention to the fact that in both OXERA's report and CRA's critique the costs of such activities are included as operating costs of the business, whence Telecom itself has substantial leeway to increase or reduce its own operating costs by selecting an aggressive or accommodating strategic stance vis-à-vis the ongoing efforts of policymakers to deregulate its market environment to strip Telecom of various protections which have to date shielded its inherited market share and market power.

4.2.2 "Reasons why we might expect unbundling to reduce productive efficiency"

In its paragraph 154 CRA turns to five reasons why unbundling might increase Telecom's irreducible level of operating cost. Most of these are familiar from the economic literature on costs of regulation, and provide an interesting agenda for empirical research (which CRA has conspicuously not presented in the report reviewed here).

First, CRA alludes to the effects of free-riding on Telecom's incentive to introduce cost efficiencies as these become feasible with technical progress. This is a familiar problem which would have to be addressed in the design of any regulated price for local-loop service, since provision would need to be made for Telecom to recover quasi-rents sufficient to incentivise productivity improvements. In raising the issue in the present context CRA seems to be implicitly arguing that the Commerce Commission is incapable of designing an appropriate local-loop price.

Second, in the same first bullet point CRA argues that absent unbundling, "Telecom would no longer be subject to the same risk of bypass or network competition" and hence would have less sharp competitive incentives to cut its own costs to meet the competition. However, given the monopoly status of Telecom's local loop in a large proportion of the New Zealand geographical market, it is not at all evident to me that withholding unbundling would have any significant influence on the direct competitive pressures on Telecom to raise its productive efficiency. This issue requires more thorough treatment than CRA has provided; without such in-depth analysis, it is not at all clear what expectation should reasonably be formed.

Third, CRA argues that unbundling damages the integration of networks and reduces existing economies of scope because of the need to insert additional interfaces. While this is clearly possible, no evidence is presented of the likely empirical scale of the issue in the Telecom case, nor does CRA explore the question of exactly which new interfaces will be required at which points of the network. It is obvious, as a matter of theory, that unbundling can potentially be carried too far and can thereby result in degradation of service through network fragmentation.

17 I note from paragraph 74 of Telecom's submission that it is currently spending $17m per annum on regulatory matters, which would be well in excess of the comparable expenditures of all the rest of the industry in aggregate.

But it is not at all obvious that the particular unbundling prescription contemplated for Telecom by the Commerce Commission will have that result. The Commission seems to have gone to considerable lengths to ensure that interfaces are located at the extremities of the local loop rather than deep within it, and that the associated costs are borne by the new-entrant users of the loop. Under those circumstances, I would suggest that the burden of proof lies with those who assert that the consequences are necessarily destructive of productive efficiency on the network.

Fourth, CRA cites overseas evidence of production and transaction costs arising from unbundling. I am not in a position to comment on these, other than to note that overseas regulators appear to have addressed these issues and to have satisfied themselves that the problems encountered (especially in the transitional stage immediately following unbundling, while new industry protocols and contract structures evolve) do not suffice to invalidate the initial decision to unbundle. It is, nevertheless, obviously possible that unbundling could unleash major transaction costs in New Zealand, especially if Telecom itself opts for a business strategy premised on obstructing the purpose of the legislation by raising the costs of its rivals through vexatious litigation and refusal to deal on a reasonable basis.

This brings me to the fifth point raised by CRA: that the regulatory process itself, and the resolution of disputes, may increase the costs faced by the industry. The difficulty this raises is that Telecom itself is in a position to degrade its own productive efficiency by incurring high costs to undertake various rent-seeking behaviours, the effect of which would be to reduce competitive pressures on Telecom itself and hence potentially to result in negative spillovers back onto Telecom's underlying productive efficiency. The essential circularity of the productive-efficiency issue which this reveals makes it all the more important that the Commission either enlists Telecom's wholehearted collaboration in the implementation of unbundling, or ensures that rigorous and effective sanctions are put in place to deter and if necessary punish wasteful rent-seeking behaviour.

Finally, CRA points to alleged difficulties surrounding the setting of network standards and the coordinated management of network operation. It may be possible, as CRA suggests, that the adoption of uniform network standards on a monopoly Telecom local loop might obstruct innovations based upon incompatible standards, and hence could reduce industry-wide productivity relative to the counterfactual. (Most of the anticipated technical innovations appear to involve innovation on the loop, rather than in the loop.) What CRA omits to discuss is the point that unbundling does not foreclose the option of facilities-based competition. Where major advances are feasible on a competing facility but are foreclosed from Telecom's local loop by some existing network standard, there is quite likely to be a commercial incentive to install a competing facility.

It is, after all, no part of the case for unbundling that it forecloses the possibility of facilities-based competition. Rather, unbundling finesses what would otherwise be wasteful (as distinct from worthwhile) duplication of facilities. It is therefore not clear to me that this last point raised by CRA translates to any expectation of a lower rate of technical progress under unbundling than would have occurred where facilities-based competition was the only option. So long as facilities-based competition remains an option, the introduction to the market of new competitive network standards should proceed at much the same pace under either factual or counterfactual scenarios.

5. Redistribution of Surplus to Consumers as a Benefit

5.1 The Main Issue

In Chapter 5, section 5.1 of its submission, paragraphs 571 to 599, Telecom addresses the issue of wealth redistribution that may result from any price drop caused by unbundling. A parallel discussion is contained in the CRA report section 3.3.

The issue here is OXERA's quantification of the benefits of unbundling as the sum of the price effect and the takeup effect, and the Commission's adoption of the resulting quantitative estimates. Conventional welfare economics, and most regulatory agencies around the world, are in agreement that insofar as the analysis is directed to the welfare of consumers, the approach taken by OXERA is the appropriate one. The argument advanced by CRA and Telecom is that society as a whole is (or should be) indifferent as to who gets the rectangle of income represented by OXERA's price effect, and that the Commission should accordingly ignore that transfer in reaching its conclusions.

There are two aspects to this wide-ranging debate (which has been running in New Zealand and Canada for the past two decades since both countries introduced, respectively, the Commerce Act 1986 and the Competition Act 1986). The first is a debate in economic principle over whether and when different weights should be accorded to the interests of producers and consumers when evaluating whether wealth transfers are good or bad. The second is a legal debate over the proper interpretation of the relevant statutory language.

Both CRA and Telecom appeal to a supposed "conventional approach" to the treatment of transfers. CRA, in its paragraph 80, for example, argues that "the conventional approach … is to focus on net efficiency gains accruing to society as a whole rather than the consumer surplus. The rationale behind this is that over the long term end-users benefit from <u>any</u> increase in economic efficiency regardless of to whom the gains initially accrue…"

This substantially misrepresents the issue. CRA is here claiming that no distinction can be drawn between the interests of consumers as a group and the interests of the nation as a whole, and this is certainly not a conventionally-accepted position. Nor is it likely that, either as a matter of fact or as a matter of principle, the interests of consumers and those of society at large converge in the long run in such a way as to leave society indifferent about monopoly rent transfers.

In undertaking any cost-benefit exercise, an economic analyst must start by adopting some well-defined target group to which the measured costs and benefits are to accrue. If the analyst's client is a single firm, then the cost-benefit analysis will evaluate the net gains to the firm itself from some course of action relative to the alternatives. If the analysis is conducted from the standpoint of society as a whole, then a wider set of considerations come into play, and some rule of thumb must be used to deal with the thorny issue of how to weigh up the gains and losses of the various individuals or groups of which the society is made up (this is usually referred to as the issue of distribution). If the analysis is conducted from the standpoint of consumers as a group, then the costs and benefits to be considered will be those which are of clear relevance to consumers, as distinct from society as a whole.

In stating that it is "conventional" to focus on gains and losses to society as a whole, rather than on those for consumers as a group, CRA stands the true position on its head. The fact of the matter is that when cost-benefit is conducted from the social standpoint, then it is conventional to focus on society's gains and losses, whereas when analysis is conducted from a consumer standpoint, it is conventional to focus on consumers' interests. (I here use the word "conventional" to refer to the common practice of the economics profession around the world over the past several decades.)

CRA's paragraph 80 endeavours to conflate consumer-focused analysis into social analysis by alleging that in the long run the interests of consumers cannot be separated from those of society as a whole, whence a transfer from consumers to producers is neutral in its implications for social welfare. This argument is immediately recognisable as the so-called "total surplus standard" or "total wealth standard" which has been vigorously promoted by economists of the Chicago School since it was advanced in the classic books by Bork[18] and Posner[19].

The applicability of this standard even to antitrust regulation of mergers (its usual field of application, where it forms part of the so-called "efficiencies defence") has been hotly contested in law and economics over the past three decades, and the Chicago position has failed to gain acceptance in the courts of any major jurisdiction to date. Nor has the pure total surplus standard been explicitly written into the competition legislation of any country known to me. Extensive argument before the Canadian Federal Court of Appeal in the recently-decided *Superior Propane*[20] case resulted in clear rejection by that court of the Bork/Posner position and interpretation of the Canadian statute as requiring the analyst to take specific account of the identities of the various parties to any transfer, and to weight them according to some clear and explicit set of criteria. The *Superior Propane* precedent, combined with the 2001 amendment of New Zealand's Commerce Act to include explicit reference to the interests of consumers in the long title of the Act, seems to me to render entirely incorrect CRA's suggestion that there exists some clearcut "conventional" warrant for rejecting OXERA's measurement methodology.

OXERA's cost-benefit analysis was premised on the identification of end-users as the party whose interests are to be advanced by the Commission under the Telecommunication Act 2001. Therefore all costs and benefits were evaluated from the end-user standpoint, and the final quantitative estimate of net benefit appropriately aggregated the price effect and the takeup effect. This is an entirely conventional cost benefit approach provided that it can be established that end-users are indeed the appropriate target group whose welfare is to be advanced.

18 Bork, R. *The Antitrust Paradox: A Policy at War With Itself*, Basic Books, New York, 1978.
19 Posner, R. *The Economics of Justice*, Harvard University Press, 1981, Chapter 4.
20 *Canada (Commissioner of Competition) v. Superior Propane,* 2001 CarswellNat 702 and 2003 FCA 53.

The Commission has decided that section 18 of the Telecommunication Act 2001 is properly interpreted in this light. That section certainly, on the face of it, identifies end-users as the target group. "The long-term benefit of end-users" would be an odd expression for Parliament to use if in fact it meant the long term benefit of society at large. The obvious comparison is with s.52(b)(i) of the Commerce Act 1986, under which the Commission's decision on whether to regulate an activity referred to it by the Minister is to hinge on "the interests of persons acquiring the goods or services". (The Commission's recent recommendation that certain airfield activities at Auckland International Airport be controlled was based upon a consumer-focused analysis under that section.)

Other sections of the Commerce Act clearly and explicitly direct the Commission to evaluate "benefit to the public" rather than benefit to consumers. The main examples are s.61(6) relating to the authorisation of restrictive trade practices, and s.67(3)(b) relating to authorization of mergers or acquisitions. In those cases the Commission undertakes a "public benefit test", in the design of which it is necessary to adopt some rule of thumb in relation to the distribution effects of wealth transfers. In the treatment of those effects it is correct that for the past eight or nine years the Commission has adopted the practice of assuming transfers to be neutral from the public-benefit point of view, and this assumption was explicitly set out in the Commission's *Guidelines to the Analysis of Public Benefits and Detriments* issued in 1994 and updated in 1997. As both CRA (footnote 29 p.28) and Telecom (paragraph 576) acknowledge, those Guidelines have been withdrawn recently (since passage of the 2001 amendment to the Commerce Act which wrote an explicit reference to the welfare of consumers into the long title of the Act). The Commission's website states that those Guidelines "no longer represent the Commission's view". This may well indicate that the Commission intends to revise its approach to distributional weighting in its cost-benefit analysis of mergers and restrictive practices.

Whether or not that is the case, the local loop unbundling inquiry clearly does not fall under the Guidelines, because the analysis involves not a public benefit test but an end-user-focused test, comparable to the consumer-welfare test required by s.52 of the Commerce Act. Furthermore, the activity to be regulated is neither a merger nor a restrictive trade practice (on the contrary, the regulatory intervention is proposed to facilitate, not restrict, trade). As Telecom acknowledges in footnote 81 p.125 of its submission, s.52 of the Commerce Act has always stood as a clear exception to the Commission's practice of treating wealth transfers as neutral under sections 61 and 67. Telecom in that footnote seeks to distinguish s.52 of the Commerce Act from s.18 of the Telecommunications Act 2001, on the grounds that the latter is not explicit about the target group whose welfare is to be advanced; this argument appears utterly inconsistent with the words of the Telecommunications Act which refer clearly and explicitly to "end-users".

CRA's paragraph 80 offers the proposition that "it is not possible to determine the long-term incidence of consumer and producer surplus" and that therefore it is incorrect (or at least "unconventional" in CRA's terminology) to conduct a consumer-focused analysis rather than a public-benefit analysis when analyzing LLU. This raises the issue of what exactly is meant by the expression "long term" or "long run". It is important not to confuse the long run with a time period far in the future, so that present-day market participants do not experience "long run" costs and benefits. This will be entirely incorrect if the term "long run" is interpreted to accord with normal usage in economic theory.

The "long run' in economics refers to any equilibrium configuration (for example, of prices and profit rates) that is sustainable in the face of ongoing market behaviour and competitive processes. Since long-run rents to a monopoly supplier accrue in the present as well as in the future, the benefits to consumers of regulation to drive out those rents accrue immediately and represent a long-run gain.

Hence insofar as unbundling results in an immediate and sustainable transfer of wealth from Telecom to end-users, this is a long term benefit and appropriately enters into any cost-benefit analysis under the Telecommunications Act. Furthermore, when standard discounting procedures are used to reduce the stream of those benefits to present values, immediate transfers carry greater weight than those far in the future. Hence a number of quite strong conditions would have to be met to render it "not possible" for the analyst to determine the long-term incidence of consumer and producer surplus, as CRA suggests in its paragraph 80.

Here the matter should rest, were it not for the fact that both CRA and Telecom have resorted to a mass of detailed submissions in an attempt to relitigate the Commission's correct treatment of wealth transfers in the LLU context. Most of these detailed submissions are irrelevant to the LLU issue and relate to the pursuit of wider agendas, or represent an attempt to confuse the LLU debate by dragging in controversial issues from other, unrelated, arenas of Commerce Commission activity.

There is one substantial issue raised by Telecom in its paragraphs 597 - 598, namely whether statements made by the Commission in some documents prior to its draft determination may have established a reasonable expectation in the minds of telecommunication market participants as to the approach the Commission would adopt to wealth transfers in the local-loop context. The actual passages cited by Telecom do not seem to me to be necessarily contradictory to the Commission's eventual approach, but I have not had to opportunity to scrutinize the relevant material for the purposes of preparing this commentary. I would observe only that from the standpoint of economic analysis and the wording of the legislation, the alleged shifting of ground (if shift there has been) is readily justifiable in terms both of good analytical practice and of ample overseas precedent.

5.2 Minor Issues in the CRA Report's treatment of transfers

Section 3.3.1 of the CRA report contains eight paragraphs of little substance, which I shall deal with here simply by listing the paragraph numbers and setting out my response.

Paragraph 81

Sets the scene.

Paragraph 82

False argument. When benefit to consumers derives from a transfer, either the tax option or the regulatory option can in principle equally achieve the transfer; the precise nature of the mechanism makes no difference to the welfare evaluation, which leaves me uncertain what point exactly CRA is trying to make here. If the consumer welfare standard applies, then indeed the tax and the regulation are perfect substitutes in principle as means of transferring OXERA's "price effect" rectangle. This observation has no implications for the issue of whether the wealth transfers themselves are regarded as good or neutral. That is determined by which welfare standard is specified as the objective for the purpose of the particular analysis.

Paragraph 83

Two false arguments. The first half of the paragraph relates to the situation where the Commission has been directed to advance the interests of "society" rather than of "end-users". In the LLU case "the gain to society" is not the relevant objective, and the Commission is correct to count transfers as benefits to end-users.

The second half of the paragraph reveals conceptual confusion over the nature of the distinction between short-run and long-run, and ends weakly with the completely inconclusive suggestion that transfers from producers to consumers "may" have perverse effects at some time in the future (CRA's apparent interpretation of "long run") and that the Commission's treatment "may" be contrary to the purpose of the Telecommunications Act. In fact it is most likely that the Commission's treatment aligns precisely with the purpose of the Act.

Paragraph 84

Again, CRA argues from the false premise that the issue is benefit to "society" rather than to "end-users". With the premise corrected, the remainder of the argument fails.

Paragraph 85

Argument from a false premise, namely that "the Commission and OXERA wish to count wealth transfers as a benefit to the public of New Zealand". Neither the Commission nor OXERA do this; they have counted wealth transfers as a benefit to end-users of telecommunications services, not to "the public of New Zealand". It is not, therefore, "incumbent" on them to do any of the things CRA then lists. The apparent concession by CRA, acknowledging the AMPS-A decision, is irrelevant to the current inquiry, and there is no need for the Commission to enter into the difficult issues of "functionless rents" and foreign shares in profits.

Paragraph 86

In the context of an analysis focused on benefits to end-users from transfers, the issue of whether profits are transferred to users from domestic or foreign owners is immaterial; end-users benefit equally in either case. The question of separating-out those profits which are "functionless" does not arise, and hence presents no obstacle to the Commission's analytical approach.

Paragraph 87

Because the issue is benefits to end-users, not benefits to "firms", there is no need to discriminate between foreign and domestic firms unless there is good reason to suppose that the benefits from unbundling will fail to be passed through to (domestic) end-users. In that case the appropriate remedy would be to facilitate or enforce pass-through. No legal issue arises. The claim that "the integration of ownership criteria into the Commission's cost benefit analysis will adversely impact on foreign investment and economic growth in New Zealand" is obscure; on the face of it, it is unsubstantiated at best and simply wrong at worst. There is no reason why ownership criteria should enter into the LLU analysis as CRA appears to suggest; the issue is thus irrelevant. No "justification in economics", whatever that means, is required.

Paragraph 88

Again a paragraph set in the irrelevant framework of public benefit rather than end-user benefit. The opening sentence seems simply to miss the point of paragraph 110 of the Commission's draft report, which correctly observes that Carlton and Goddard implicitly assume long-run competitive conditions and disciplines in the relevant post-merger market – otherwise "the achievement of greater economic efficiency through the market" could not be assured, and the case for refraining from intervention would be emptied of principled content.

CRA here continues to argue from the inappropriate total surplus standard in its claim that cost savings by a monopolist are socially beneficial even if not passed through to prices (hence to consumers). CRA's attribution of a particular motive (efficiency) to regulators, to the exclusion of any distributional aim, is inconsistent with standard regulatory theory and practice worldwide.

I conclude that there is no argument of relevance or substance advanced by CRA in its paragraphs 81-88.

5.3 Minor Issues in the Telecom submission's treatment of transfers

Telecom argues that the Commission has erred in law by treating transfers of wealth from producers to consumers as a welfare gain (paragraph 572). It rejects (paragraphs 574-575) the reasons given by the Commission for doing so, and asserts that there exists a "correct", "conventional" legal approach to this issue, reflected in a series of previous decisions reached under the Commerce Act 1986 (paragraph 576). The Telecommunications Act 2001, Telecom suggests, requires the same approach as the Commerce Act (paragraphs 578-586). Various specific arguments put forward in the Commission's Draft Determination are then subjected to attempted rebuttal (paragraphs 587-596). Finally, Telecom advances an administrative-law argument of inconsistency, in that the Commission has departed from the approach signaled in its own previous statements on telecommunications regulation.

I have already noted that I cannot adjudicate Telecom's allegation that inconsistency with previous Commission statements may arise, but I have argued that the Commission is fully entitled to reconsider its position in the course of its LLU inquiry, and that the change in stance (if one has occurred) has brought the Commission closer to the apparent purpose of the Telecommunication Act 2001.

Again I address the minor detail of Telecom's submission by citing paragraph numbers and commenting as appropriate.

Paragraphs 571-572.

The so-called "well-established principle" of treating wealth transfers as neutral is more a practical rule of thumb than a basic principle, and was developed by the Commission for its consideration of mergers and restrictive practices under sections 61 and 67 of the Commerce Act 1986. Those sections involve a public benefit test, not an end-user standard. No precedent for the local-loop inquiry flows from previous practice in regard to cases under s.61 and s.67. The passage quoted from the Air New Zealand-QANTAS decision, equally, relates to a public-benefit test, not an end-user test. There is no error in the Commission's approach, nor in that of OXERA, so long as it is recognized that an end-user standard of welfare has been applied in the LLU analysis.

Paragraphs 574 and 575

These paragraphs summarise the Commission's reasoning and announce Telecom's strong disagreement.

Paragraph 576

Here Telecom asserts that "the conventional approach to conducting cost-benefit analysis under New Zealand competition law is to treat transfers as welfare neutral". This substantively misrepresents the position. The neutral approach to transfers has been applied only since the early-mid 1990s (for several years following passage of the Commerce Act 1986 the Commission continued to use a consumer welfare standard even in merger cases), and only in cases where the Commerce Act directs the Commission to adopt a public benefit approach. The 1994 Guidelines, cited by Telecom in support of its assertion, are relevant only to the public-benefit context and do not apply either to local loop unbundling analyses or to s.52 regulatory analyses.

Paragraph 577

Again the analysis in this paragraph is entirely concerned with situations where the public benefit test applies, namely mergers and restrictive trade practices. No precedent is set, or principle established, that could carry over to the LLU inquiry.

Paragraph 578

This paragraph is simply wrong. It alleges that in using the end-user standard specified by the Telecommunication Act, the Commission is in some way departing from "precedents" set under the Commerce Act in cases where different standards for welfare evaluation were provided for in the statutory language.

Paragraphs 579 and 580

The Telecommunications Act did not reverse any "orthodox approach under the Commerce Act" as Telecom alleges in paragraph 579, and hence the issue of whether Parliament intended such a reversal does not arise. The approach of the Telecommunications Act s.18 sits naturally alongside s.52 of the Commerce Act, and in 2001 the Commerce Act itself was amended to bring its long-title purpose into alignment with the Telecommunication Act's focus on end-users. The two Acts are "materially identical", as Telecom points out in paragraph 580, precisely because of this amendment. The 2001 amendment to the long title of the Commerce Act should be seen as the signal from Parliament that Telecom seeks in paragraph 579.

Paragraph 581

The public-benefits test of sections 61 and 67 of the Commerce Act, and the Commission's use since 1994 of a total-surplus standard when applying that test, does not constitute any "conventional approach" that carries over to analyses conducted under other statutory provisions such as s.52 of the Commerce Act and section 64 of the Telecommunications Act. The issue of a "departure from the conventional approach" therefore does not arise.

Paragraph 582

Telecom acknowledges that the local-loop issue may differ materially from Commerce Act authorisation applications, and cites extensively from the two statutes to show that economic efficiency is a relevant consideration in all cases. I agree with this paragraph.

Paragraph 583

Telecom seeks to elevate efficiency to the status of "the essential question" and suggests that once this is acknowledged, there is no difference between the local-loop analysis and authorization analyses under s.61 and s.67 of the Commerce Act. This could be true only if no matters other than efficiency were to be considered at all, and if the choice of welfare objective (public benefit versus end-user benefit) made no difference to the analytical results. In fact efficiency is not the exclusive goal under any of the statutory provisions, and the welfare objectives differ fundamentally.

Paragraph 584

Telecom argues that "when such issues are addressed under the Commerce Act, the legal position is that transfers are to be treated as welfare neutral". It then immediately acknowledges, by way of footnote 81, that the proposed legal precedent vanishes immediately in the case of s.52 of the Commerce Act. The same "exception" applies to the Telecommunications Act. The much-heralded "legal position" is thus specific to the context of particular statutory provisions, and cannot be mechanistically carried over to other provisions which specify different objectives.

Paragraph 585

Far from there being "no grounds for the Commission to depart from this approach under the Telecommunications Act", the preceding paragraph has conceded the grounds for doing so, namely that a different welfare standard is specified by the legislation. The Commission in fact could have no grounds for carrying-over the standard set in s.61 and s.67 of the Commerce Act to the different terms of reference provided by the Telecommunications Act.

Paragraph 586

Telecom's legislative history does not disturb any of the points already made. The convergence between the Commerce Act and the Telecommunications Act, noted in 586(a), involved a significant amendment in the long title of the Commerce Act to bring consumer interests more clearly into focus, along similar lines to s.18 of the Telecommunications Act. The "long term benefit of end-users" is not "equivalent to a net economic benefit test" (paragraph 586(b). No amount of selective quotation from officials' briefing papers can turn black into white.

Paragraph 587

This paragraph rests upon a false premise, that there are "well-established similarities between the Commerce and the Telecommunications Acts" which embody "the well-established rule that transfers are welfare neutral". As already pointed out, no such universal well-established rule exists; there is one rule for s.61 and s.67, and a different well-established rule for s.52 of the Commerce Act.

Paragraph 588

Again Telecom resorts to the false premise that there exists an "orthodox approach under the Commerce Act" from which the Commission is "departing". The "gist of the argument" that there is a concern about monopoly rents is correct and appropriately summarises the aim of the Telecommunications Act.

Paragraph 590

AMPS-A is not relevant as a precedent for the Commission's analytical procedure in the present case. It is informative as to some issues which arise under a public benefits test, and is likely to be increasingly cited in that context if the Commission moves (as I anticipate) to an explicit balancing-weights approach in future applications of the public benefits test.

Paragraph 591

Entirely irrelevant to the local loop issue. The point of this paragraph is a mystery.

Paragraph 592

Telecom notes that in its gas framework paper the Commission has indicated its intention to apply a public benefits test for its s.56 review in addition to its consumer-welfare analysis under s.52. While correct, this has no bearing on the present inquiry except to indicate that the Commission itself may be uncertain of how to undertake regulatory analysis in relation to natural monopolies, where the issue of wealth transfers is substantially more challenging than in the merger cases with which the Commission has more experience.

Paragraph 593

In the absence of unbundling regulation to date, profits have stimulated entry and innovation. This is uncontentious but has no obvious relevance. No counterfactual exercise is offered to establish whether entry and innovation have been greater or less than they would have been if the local loop had been unbundled earlier.

Paragraph 594

A convoluted argument which leaves untouched the point that the aim of the Telecommunications Act is to provide benefit to end-users.

Paragraph 595

The alleged orthodox approach does not exist; hence no frustration of the purposes of the Act is in prospect. Any statutory provision favouring the interests of consumers presumably involves some encroachment on the "property rights" of incumbent monopolists; entrenching the position of monopolists in the face of statutory provisions designed to drive out monopoly rents would, however, certainly involve frustrating the purposes of the Act.

Paragraph 596

There is no general rule that transfers are neutral, independent of the objective function specified for the cost benefit analysis. Consequently there is no departure from any established rule, hence nothing requiring "justification".

Paragraphs 597-198

As already indicated, I believe that an end-user-focused approach (which Telecom chooses to characterise as "a change" on the part of the Commission) was intended by Parliament. I would argue that the Commission's explicit adoption of a clear end-user focus in its draft determination has now brought it into line with Parliament's intentions.

Paragraph 599

Telecom acknowledges in effect that the Commission's approach in the draft determination reflects conventional practice overseas, but argues that "this cannot change the approach required by the Commerce Act and Telecommunications Acts". This statement simply avoids confronting the argument that what is required by the Telecommunication Act is in fact the internationally conventional approach, whence no "change in approach" to this Act on the part of the Commission has occurred or is contemplated.

Having completed this review of section 5.1 of Telecom's submission, I conclude that no substantive challenge to the Commission's approach has been raised other than the charge of apparent inconsistency.

6. Unbundling and the Economics Literature

6.1 Introduction

TelstraClear has asked me to comment on a recent paper by Professor Neil Quigley[21], in which he review the second of two reports by De Fontenay, Savin and Kiss (hereafter DSF)[22] which TelstraClear have included in their submission to the Commission's investigation.

In the first of its reports DSF laid out extensive arguments in favour of unbundling, on the basis of a literature review combined with its extensive practical experience as consultant to telecommunication market participants around the world. Matters of detail aside, I find the general line of argument in that paper to provide a well-grounded exposition of considerations that have led policymakers and regulators around the world to adopt, and retain, unbundling, as an integral component in their telecommunications sector reforms.

21 N. Quigley , *Review of de Fontenay, Saboin and Kiss*, submitted to Telecom New Zealand Ltd, Charles River Associates (Asia Pacific) Ltd, Wellington, 11 November 2003.

22 De Fontenay, Savin and Kiss, *Submission to the New Zealand Commerce Commission Re: Section 64 Reviews into Unbundling the Local Loop Network and the Fixed Public Data* Network, 26 May 2003; and *Reply Submission to the Draft Report of the Commerce Commission on its Investigation into Unbundling the Local Loop Network and the Fixed Public Data Network Conducted Pursuant to Section 64 of the Telecommunications Act 2001*, 28 October 2003.

In the second report, DSF expressed strong support for the Commission's draft decision to unbundle the local loop and PDN, and argued for an extension of the process to bitstream. In response, Professor Quigley has sought to rebut the DSF arguments by addressing four main issues:

- whether Telecom's vertical integration may have an efficiency justification;
- whether Telecom's vertical integration is a barrier to efficient entry by TelstraClear;
- whether there are tradeoffs among allocative, productive and dynamic efficiency which the Commission ought to consider; and
- whether the literature in microeconomics supports the approach taken by DSF.

The first three of these are issues that must be resolved ultimately by an appeal to the facts of the particular situation. Since Professor Quigley's review paper neither advances new empirical work of his own, nor enters into the modelling and measurement matters dealt with extensively by CRA and others elsewhere in the record of this investigation, I shall focus mainly on the last of his four bullet points.

I should note at this point that I believe that it is likely that there will be tradeoffs to be confronted by the Commission, and that it is useful to have these clearly exposed. I do not think, however, that the trade-off question can be resolved on an *a priori* basis. I agree with Professor Quigley that tradeoffs are to be expected, but I disagree both with his principled argument from property rights and with his apparent presumption that the net dynamic efficiency effects of unbundling must be negative. I think that the dynamic effects could go either way in theory, that DSF are perfectly entitled on the basis of their own experience of the industry to express a judgment that dynamic effects will be positive, and that Telecom, in its submissions, has failed to strike an appropriate balance between the potentially positive dynamic effects of unbundling on the investment and innovation decisions of new entrants, on the one hand, and possible negative consequences for the incumbent on the other.

6.2 Microeconomic Theory

In this section I discuss what I take to be Professor Quigley's argument that the literature in microeconomics provides no support for unbundling in principle, and indeed predicts only efficient outcomes from vertical integration.

If it were the case that a consensus in the literature authoritatively rejected, at theoretical level, the possibility that vertical integration by an incumbent telecommunications supplier could ever block efficient competitive new entry into downstream markets, then indeed much of the work undertaken in the course of this investigation would seem redundant. It would be a mystery why Parliament even asked the Commission to consider the matter - unless we accept the suggestion that (as Professor Hausman argued in his appearance before the Commission on 11 November) the sole motivation for policymakers around the world to mandate unbundling lies in "political" considerations related to the self-interest of policymakers themselves, and has no basis in economic principles or in service to the long-term interests of consumers.

On the basis of my own knowledge of the microeconomics literature, I do not accept Professor Hausman's apparent position that policy decisions on unbundling in the US, Europe, Australia and elsewhere have been made in defiance of an established professional consensus among economists that either relevant microeconomic principles, or strong empirical evidence, reject unbundling as an instrument of pro-competitive regulation.

I agree with Professor Quigley that it is important for the Commission to be aware that there has been extensive and often heated debate on the issue in the profession over the past two decades. However, in my opinion his review paper fails to illuminate that debate, and focuses to an undue extent upon one particular hypothetical proposition – that "a firm may only take its monopoly profit once" – which (i) used to appear regularly in the economics literature, particularly prior to the mid-1990s, as the conclusion from a comparative-static analysis resting upon very restrictive assumptions about the conditions under which vertical integration is hypothesized to occur; (ii) does not hold in a world of strategic behaviour; and (iii) has been set aside by a large number of respected economists in the literature of the past decade.

It is ironic, given the emphasis which Telecom and CRA have placed upon the importance of dynamic analysis and the inadequacy of simple static analysis, that Professor Quigley should put forward, as his central argument in response to DSF, a comparative-static result from a simplified model of vertical integration which assumes away investment, innovation, productive inefficiency, and strategic behaviour, and which is associated with only one single strand (the "Chicago School" approach to vertical integration flowing from classic work by Bork[23]) in a diverse, lively and ongoing theoretical debate. Leading participants in that ongoing debate include the authors cited by Professor Quigley – Salop, Riordan, Tirole, Sidak, Teece. Professor Quigley's review, unfortunately, does not do justice either to the contributions of those authors, or to the character and present state of the debate.

A case against unbundling in telecommunications was extensively laid out in a series of major papers in the *Yale Journal on Regulation* between 2000 and 2003. Much of the evidence from Telecom to this inquiry reflects concerns raised in those papers (in addition to the Jorde *et al* paper cited by Professor Quigley[24] I would note the papers by Speta[25], Crandall and Sidak[26], and Ingraham and Sidak[27]). However, on the other side of the ongoing debate, in the same journal,

23 For a brief summary of the older literature and the eclipse of the Bork model see Martin, S., Normann, H-T, and Snyder, C.M., "Vertical Foreclosure in Experimental Markets", *RAND Journal of Economics* 32(3):466-496, Autumn 2001, pp.466-467.

24 Jorge, T.M., Sidak, J.G. and Teece, D.J., "Innovation, Investment and Unbundling", *Yale Journal on Regulation* 17(1): 1-37, Winter 2000.

25 Speta, J.B., "Handicapping the Race for the Last Mile? A Critique of Open Access Rules for Broadband Platforms", *Yale Journal on Regulation* 17(1):39-91, Winter 2000.

26 Crandall, R.W. and Sidak, J.G., "Is Structural Separation of Incumbent Local Exchange Carriers Necessary for Competition?", *Yale Journal on Regulation* 19(2): 335-410, Summer 2002.

27 Ingraham, A.T. and Sidak, J.g., "Mandatory Unbundling, UNE-P, and the Cost of Equity: Does TELRIC Pricing Increase Risk for Incumbent Local Exchange Carriers?", *Yale Journal on Regulation* 20(2): 389-406, Summer 2003.

an adequate review should equally take note of the papers by Gilo[28] and Ekelund and Ford[29]. Generally speaking the focus of the *Yale Journal* debate has been on matters of judgment, empirical estimation, and potential tradeoffs between dynamic efficiency and pro-competitive regulatory intervention. These are the issues with which the Commission is now grappling in the case of Telecom. The recent exchanges in the *Yale Journal* reflect a professional debate which has moved far beyond the simplistic comparative-static Chicago-School model of efficient vertical integration upon which Professor Quigley relies in section 3 of his paper, and which he suggests the Commission ought to adopt.

In relation to the Jorge *et al* paper discussed by Professor Quigley at paragraph 24 of his review, it is important to note that this paper addressed the tradeoffs facing the FCC in its attempts to draft rules that respect both the intent of the 1996 Act (which clearly mandated unbundling of at least some network facilities) and the insistence of the US Supreme Court in *AT&T v Iowa Utilities Board* that the "necessary" and "impair" standards be narrowly interpreted. Not only does Teece (as one of the authors of that paper) not resile from his earlier principled support for unbundling of copper with respect to voice traffic. More importantly, he and the other authors devote close attention to the detailed ways in which unbundling could potentially feed back negatively on the incumbent's incentives to invest and innovate. In the process they outline economic considerations which the FCC ought properly to take into account in weighing the benefits and detriments of various degrees of unbundling, and thereby determining the appropriate limits of intervention. It does not seem to me that Professor Quigley has drawn the correct conclusion from the Jorge *et al* paper, in his suggestion that it suffices to establish that "the type of unbundling that is being considered by the Commission" is necessarily detrimental, on balance. What the paper does do is indicate some of the economic considerations that should enter, and have entered, into the present investigation by the Commission. The unbundling issue ultimately requires the exercise of judgment in each case.

Salop himself has pointed out that the 1995 Riordan and Salop paper (cited by Professor Quigley) points to a case-by-case rule-of-reason rather than a per-se approach to vertical integration[30]: "As for balancing, [Riordan and Salop] conclude that a competent court or regulatory authority can successfully balance competitive benefits and harms, just as they do in other <u>rule of reason</u> cases."

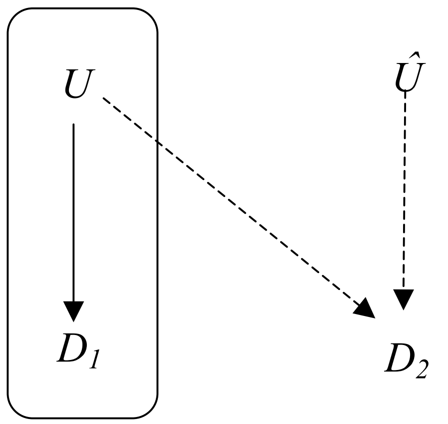
To illustrate my criticism that Professor Quigley's review of "the substantial theoretical and empirical literature on this issue that has been published in the last fifteen years" provides an unbalanced picture, and that his attack on DSF for being allegedly in conflict with that literature is unfounded, I shall refer to just two recent papers dealing with the relevant topics of "vertical foreclosure" and "raising rivals' costs". These are Riordan's 1998 paper in the *American*

28 Gilo, D., "Retail Competition Percolating Through to Suppliers and the Use of Vertical Integration, Tying and Vertical Restraints to Stop It", *Yale Journal on Regulation* 20(1):26-73, Winter 2003.

29 Ekelund, R.B. and Ford, G.S., "Innovation, Investment, and Unbundling: An Empirical Update", *Yale Journal on Regulation* 20(2):383-388, Summer 2003.

30 Salop, S.C., "Vertical Mergers and Monopoly Leverage", http://citeseer.nj.nec.com/394920.html, p.9.

Economic Review[31] and the widely-cited “Primer on Foreclosure” by Rey and Tirole which is to appear in the forthcoming Volume III of the *Handbook of Industrial Organization*[32]. Both of these set out a model of vertical restraint or foreclosure by the incumbent owner of an upstream bottleneck facility which has the effect of raising the costs of its rivals in the downstream market, and hence of causing detriments to consumers. The basic model corresponds to my understanding of the central issue in the present investigation, and I shall accordingly lay out a brief diagrammatic summary of it.



Total cost of bypass is $C_{\hat{U}}$

Player D_2 incurs lowest possible cost of its upstream input
$C_2^{Input} = min(p_U, C_{\hat{U}})$

End-users pay demand-determined price $P = P(q_1 + q_2)$ for market quantity $Q = (q_1 + q_2)$

Suppose there is a single existing upstream bottleneck facility U and an incumbent downstream supplier of service to end-users, D_1. A new entrant D_2 wishes to compete in the downstream market but can enter only if it either secures access to the existing bottleneck U (on terms which leave it able to compete successfully downstream), or else is able to build a bypass facility $\hat{U}$ at a cost sufficiently low to enable the new entrant to survive in the downstream competitive market.

The incumbent downstream supplier D_1 is vertically integrated with the upstream bottleneck facility U and it supplies the input to itself as an intra-firm transaction. The new entrant D_2's cost of supplying end-users comprise its marginal costs in the downstream market, plus its costs of securing the necessary upstream service from whichever is the cheaper of U and $\hat{U}$. (The model can be generalised to a larger number of downstream entrants, each facing the same choice between open-access and facilities-based competition to supply the essential upstream input.)

---

31 Riordan, M. , “Anticompetitive Vertical Integration by a Dominant Firm”, *American Economic Review* 88(5): 1232-1248, December 1998.

32 Rey, P. and Tirole, J., “A Primer on Foreclosure”, forthcoming in Armstrong, M. and Porter, R. (eds) *Handbook of Industrial Organization III*, North-Holland, draft dated 16 July 2003 available at http://www.univ-tlse1.fr/idei/Commun/WorkingPapers/WP_theme.htm#1.

.

We abstract, to start with, from the issues of dynamic and productive efficiency, in order to focus on the way in which (and conditions under which) vertical foreclosure raises the price and reduces the quantity to final consumers, when the downstream service is homogeneous and undifferentiated. Consider a simple variant of Rey and Tirole's basic case in pages 31-37 of their 2003 paper. Assume that the two upstream facilities – the existing facility, *U*, and the potential bypass facility, $\hat{U}$, are identical technologies with the same total (annualised) facility cost $C_U = C_{\hat{U}}$, and that this cost is fixed (the marginal cost of supplying additional service once the facility is in place is zero, and there is no capacity constraint on the existing facility *U*). All of these assumptions help to isolate the essential issue.

Now suppose that the two firms engage in a form of Bertrand competition in the final market, so that the price is driven down to long-run incremental costs (an all-out price war would drive price to marginal cost with the above assumptions, but since the focus of the present discussion is the long term, I assume that the competitive price is sustained at a level that enables at least one firm to remain in the market in the long term). We can now compare two situations: vertical foreclosure and unbundled access to *U*.

Take first foreclosure – what Telecom describes as "real competition". The incumbent D_1 denies its competitor D_2 access to *U*. To enter at all, D_2 must build the bypass facility $\hat{U}$ and its cost of supplying end-users will be

$$C_2 = C_2^{Input} + c_2 q_2 = C_{\hat{U}} + c_2 q_2$$

where c_2 is the marginal cost of transforming the input into the final service (fixed costs are assumed zero in the downstream level of the industry).

The total costs of the incumbent will be $C_1 = C_U + c_1 q_1$.

Under long-run-Bertrand competitive pressure in the downstream market, the equilibrium will be for one or the other firm to take the entire market, since the lowest average-cost-based price is achieved when only one upstream facility is installed and that facility is operated to the fullest extent permitted by the size of the downstream market. Firm 1's average cost is $\frac{C_U + c_1 q_1}{q_1}$ and firm 2's average cost is $\frac{C_{\hat{U}} + c_2 q_2}{q_2}$. Under facilities-based competition the total revenue that must be recovered from endusers is

$$R = C_U + C_{\hat{U}} + c_1 q_1 + c_2 q_2 \quad > \quad C_U + c_1 Q \quad = \quad C_{\hat{U}} + c_2 Q$$

This is the familiar case of sub-additive cost where a single vertically-integrated incumbent can sustainably charge a lower price to end-users than is possible with facilities-based competition, with two vertically-integrated firms in the market. Competitive discipline in the Bertrand market will drive out one or other of D_1 and D_2. As incumbent, D_1 has a first-mover advantage and can therefore foreclose the downstream market to D_2. This, in a nutshell, was the pre-deregulation situation in many OECD telecommunication markets.

Suppose that policymakers or regulators believe that such foreclosure of competition is damaging both to productive and to dynamic efficiency, and that entry of D_2 at the downstream level is socially desirable for reasons of market structure. Then by regulating open access to facility U, the regulator can place the two firms on a competitively-neutral footing in the downstream market, enabling them to compete on the merits, and hence creating incentives for both firms to innovate and cut costs. Such regulated access is pro-competitive in the sense that it removes from D_1 the protection it had previously obtained from anti-competitive exercise of the market power derived from its ownership of U. (Three open-access instruments are conventionally utilised for this purpose: interconnection, mandatory wholesaling, and unbundling. Each of these addresses a different subset of the vertical-foreclosure issue, and they are therefore complements, not substitutes, in the regulator's toolkit.)

Under unbundling both D_1 and D_2 secure the essential input at a unit price of $p_U = \frac{C_U}{Q}$ and they then compete on the merits to determine their market shares. Whatever market shares emerge from this process, the price to end-users remains at the economic minimum, just sufficient to cover efficiently-incurred costs.

By eliminating vertical foreclosure from the set of weapons available to the incumbent D_1, unbundling thus creates a situation of competitive neutrality and hence entry-on-the-merits into the market for the final service. Provided the industry cost structure exhibits sub-additivity (that is, so long as it is socially inefficient to require investment in a redundant duplicate bypass facility as a condition of entry for D_2) the welfare of end-users is unequivocally advanced by unbundling, in the following sense: the end-user moves from a situation of no choice to a situation of choice of supplier, with no increase in price.

Provided that freedom of entry to the downstream market now triggers improvements in both productive and dynamic efficiency as the firms struggle for market share, and assuming that the competitive process in the market continues to be long-run-Bertrand, consumers gain long-term benefit from unbundling. Note that these benefits accrue to consumers immediately as efficiency gains are achieved and passed through, and note further that these are long-term benefits because they are secured on a sustainable basis going forward.

There are some obvious qualifications to be made to this basic model, and the issues being considered by the Commission relate to these qualifications. The main qualifications are as follows:

1) It must be the case that freedom of entry for new entrants D_2 can reasonably be expected to incentivise at least one market participant to strive for dynamic and productive efficiency improvements. This leap of faith is made by the policymaker at the moment when vertically-integrated monopoly unbundling is mandated; in New Zealand this leap was arguably made by Parliament in 1986 when it passed s.36 of the Commerce Act. It was

certainly made by subsequent policy decisions mandating open access to bottleneck facilities in this country.

2) It may be that Bertrand competition is not the appropriate assumption to make for competition in the downstream market, and the situation might be modelled using a Cournot model. Then the downstream market model will be asymmetric (that is, D_1 and D_2 will have different unit costs) under foreclosure if $\frac{C_U}{q_1} < \frac{C_{\hat{U}}}{q_2}$, or under unbundling if $p_U < \frac{C_U - p_U q_1}{q_1}$. That is, firm 2 will be at some competitive disadvantage so long as its unit costs of supply are higher than those of the incumbent. Under Cournot assumptions the price and quantity to end-users will always be higher than those which would prevail under competitive pricing, and under asymmetric Cournot the price will be further increased and the quantity further reduced relative to the symmetric case, to the further detriment of end-users; this detriment will be as long-lived as the asymmetry and hence can be treated as a long-term detriment.[33] In a Cournot model, entry is possible on the basis of new upstream facilities even where these cost more than the existing loop *U* (Woosh Wireless may be a New Zealand example), but consumers are still worse off than they would be under mandated unbundling with p_U regulated to the competitive level taking advantage of economies of scale on facility *U*.

3) Going forward into the future, the welfare of consumers will be affected by the rate of technical progress – both the improvement of product quality (including diversity) and the lowering of supply costs, by the processes of innovation and investment by both D_1 and D_2. Over time, under either Cournot or long-run-Bertrand assumptions, such innovation should provide the more dynamic firm with increasing market share, and thus should be expected to incentivise the lagging firm to accelerate its own innovative efforts. This competitive race among market players to innovate is strongly to the long-term benefit of end-users, as it brings progressively falling price and rising quantity of service over time.

The decision to unbundle amounts to a judgment call by the regulator that this process of dynamic innovation will proceed more rapidly under freedom of entry and absence of vertical foreclosure, than would occur under continued vertical foreclosure. Basically this is a matter of betting on a race. Suppose that the incumbent is expected to innovate at a rate of, say, X% per year in the absence of full competitive entry by its competitors, and with the ongoing shelter of vertical foreclosure to protect productive inefficiencies in its operations. Then the question determining a decision whether or not to unbundle would be whether new entrants in a fully deregulated competitively-neutral setting are likely to drive the rate of technical progress more or less rapidly than this counterfactual rate. These two alternatives, suitably calibrated for the behavioural assumptions used (Cournot, Bertrand,

33 See Rey and Tirole 2003 p.35 Figure 5 for the asymmetric Cournot situation and for their conclusion that "the higher the cost of bypassing the bottleneck producer, the larger the negative impacts on consumers and welfare" in the case where p_U is set to the limit represented by the bypass cost.

fully competitive, etc) and to incorporate information on the cost of building bypass facilities (which determines the comparative-static long-term gains to end-users from unbundling) provide the factual and counterfactual for the unbundling decision itself.

Telecom has endeavoured strenuously to persuade the Commission that in the absence of unbundling it will innovate more rapidly than could occur with in an open unbundled market populated by new entrants. Telecom's case appears to consist of two planks: (i) Telecom itself will cease to innovate, or at least will greatly reduce its pace of innovation, if faced with unbundling; and (ii) new entrant competitors D_2 will not be technologically progressive, or at least will be less innovative than Telecom would be if allowed to vertically foreclose its local loop from, e.g., unbundled data services.

Ultimately the Commission must reach its own judgment on this. In doing so it must ask whether the sort of dynamic gains for consumers described by Professor Hausman in his submission must necessarily be supplied by the incumbent, or whether innovations of this sort might more rapidly and effectively be brought to the market by new entrants using unbundled local loop facilities. I find nothing in Professor Hausman's paper to demonstrate that new entrants are less effective innovators with respect to new broadband products than the incumbent. The Commission could quite reasonably expect that under unbundling some party, whether Telecom or a new entrant, will in due course bring these services to the market. Furthermore, the greater the competitive pressure in the marketplace, the less likely it is that any disincentives to investment (arising, for example, from a perceived increase in the riskiness of new investment for Telecom) will lead to actual delays in the implementation of new technologies.

The decision to unbundle confronts both incumbent and entrants with the need to compete on merit. The incumbent may face a truncated distribution of expected returns from new investment (increased riskiness due to unbundling); the entrant, for its part, may face a countervailing handicap of a higher cost of capital (cf the submission by LECG to the Commission on 11 November). The overriding justification for unbundling is the view that the competitive market process itself is the ultimate source of dynamism in a modern economy, and that sheltering vertically-integrated incumbents from market competition is more likely to retard than to accelerate the pace of technical progress.

Appendix 1: Background Notes on the Conventional Treatment of Wealth Transfers by Economists

- Telecom is mistaken if it is arguing that the treatment of wealth transfers as welfare-neutral represents a "conventional" approach supported by economic theory or international case law. If there exists any conventional view on this matter in economic theory, it consists of the proposition that economists lack appropriate tools for conducting any welfare evaluation of changes which do not represent Pareto gains or losses. It is in the nature of a transfer that one party gains at the expense of the other, and that this transaction is therefore zero-sum, in the sense that the winner cannot compensate the loser and remain better-off. Lacking any guidance from economic theory, mainstream economists conventionally stand aside to allow policymakers and/or the courts to exercise their own judgment in favour of one or the other party, if they wish to do so[34]. Mainstream welfare economics is, thus, conventionally silent on the desirability or otherwise of transfers, and correspondingly raises no objection to any welfare judgments a policymaker may exercise, so long as due process is observed. On this basis, if the Commission or any other properly-constituted authority chooses to give greater weight to the interests of consumers relative to those of producers, economic theory says that it is fully entitled to do so and raises no principled objection. This basic approach is explicitly spelled out by Oliver Williamson in the two classic papers[35] which have formed the basis of recent economic writing on the "efficiencies defence" for mergers - an area of antitrust law to which the treatment of wealth transfers is central. Following extensive debate and a series of key decisions by the Canadian Federal Court of Appeal in the *Superior Propane* case, it has been established that proper interpretation of the Canadian Competition Act 1986 (a close relative of New Zealand's Commerce Act 1986) requires explicit weights to be attached to the various parties to transfers when evaluating the welfare impact of a merger.

- There is a body of economic writing flowing from a 1971 paper by Arnold Harberger, a Chicago economist, which argues that as a general rule of thumb economists ought to deal with wealth transfers on the basis that "a dollar is a dollar", whence bare transfers have no net welfare impact. This practice, while commonly adopted for pragmatic reasons in applied work, has no principled basis, is not compatible with neoclassical welfare economic theory except under extreme assumptions, and remains highly

[34] See, for example, W.K. Viscusi, J. M. Vernon, and J.E. Harrington Jr, *Economics of Regulation and Antitrust* (3rd edition, MIT Press 2001) pp.78-81. In the example they analyse, the replacement of a monopoly by a competitive industry results in efficiency gains (elimination of deadweight loss) and a wealth transfer from producers to consumers. The efficiency gains are conventionally quantified by comparing the area of the deadweight loss triangle between the two scenarios. "Our preceding analysis, shared by most economists, is that this is as far as economists can legitimately go in evaluating public policies. It then becomes a political decision as to whether the transfers among groups are viewed as supporting or offsetting the efficiency analysis."

[35] Williamson, O.E., "Economies as an Antitrust Defense: the Welfare Tradeoffs", *American Economic Review* 58: 18-36, March 1968; and "Economics as an Antitrust Defence Revisited", *University of Pennsylvania Law Review* 125(4): 699-736, April 1977.

controversial. In no sense does it offer any basis in economic theory for criticising a policymaker who opts for non-neutral welfare weights.

- The real issue, therefore, is whether the law requires the interests of consumers to be weighted equally with those of producers in the analysis of mergers, restrictive trade practices, and pro-competitive regulation. The proper interpretation of the relevant provisions of the Commerce Act 1986 has been a hotly contested issue in New Zealand. In the particular context of mergers and restrictive trade practices it has been the usual practice of the Commission since the early 1990s to treat transfers as welfare neutral, and decisions reached on that basis have not to date been overturned by the Courts. There has, however, been no test of the issue before a court since the 2001 amendment to the Commerce Act.

- It is fair to say, as Telecom does (paragraphs 576-579) that the neutral treatment of transfers was "orthodox" among New Zealand ministers, key officials and competition law authorities for much of the 1990s, having been embodied in a Cabinet decision of February 1993 and in the subsequent Merger Guidelines published by the Commerce Commission. Parliament, however, at no time gave clear statutory direction along these lines[36]. Proposals for an amendment to the Commerce Act to fill this perceived gap were included in the February 1993 Cabinet Paper, but never brought to the House.

- When Parliament eventually did turn its attention to the issue of natural-monopoly profits, and hence the appropriate treatment of monopoly-rent transfers from producers to consumers, it explicitly directed the Commerce Commission to limit such transfers in a number of contexts, signaling in the process that the interests of consumers were to prevail over those of producers. One logical implication of this is that a transfer from Telecom to end-users consequent upon local loop unbundling should be viewed as, *inter alia*, a benefit to society.

    - In May 2001 a new purpose statement, section 1A, was added to the long title of the Commerce Act 1986 to make explicit the objective of promoting "the long term benefit of consumers". There was no balancing wording to protect the position of producers; other things equal, transfers from producers to consumers are now automatically consistent with the purpose of the Commerce Act, whereas transfers in the other direction require specific authorisation under Part IV. The Commerce Commission's initial reaction, cited by Telecom in its paragraph 577 p.122, was that nothing of substance had been changed, but this judgment was almost certainly too hasty and is yet to be tested before a New Zealand court. When a test does eventually come, the precedent established in 2001 and reaffirmed earlier this year by the Canadian Federal Court of Appeal in *Superior Propane* is likely to point to a more distinctly pro-consumer

[36] See Ministry of Commerce, Treasury, Department of Justice, and Department of Prime Minister and Cabinet, *Review of the Commerce Act 1986,* Wellington, 1992, pp.10-11, for explicit acknowledgment that the Commerce Act was silent on the transfers issue.

interpretation of s1A. The Commerce Commission's Draft Determination reflects ant appropriate recognition of the intent of Parliament.

- The 2001 amendments to the Commerce Act included a new Subpart 4A, section 57D-N, devoted to regulation of the electricity industry. The purpose of the new regulatory provisions was expressed as follows:

> **57E Purpose**
>
> The purpose of this subpart is to promote the efficient operation of markets directly related to electricity distribution and transmission services through targeted control for the long-term benefit of consumers by ensuring that suppliers—
>
> (a) are limited in their ability to extract excessive profits; and
>
> (b) face strong incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
>
> (c) share the benefits of efficiency gains with consumers, including through lower prices

  The wording of (a) and (c) indicates a strong wish on the part of Parliament to see monopoly profits restricted and the benefits both of that restriction and of efficiency gains passed through to consumers via lower prices.

- The Telecommunications Act 2001 instructed the Commerce Commission to regulate interconnection pricing using methodologies which were clearly intended to prevent or limit the taking of monopoly profits. Most significantly, Schedule 1 of the Act barred use of the Efficient Component Pricing Rule, a methodology which preserves productive economic efficiency but places no discipline on the monopoly profits of an incumbent. Had Parliament been unconcerned about wealth transfers from consumers to producers, this provision would have had no clear rationale.

  Similarly, the application of the retail minus pricing principle (Part 3(b) of Part 1 of Schedule 1) requires the stripping out of "profits in excess of what would represent a reasonable return (including reasonable profit) on capital invested".

- The central point to emerge from this review of recent legislative changes is that Parliament has acted to overturn the approach to wealth transfers which had become conventional among ministers, officials and the Commission during the 1990s, a period when no cases came before the Commission under s.52 of the Commerce Act, and before enactment of the Telecommunications Act 2001. Telecom says (paragraph 579) "if Parliament had intended to reverse orthodoxy, it would have made this clear." The legislative changes summarised above amount to precisely such a signal from Parliament that Telecom's "orthodox" interpretation does not correspond to the intent of the legislature. This view is strengthened by the already-mentioned failure of Government to bring to Parliament the amendment proposed in 1993, which would have required

Parliament explicitly to commit to the "orthodox" view; this failure may well represent recognition by ministers and officials that their position would not command parliamentary assent (particularly given the likely content of submissions by the Department of Justice to any select committee hearing on the matter, as foreshadowed in the Department's hard-hitting dissent from the majority position in the 1993 *Review of the Commerce* Act).[37]

[37] Ministry of Commerce, Treasury, Department of Justice, and Department of Prime Minister and Cabinet, *Review of the Commerce Act 1986,* Wellington, 1992, pp.15-17.

Appendix 2:

Part II of Opinion of Breyer J. in AT&T Corp v. Iowa Utilities Bd (97-826)

II

I agree with the Court's disposition of the FCC's "unbundling" rules. As earlier explained, the Act seeks to introduce competition into local markets by removing legal barriers to new entry, by requiring interconnection, by requiring incumbents to sell to potential retail competitors at wholesale rates, and by requiring the sharing, or "unbundling," of certain facilities. *Supra,* at 6; see 47 U. S. C. §§251(c)(2)–(4), 253(a) (1994 ed., Supp. II). The Act expresses this last-mentioned sharing requirement in general terms, reflecting congressional uncertainty about the extent to which compelled use of an incumbent's facilities will prove necessary to avoid waste. Will wireless technology or cable television lines, for example, permit the efficient provision of local telephone service without the use of existing telephone lines that now run house to house?

Despite the empirical uncertainties, the basic congressional objective is reasonably clear. The unbundling requirement seeks to facilitate the introduction of competition where practical, *i.e.*, without inordinate waste. *Supra,* at 6–7. And although the provision describing which elements must be unbundled does not explicitly refer to the analogous "essential facilities" doctrine (an antitrust doctrine that this Court has never adopted), the Act, in my view, does impose related limits upon the FCC's power to compel unbundling. In particular, I believe that, given the Act's basic purpose, it requires a convincing explanation of why facilities should be shared (or "unbundled") where a new entrant could compete effectively without the facility, or where practical alternatives to that facility are available. §251(d)(2); see generally Areeda, Essential Facilities: An Epithet in Need of Limiting Principles, 58 Antitrust L. J. 841, 852–853 (1989).

As the majority points out, the Act's language itself suggests some such limits. *Ante,* at 20–25. The fact that compulsory sharing can have significant administrative and social costs inconsistent with the Act's purposes suggests the same. Even the simplest kind of compelled sharing, say, requiring a railroad to share bridges, tunnels, or track, means that someone must oversee the terms and conditions of that sharing. Moreover, a sharing requirement may diminish the original owner's incentive to keep up or to improve the property by depriving the owner of the fruits of value-creating investment, research, or labor. And as one moves beyond the sharing of readily separable and administrable physical facilities, say, to the sharing of research facilities, firm management, or technical capacities, these problems can become more severe. One would not ordinarily believe it practical, for example, to require a railroad to share its locomotives, fuel, or workforce. Nor can one guarantee that firms will undertake the investment necessary to produce complex technological innovations knowing that any competitive advantage deriving from those innovations will be dissipated by the sharing requirement. The more complex the facilities, the more central their relation to the firm's managerial responsibilities, the more extensive the sharing demanded, the more likely these costs will become serious. See generally 1 H. Demsetz, Ownership, Control, and the Firm: The Organization of Economic Activity 207 (1988). And the more serious they become, the more likely they will offset any economic or competitive gain that a sharing requirement might otherwise provide. The greater the administrative burden, for example, the more the need for complex proceedings, the very existence of which means delay, which in turn can impede the entry into long-distance markets that the Act foresees. See *supra*, at 5.

Nor are any added costs imposed by more extensive unbundling requirements necessarily offset by the added potential for competition. Increased sharing by itself does not automatically mean increased competition. It is in the *un*shared, not in the shared, portions of the enterprise that meaningful competition would likely emerge. Rules that force firms to share *every* resource or element of a business would create, not competition, but pervasive regulation, for the regulators, not the marketplace, would set the relevant terms.

The upshot, in my view, is that the statute's unbundling requirements, read in light of the Act's basic purposes, require balance. Regulatory rules that go too far, expanding the definition of what must be shared beyond that which is essential to that which merely proves advantageous to a single competitor, risk costs that, in terms of the Act's objectives, may make the game not worth the candle.

I believe the FCC's present unbundling rules are unlawful because they do not sufficiently reflect or explore this other side of the unbundling coin. See *Motor Vehicle Mfrs. Assn. of United States, Inc.* v. *State Farm Mut. Automobile Ins. Co.*, 463 U. S. 29, 43 (1983). They do not explain satisfactorily why, for example, an incumbent must share with new entrants "call waiting," or various operator services. Nor do they adequately explain why an incumbent should be forced to share virtually every aspect of its business. As the majority points out, *ante*, at 22–23, they seem to assume, without convincing explanation, that the more the incumbent unbundles, the better. Were that the Act's objective, however, would Congress have seen a need for a separate wholesale sales requirement (since the "unbundling" requirement would have led to a similar result)? Indeed, would Congress have so emphasized the importance of competition? A totally unbundled world– a world in which competitors share every part of an incumbent's existing system, including, say, billing, advertising, sales staff, and work force (and in which regulators set all unbundling charges)– is a world in which competitors would have little, if anything, to compete about.

I understand the difficulty of making the judgments that the statute entrusts to the FCC and the short time that it gave the FCC in which to make them. 47 U. S. C. §251(d)(1) (1994 ed., Supp. II). I also understand that the law gives the FCC considerable leeway in the exercise of its judgment. *E.g.*, R. Pierce, S. Shapiro, & P. Verkuil, Administrative Law and Process §7.4, p. 353 (2d ed. 1992). But, without added explanation, I must conclude that the unbundling rules before us go too far. They are inconsistent with Congress' approach. They have not been adequately justified in terms of the statute's mandate, read in light of its purposes. See 5 U. S. C. §706(2). For this reason, as well as the reasons set forth in the majority's opinion, I agree with its conclusion that Rule 319 must be vacated.