



COMPETITION & REGULATION TIMES

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COMPETITION: What Do You Mean? asks ISCR Executive Director, Lewis Evans



Evening Post

EDITORIAL

and services. The new Commerce and Telecommunications Acts are but two of the revised rulebooks. In these two Acts alone the word 'competition' is used 74 times. But what does 'competition' really mean, and how will these new rules change the game?

'Perfect competition' has been the basic building block of regulatory and central planning policies. Under perfect competition the economic performance yardstick – extra benefit equals price equals the extra cost – is met and, significantly, profit is zero. At the other end of the spectrum is 'pure monopoly'. A single firm controls all production, the price is higher than the extra cost of goods produced, monopoly profits are produced, and consumers are disadvantaged. Its pure form only exists where there are legal barriers to rivalry from other firms.

Ironically, under 'perfect competition', there is no rivalry at all. Why should there be? The product and the technology are known by all and are the same for all firms, and each firm is so small relative to the market that it can affect neither demand for its product nor prices. Farms are often used to illustrate perfect competition, yet the behaviour of farmers is rarely rivalrous. They often co-operate to solve problems, as there is no additional benefit to be gained from

In sport we like hot competition. It brings out skilful play, and generates exciting tournaments. Participants receive tangible rewards (blue ribbons and dollars) and intangible rewards (satisfaction and excitement). The excitement and the appreciation of player skills attract consumers of all sorts, from the couch potato to the avid game-chaser. Vigorous rivalry creates the drive to develop new strategies, improve skills and create fresh spectacles. The rules also evolve so that the game continues to be fresh and exciting.

New Zealand is in a worldwide competition for people, resources and innovation that determines our standard of living. We control rivalry in the produc-

tion and consumption of goods by our statutes (rules of the game). A raft of recent statutory changes will affect rivalry in the 'game' of producing goods

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What *is* the objective of the COMMERCE ACT?

GUEST ARTICLE

Recent legislative amendments have confused the objective of the Commerce Act. James Mellsop explains.

Economists usually distinguish between three types of efficiency:

- Allocative efficiency: resources are allocated to their highest value usage. An important condition for allocative efficiency is that those who value a product more than the additional cost of producing it are provided with it, and those who value a product less than the additional cost of producing it are not provided with it.
- Productive efficiency: firms have the appropriate incentives to produce services of the desired quality at least cost, and production activities are distributed between firms such that industry-wide costs are minimised.
- Dynamic efficiency: firms have the appropriate incentives to invest, innovate, improve the range and quality of services, increase productivity and lower costs through time.

Allocative and productive efficiency are often together termed 'static efficiency', to distinguish them from dynamic efficiency, which is an inter-temporal concept. A state of the world might be described as being statically efficient if the sum of producer and consumer surplus at that time is maximised (the distribution of surplus between these two groups is irrelevant from an efficiency perspective).

There can be trade-offs between the three dimensions of efficiency. For example, a regulatory intervention may benefit consumers and allocative efficiency in the short-term but it may affect the incentives on the regulated firm to, for example, invest in new technology, which may be detrimental for consumers in the longer term.

In light of these potential trade-offs, an important issue is the relative magnitude of potential allocative, productive and dynamic efficiency gains. Empirical evidence indicates that allocative inefficiency is trivial compared with productive inefficiency,¹ and that dynamic efficiency gains swamp static efficiency gains. One of the frequently cited analyses of the

“ THE OBJECTIVES OF THE COMMERCE ACT, THE ELECTRICITY-SPECIFIC PROVISIONS OF THE COMMERCE ACT, AND THE TELECOMMUNICATIONS ACT, SHOULD ALL BE THE SAME – THE PROMOTION OF EFFICIENCY, PARTICULARLY DYNAMIC EFFICIENCY. ”

magnitude of dynamic efficiency gains is that of Hausman (1997),² who estimates that the gain in consumer welfare from the introduction of cellular telephone services in the USA was about US\$50 billion per year (for the period 1989 to 1993).

Competition can generally be expected to improve allocative efficiency.³ However, the

impact of competition on productive and dynamic efficiency is not so clear-cut. In respect of productive efficiency, the extreme example is a natural monopoly, when it may be most efficient for market demand to be met by one firm. However, in any market where scale economies are important, there is likely to be a limit on the number of efficient competitors.

The optimal market structure for promoting dynamic efficiency is the source of much debate. There appears to be general acceptance in the economic literature, however, that the prospect of profit motivates investment and innovation. Accordingly, the textbook version of perfect competition is unlikely to result in dynamic efficiency, although of course it does result in allocative and productive efficiency.

Fershtman and Pakes (2000)⁴ provide an interesting analysis of the trade-off between allocative and dynamic efficiency, as reviewed by Lewis Evans in the March 2001 issue of *Competition and Regulation Times*. They show that, while collusion can lead to higher prices, it can also lead to investment in product quality and variety, raising the net welfare of consumers.

It is for these reasons that economists believe that the objective of antitrust (and regulatory) policy should be efficiency, rather than simply competition. Unfortunately, recent changes to New Zealand's competition and regulatory framework may result in the emphasis of the Commerce Act shifting away from efficiency towards competition.

As background, prior to recent amendments, the long title to the Commerce Act read: *An Act to promote competition in markets within New Zealand*.

Despite the emphasis of these words on competition, the Act was generally regarded as being about promoting efficiency. (In other words, competition was regarded as a means to an end (efficiency), rather than an end in itself.) For example, in *Tru Tone*,⁵ Richardson J stated:

[The Commerce Act] is based on the premise that society's resources are best allocated in a competitive market where rivalry between firms ensures maximum efficiency in the use of resources (page 358).

Several amendments were made to the Commerce Act in 2001, including the replacement of the long title with a purpose statement. As submitted by Parliament to the Commerce Select Committee, the proposed purpose statement in the Commerce Amendment Bill included two concepts: 'the promotion of competition' and 'the efficient operation of markets'. However, the Committee recommended exclusion of the latter concept, and the purpose statement of the Commerce Act now reads:

The purpose of this Act is to promote competition in markets for the long-term benefit of consumers within New Zealand.

It is arguable that the phrase 'long-term benefit of consumers' is similar to the concept of efficiency. In particular, the expression 'long-term' implies that significant weight needs to be given to dynamic efficiency. To put this another way, complete appropriation of producer surplus in the short-term would not be to the long-term benefit of consumers.

Accordingly, on the face of it, the recommendation of the Committee to delete the words 'efficient operation of markets' may not have been too much of a cause for concern, and the addition of the words 'long-term' may have improved the objective of the Commerce Act.⁶

Unfortunately, several other recent legislative changes cast doubt over this benign interpretation. However before I consider these, there are two other possible interpretations of the final wording of the purpose statement.⁷

Firstly, while I have contended above that the phrase 'long-term benefit of consumers' is arguably similar to the concept of efficiency, there may be other possible interpretations of the phrase more in the vein of wealth transfers from producers to consumers. If there is ambiguity about the meaning of the phrase, then a court might hold that the explicit rejection of the words 'efficient operation of markets' by the Select Committee rules an efficiency interpretation out.

Secondly, if the introduction of the term 'long-term benefit of consumers' is to be regarded as an endorsement of the *Tru Tone* approach to efficiency, such endorsement may

not be sufficiently explicit. In other parts of the 2001 amendments where case law developments were, in essence, endorsed by the amending legislation,⁸ this was achieved in a manner that directly reflected the case law principles. It is arguable that if Parliament intended to affirm the *Tru Tone* approach, the word 'efficiency' would have appeared in the legislative revision.

Against this background, I now consider the purpose statements for the new electricity lines and telecommunications regulatory regimes and how they affect the interpretation of the new Commerce Act purpose statement. First, the specific purpose statement for the electricity lines price control provisions is set out in section 57E of the Commerce Act:

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 –

- are limited in their ability to extract excessive profits; and*
- face strong incentives to improve efficiency and provide services at a quality that reflects consumer demands; and*
- share the benefits of efficiency gains with consumers, including through lower prices.*

Compare the key words of the overall purpose statement of the Commerce Act:

to promote competition in markets for the long-term benefit of consumers,

to the key words of section 57E:

to promote the efficient operation of markets ... for the long-term benefit of consumers.

While the overall goal of both is the long-term benefit of consumers, the general provisions of the Commerce Act set about to achieve this by *competition*, while the electricity-specific provisions set out to achieve it by *efficiency*. A court would have to assume that Parliament intended this distinction.

Next consider section 15 of the Telecommunications Act, which reads (in part):

- The purpose of this Part... is to promote competition in telecommunications markets*



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for the long-term benefit of end-users of telecommunications services within New Zealand by regulating ... the supply of certain telecommunications services between service providers.

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

Once again, the goal is the long-term benefit of consumers (or end-users), and this is to be *to page 10*

Unbundling the debate over bundling IN THE DAIRY INDUSTRY

Bundling the returns from on-farm production and off-farm processing is not an issue where there is fair value share pricing, say Lewis Evans and Graeme Guthrie.



Bundling continues to be controversial in the co-operative dairy business. Bundling is the term for lumping together the payment (per kg of milk) to farmers for milk production, with a return from processing. Bundling has a long history in New Zealand, however, the gradual introduction of fair value share pricing by dairy co-operatives in the 1990s, continued by Fonterra, and combined with Fonterra's valuation processes, provides a separation of payments for off-farm processing from those for milk supply that can be expected to significantly improve the economic performance of the dairy industry.

Bundling was a problem when shares in a co-operative were fixed at a nominal (arbitrarily low) value. The arbitrarily low price of shares meant that when a supplier entered the co-operative the shareholding was purchased at a very cheap price, and if a supplier left the co-

operative shares were relinquished also at a very cheap price – thus suppliers had no right to the full value that the shares represented. The value of the full dairy processing business less the nominal shares is the value of 'unowned capital'. Farmers referred to this as socialised capital

because, when starting up as suppliers, they had the benefit of the processing capital without having to pay for its full value.

Too much dairy production can occur when the returns from processing are bundled with the return from on-farm production. This is because when the two components of farmers' returns are bundled, it is not obvious how much of the payment is a return from on-farm production of raw milk, and how much is a return on farmers' investment in off-farm assets. The key components of off-farm assets are processing capital, marketing and distribution assets. The return on these assets includes net income from all sources. It will include returns on commodity production and gains and losses from product differentiation and any other potentially value-added activity.¹

When the total returns, less retained earnings, per kg of milk solids, are distributed to suppliers, the payment per kg will exceed the wholesale (commodity) price of milk. If they have not paid for it, this will induce suppliers to produce more than they would if they just received the commodity price. This is economically inefficient because the actual returns that the country (and the co-operative) obtains from this milk is the commodity milk price, given that some (in New Zealand's case, most) milk goes to commodity production.

This method of payment thus induced resources being applied to dairying in excess of the returns generated and the profit of the industry as a whole – on-farm plus off-farm profit – was lowered.² The situation is exaggerated by unowned capital. When a supplier expands production there is a requirement to provide more capital by the purchase of shares. A supplier

considering expansion would therefore weigh up the cost of the shares and the cost of on-farm production and ask if the bundled return was higher than this cost. Because the capital is under-valued by nominal share pricing this lowers the entry cost and (generally) augments the incentive to over produce.³

The economic cost of this method of bundling has been estimated to be significant, however, the extent of the inefficiency would have been limited where, in the past, co-operatives restricted suppliers and the expansion of the milk supply. Fonterra, however, must enable ready exit and entry of suppliers while its share of the wholesale market is above some specified threshold of market share.

The effect of unowned capital and bundling on input values in the dairy industry has also been estimated to be large. It has been argued as follows: there is unowned capital and excess returns to milk that can be obtained by dairy farmers, hence these excess returns will be discounted into the value of land in any farm purchase and the unimproved value of dairy farmland therefore will be too high.

We consider that too much emphasis has been placed on this. The effect is tied to milk and not to any particular input that goes to the production of milk. Consequently, assumptions are required about the relative scarcity of the main factors of production – land, labour and management.⁴ It may well be that the practice induced a higher return to dairy-farmer management and labour that improved the performance of the industry. Sharemilkers in New Zealand produce a significant proportion (36%) of total milk production, providing both labour and management, and they have therefore received a significant share (and hence costs and benefits) of the bundled returns – 50% in the case of 50% sharemilkers. It is acknowledged, however, that in the presence of co-operative restrictions on entry, the value of a co-operative shareholding would enter into the prices of farms that had co-operative access.

The situation is entirely changed by fair value share pricing. Fair value pricing entails:

- the estimation of the commodity (wholesale)

price of milk by a Valuer appointed by Fonterra's Shareholders' Council. If there was a New Zealand domestic wholesale market, the price of milk in that market would almost certainly be used. But, because of the way the industry evolved in New Zealand this market is as yet undeveloped. Instead, the Valuer takes a combination of

“...WHAT IS CLEAR IS THAT THE PROFITABILITY OF THE INDUSTRY AS A WHOLE WILL IMPROVE. MUCH OF THAT IMPROVEMENT CAN BE EXPECTED TO BE WITHIN FONTERRA AS A BUSINESS.”

the major commodity dairy products, prices them at prices received in *freely contested international markets* and converts the resultant revenue to New Zealand dollars and subtracts the cost of production estimated as the cost of production of efficient processing plants. (Because Fonterra's product mix differs somewhat from the Valuer's basket and there may be some cost inefficiency, the commodity milk price that Fonterra employs in transactions will be somewhat less than the Valuer's estimate.),

- calculating the value of shares as the discounted value of Fonterra's net revenues from all sources after deducting the cost of milk at the Valuer's commodity price. The

discounting process is the correct way to value a forecasted stream of net revenues into the future,

- calculating the dividends as the actual net revenue in the relevant period, where the commodity milk price is that of Fonterra, less retained earnings,
- paying suppliers the commodity milk price for their milk and the dividend on their shareholding.

While implementation of this approach entails important issues of detail, the actual outcome can be expected to approximate the separation of on-farm and off-farm activity and the financial allocations implied in this description.

The upshot of fair value pricing is that all current and expected net returns of the co-operative Fonterra are encapsulated in the share price. The full value of these shares is owned by suppliers. If they leave they are due to be paid the full value of their shares. Suppliers that enter or expand production must purchase shares at their full valuation. In this way unowned capital is eliminated.

Fair value pricing also affects potential and existing suppliers' incentives to produce milk. In any year a supplier is paid the commodity milk price for a kg of milk, plus a dividend which, because shares are held on the basis of milk supplied, will also be paid out per kg. In considering how much extra milk to supply, a farmer will now balance the benefits of the commodity price plus the dividend plus any change in share value (capital gain) against on-farm production costs and the cost of holding shares in Fonterra. The fair value process ensures that the dividend plus any capital gain equals the benefit of holding a share, so these terms net out of a farmer's decision. The net result being that, under fair value pricing, the farmer bases the decision of how much to produce on a comparison of the commodity milk price and on-farm production costs which is what economic efficiency requires. It is notable that this is achieved without de-linking share ownership and milk supply.

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FUR PATROL: How Much Is Good For Us?

Martin Richardson considers the economics of local content quotas in radio broadcasting.



Image Services

Many countries (but not yet New Zealand) impose local content requirements in both radio and TV broadcasting. A good example is the Canadian system of regulation requiring that radio broadcasters meet a minimum Canadian requirement up from 15% to 20% through 35% over the last 30 years. What is Canadian music? The regulations use the MAPL system, a system whose main appeal, it seems to me, is that it's almost an acronym of the national tree. This scheme generally requires that Canadian content satisfy two of the following requirements: M (music) – the music is composed entirely by a Canadian; A (artist) – the music is, or the lyrics are, performed principally by a Canadian; P (production) – the musical selection consists of a live performance that is (i) recorded wholly in Canada, or (ii) performed wholly in Canada and broadcast live in Canada; L (lyrics) – the lyrics are written entirely by a Canadian.

So under the MAPL system, most of the songs recorded these days by Shania Twain and Celine Dion (perhaps the two 'Canadian' performers best known internationally) do not count as Canadian – they meet the 'A' test but not the 'M', 'P' or 'L' tests. And performances by the pianist Glenn Gould depend on where he records them. So two Gould performances of a piece by

Schubert, say, could be note-for-note identical but one would be Canadian if recorded in Windsor, Ontario, the other not if recorded 1500 metres away in Detroit, Michigan.

What are the arguments for and against local content regulation? A legal requirement that radio stations play a minimum amount of local content presupposes that 'too little' is played in its absence.

This might be due to an externality on the consumption side or a market failure on the supply side. Most proponents of these schemes (eg New Zealand's Ministry for Culture and Heritage (MCH)) have used externality arguments to explain why the market choices of private broadcasters lead them to play less local music than is good for society.

To make this case one needs to identify benefits of having local music other than simply hearing it. Examples of such benefits of local culture put forward by the MCH are that it will, 'enhance our ability to participate in social and civic life ... contribute to other goals of public policy such as good health and social cohesion'. While these benefits are extensive and admirable, it's hard to see how they fit the externality mould for radio broadcasting. Does listening to Stellar* contribute to public health and social cohesion? Probably not. And if there is an externality, how important is it? How big a quota do we need – 10%, 20%, 50%, why not 100%?

But maybe the externality is attached not to the hearing of local music on the radio, but to its production or to the hearing of it live, both activities that would be promoted (indirectly) by greater airplay? Certainly this would fit these arguments much more closely but, even if the link between quotas and these activities were to be established, this argument provides a very poor rationale for a local content requirement in broadcasting as it violates the targeting principle that a market distortion is best addressed directly. If we want to encourage bands to form and play live gigs we should have a band subsidy, or pay pubs for having live music. Now, such a policy would quite rightly raise all sorts of questions about the appropriate use of taxpayers' funds, of course (and one virtue of such an approach is precisely that it would bring these issues into explicit focus and debate). Nevertheless, it would be a targeted response to the perceived problem

and, compared to a radio quota that addresses the performance problem only very indirectly, would inflict no losses upon the radio audience from hearing a mix of music that, apparently, they do not wish to hear when left to their own devices.

Now for the case against: the three most common arguments made against quotas are that they (1) are unnecessary; (2) do not work in terms of increasing the popularity of local music; and (3) will lead to lower quality broadcasting. On the first of these, a 10% quota has been suggested in New Zealand and yet survey figures suggest that local music is already 9.5% of content (across all types of radio; student and youth-oriented radio stations achieve over 30%). So one might argue that New Zealand already has a healthy amount of local content played on its radio stations – high-quality content, too, as it has to be at least as good as the best the world has to offer. On the second argument, Canada has steadily upped its quota over the last three decades and yet actual sales of Canadian music have remained unchanged at around 10-12% of total music sales in Canada. The third argument is based on two things: one is a belief that competition forces commercial stations to supply what their listeners want so any constraint on their choices must make listeners worse off given what is currently available; the other is that what is available will, on average, deteriorate. Guaranteeing a market for New Zealand music will induce entry by marginal producers (ie bands) and these new entrants will necessarily be of a lower quality than existing bands (as they would not have survived in the absence of a quota).

Now, all of the arguments above apply generally to 'cultural goods', not just radio broadcasting. Yet in Canada approximately half of all books sold are by Canadian authors. Why do writers not face the problems that musicians face? Proponents of radio quotas argue that not only is there an externality in local music, but that the structure of the radio and recording markets leads to a market failure. Commercially driven radio stations seeking to maximise audience share play the proven international product, the argument goes, rather than take a chance on

unknown local music. This argument is a variant of the infant industry argument based on informational barriers to entry – if only consumers knew the true quality of the local product we'd be fine, but their ignorance creates a market failure. The trouble with it is that the argument applies equally to encouraging all new entrants, regardless of national origin, so it does not provide an argument for protecting local bands.

Society's interest in getting obscure New Zealand bands on the air is that (1) new bands can expect to earn above normal profits (so we'd rather they accrued to New Zealand bands than to foreign ones) and/or (2) it's what consumers really want to

“ CONSUMERS' IGNORANCE NO MORE JUSTIFIES ASSISTANCE OF OBSCURE NEW ZEALAND BANDS THAN OF OBSCURE KUWAITI OR BELGIAN BANDS. ”

hear. The first of these is surely not very convincing – for every profitable band there are many, many more just eking out a living, and it's certainly not obvious that overall returns exceed the competitive level. And on the second argument, the radio station already has every incentive to give consumers what they want to hear – the bigger the audience, the more attractive the station is to advertisers. Consumers' ignorance no more justifies assistance of obscure New Zealand bands than of obscure Kuwaiti or Belgian bands.

One final issue: what is the likely response of commercial radio stations to a local content requirement? A recent model developed by

Richardson¹ considers a Hotelling location model in which two radio stations choose combinations of local and international content to play, given consumers with preferences distributed over those combinations. Station revenue derives from sales of advertising time, the demand for which depends negatively on the price and positively on the station's market share and consumers get disutility from advertising and from a less-than-ideal broadcast mix of local and international content. In this setting the laissez-faire solution involves less than (socially optimal) maximal differentiation but a quota reduces the differentiation between the stations even further. While a quota may raise consumer welfare – by making stations more similar it intensifies competition over advertising leading to lower levels – the reduced station diversity and advertising lower overall social welfare. A publicly provided non-commercial station is also shown to reduce diversity and is not as effective as the quota in achieving greater airplay for local content for least welfare cost. Interestingly, a publicly provided non-commercial station leads to less diversity overall. Being non-commercial, it exerts great pressure on its closest commercial rival in the spectrum leading the latter to trim its advertising. But this makes the commercial station less of a threat to the other commercial station, which can expand its market share by becoming more like its rival in terms of programming.

While there has been some recent discussion of local content regulation in radio broadcasting in New Zealand, there has been little serious effort made to justify the market failure arguments usually cited to rationalise such schemes. Nor has there been any focus on their consequences for the programming and advertising choices of commercial stations. These issues need to be addressed before any such regulation is considered as a serious policy.

¹ Richardson, M (2001) Cultural quotas in broadcasting: local content requirements, advertising limits and public radio. Mimeo Department of Economics, University of Otago, Dunedin, New Zealand.

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The shift to fair value pricing affects dairy industry input values in ways that are virtually impossible to measure but what is clear is that the profitability of the industry as a whole will improve. Much of that improvement can be expected to be within Fonterra as a business.

1 As we do not consider that Fonterra (or its predecessor the Dairy Board) has market power in foreign markets, we would not expect returns in excess of a competitive return over time, although there may be particular lines of business for which greater than normal profits persist. One element of such returns is quota rents where high returns may continue simply from access to a high-priced market.

2 Equating economic efficiency with industry profits is strictly correct for exports only. The conclusion of this paper is not altered by taking the domestic market into account.

3 It may not always result in excess production because if unowned capital is being built up by the co-operative, as in a factory expansion, the pay-out would be lowered by the amount of retained earnings. However, given a well-established co-operative not expanding in this way, the previously accumulated unowned capital would augment the bundling incentive for excess production.

4 In the short term, the supply of cows is unresponsive to changing economic conditions and the 'excess payout' could affect their values.

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other methods of connectivity, such as leased data lines between businesses. Anecdotal evidence supports this contention, with many domestic Internet users claiming that they are unwilling to pay high broadband prices to download entertainment products such as MP3 files and video clips when these can be downloaded at zero marginal cost, including opportunity cost of time, using dial-up connections concurrently with other activities (eg overnight while sleeping).

Overall, New Zealand appears to have consolidated its position as a world-leading Internet user in the twelve months since an earlier ISCR report.⁴

1 Howell, B and L Marriott (2001) The State of e-New Zealand: 12 Months On. <http://www.iscr.org.nz/research/>

2 http://www.cid.harvard.edu/cr/gitr_030202.html

3 Howell, B (2002) Broadband Uptake and Infrastructure Regulation: Evidence from the OECD Countries. <http://www.iscr.org.nz/research/>

4 Boles de Boer, D; L Evans and B Howell (2000) The State of E-New Zealand. <http://www.iscr.org.nz/research/>

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achieved by competition. However, a court would note that Parliament considered it necessary to complement the words of section 15(1), which are equivalent to the words of the Commerce Act generic purpose statement, with a specific direction to consider efficiencies. This implies that, by itself, the phrase *to promote competition in markets for the long-term benefit of consumers* does not include the concept of efficiency.

The objectives of the Commerce Act, the electricity-specific provisions of the Commerce Act, and the Telecommunications Act, should all be the same – the promotion of efficiency, particularly dynamic efficiency. Unfortunately New Zealand is now in a position where the wording of the purpose statements for these three regimes is different. The worst ramification could be a court finding that the purpose of the Commerce Act is the promotion of competition as an end in itself, rather than efficiency.

1 See footnote 5 of Semenick Alam, I M and R C Suckles (2000) Time Series Analysis of Deregulatory Dynamics and Technical Efficiency: The Case of the US Airline Industry. *International Economic Review* 41(1) 203-218 for relevant references. The intuition is that the productive inefficiency is present for each unit produced, while the deadweight loss triangle representing allocative inefficiency only applies to consumers who do not receive the product because of the higher prices.

2 Hausman, J A (1997) Valuing the Effect of Regulation on New Services in Telecommunications. *Brookings Papers on Economic Activity: Microeconomics* 1-38.

3 Although there are exceptions. For example, in a pending article Lewis Evans and I show that collusion between the meat processing companies in the early 1990s increased allocative efficiency.

4 Fershtman, C and A Pakes (2000) A Dynamic Oligopoly with Collusion and Price Wars. *Rand Journal of Economics* 31, 207-236.

5 *Tru Tone Limited v Festival Records Retail Marketing Limited* [1988] 2 NZLR 352.

6 The new purpose statement was briefly considered (as obiter dicta) by the High Court in *Foodstuffs (Auckland) Ltd v Commerce Commission*, CL14/01, 27 June 2001. Williams J stated that: "The result may well be to postpone the interests of businesses, their directors and shareholders, to the interests of customers. The explanatory note to the Commerce Amendment Bill (No.2) said that the purpose statement "clarifies that competition is not an end in itself but a means to promote the long-term benefit of consumers and New Zealand as a whole" (paragraph 8). These two sentences are arguably contradictory.

7 My thanks to Mark Berry of Chapman Tripp for pointing these two other arguments out to me.

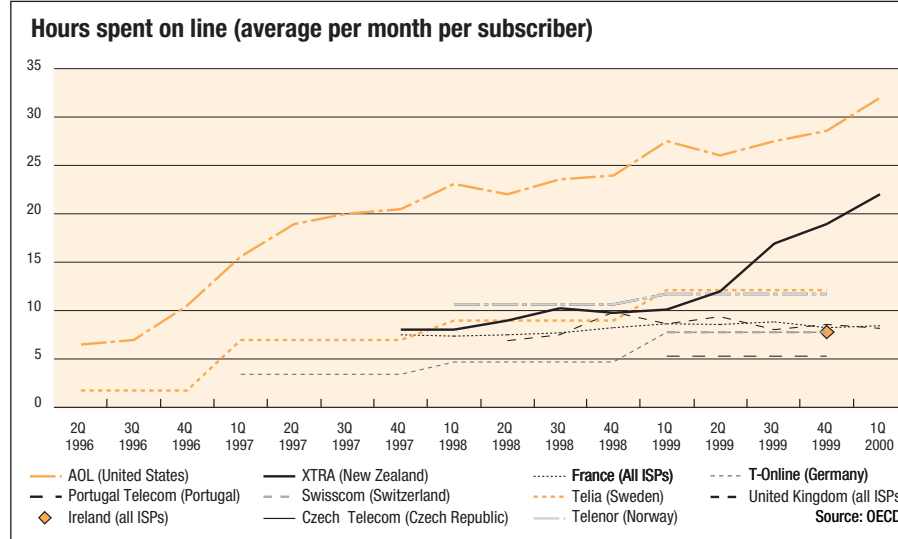
8 See, for example, section 36B.

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uncertainty is lowest and the economies of scale most attractive.

ROA uses sophisticated models to put a dollar value on flexibility, telling managers exactly what they are losing when they sacrifice flexibility in the chase for economies of scale. Financial wizardry that would dazzle even Gandalf.

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that New Zealand's fewer computers are being used more efficiently than those in Australia.

Email remains the dominant Internet application for both business and domestic users, with website provision and information searching being the next most popular use. ICT industries, manufacturing and service sector users are the most likely to be using Internet applications, with construction and personal services being the least likely. This is consistent with patterns of relative information intensity and standardisation of information exchange among these industries. New Zealand's leadership over Australia in EFTPOS and ATM transactions continues, with New Zealanders on average performing twice as many EFTPOS transactions per annum as their Australian counterparts.

One area where New Zealand lags behind other countries is in the uptake of new broadband technologies such as ADSL and cable modems. However, the very low marginal costs of dial-up access and a low opportunity cost of time for most domestic users make dial-up very cost-effective when compared with higher fixed ADSL costs and the high per megabyte charge for data transfer beyond meagre monthly limits. Consequently, only users with high preparedness to pay a large premium for fast downloading or 'always-on' Internet access (predominantly small businesses) are using this technology. As broadband connections add no additional functionality over dial-up access³ (beyond faster connections or more data downloaded), low uptake of broadband is not necessarily an impediment to reaping the benefits of electronic commerce, if existing data transfer needs are being met efficiently with dial-up technology or

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A recent ISCR report¹ confirms that New Zealanders are amongst the most Internet-connected people in the OECD.

Significantly, New Zealand has maintained its advantage over Australia in practically all measures (see box). Other international studies, for example a Harvard study, The Global Information Technology Report 2001-2002: Readiness for the Networked World,² reinforce these findings.

New Zealand's domestic land-based telephony costs are, on a purchasing power parity basis, lower than the OECD average, and the most stable since 1990. High uptake of prepaid mobile telephony is evident, with an emerging pattern of substitution of these phones for the second lines preferred in Australia and the US to maintain voice telephony contact while using dial-up Internet connections. This substitution pattern, combined with flat rate monthly ISP charging and unmetered local telephony, means that New Zealanders are able to 'surf the net' at an effective near zero marginal cost per additional minute online. Consequently, New Zealand Internet users spend nearly as much time online as Americans – Xtra customers are second only to AOL customers in the average number of minutes per month spent surfing (see graph).

New figures included in the report confirm greater relative levels of Internet uptake in provincial and rural New Zealand than in metropolitan areas, with both domestic and business users in the South Island proportionately exceeding those in the North Island. New Zealand Internet users

NZ Figures and OECD Placings

- 92.6 computers connected to the Internet (Internet hosts) per 1000 (7th) Australia 9th with 75.0
- 14.0 Internet subscribers per 100 (9th) Australia 10th with 12.7
- 11.4 websites per 1000 (10th) significantly ahead of Australia with 7.5
- 12.65 secure servers per 100,000 (5th)
- Canada 4th at 12.78, Australia 3rd at 14.91

are more likely than their Australian counterparts to use the Internet at work, school or in a library or Internet café, which indicates that the lower numbers of home computers in New Zealand compared to Australia are no barrier to New Zealanders using the Internet and gaining the benefits. One might tentatively conclude from this

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Broadband: Pipes to Nowhere?



Montage: Allflex Design

Local loop unbundling can't explain low broadband uptake, says Bronwyn Howell.¹

As yet another broadband provider in the US files for bankruptcy (Global Crossing filed on January 28, with debts of \$US12.5 billion²) the question has to be asked: why, despite the promise of ever greater demands from consumers for more and faster bandwidth, has the uptake of this new technology platform been so slow?

Despite strong endorsement by the OECD for local loop unbundling as a catalyst for the provision and uptake of broadband services, evidence from the thirty member countries does not appear to support this contention. Local loop unbundling policies require incumbent network operators to provide access to their infrastructure network to competing firms, usually at prices and conditions specified by regulatory intervention.³ The rationale supporting unbundling is that it encourages competition by reducing barriers to the entry of new firms, stimulating innovation, while avoiding unnecessary and inefficient duplication of infrastructure. However, although 24 OECD countries practice local loop unbundling, the leading broadband uptake country is Korea, with no such policy in place. Further, in New Zealand, without any overt regulatory policy other than the Kiwi Share, DSL uptake is five times higher than in Australia, where both unbundling and price designation occur. In fact, New Zealand's broadband uptake is the same as that

of Germany, where over \$US3 billion has been invested in unbundling in the last two years.

Any regulatory policy that promotes the rollout of telecommunications infrastructure in isolation from market demand risks wasting resources. Think of a water or gas pipe network: building pipes without considering the likely demand from the users of the water or gas that runs through the pipes would be foolhardy. Yet this is precisely the rationale that appears to be applied when promulgating local loop unbundling. There is no doubt that once the water pipe is built, a firm may find a use for the water conveyed in it, or at least a justification for locating a business at the end of the pipe. However, this may not be the most efficient investment strategy for both pipe owner or water user combined. Unbundling telecommunications networks to promote the use of high-speed Internet access is akin to building a pipe to nowhere.

Instead, the evidence suggests that it is competitive pressure from cable modems, rather than unbundling, that is driving broadband rollout and uptake. In almost all countries practicing unbundling (Germany and Denmark are the exceptions), cable modem broadband access exceeds telephony-based DSL by a factor of between five to one and three to one.

Cable dominance in broadband uptake also lends credence to the argument that it's the demand for applications that drives the demand for infrastructure enabling the applications to be

used. Cable packages bundle content and high-speed Internet access but it's the content – mostly entertainment – that creates the need for high-speed access. Unfortunately for broadband, the budget for entertainment has not grown in real terms any faster than the available hours for recreation in the past century (only the medium of entertainment has changed).⁴ This implies that only substitution effects are driving domestic broadband uptake. It's only when new applications substitute for demand in other markets that we would expect to see growth in infrastructure demand (such as the case in Korea, where broadband-based voice-over-IP applications are substituting for high-priced international telephony charges).

Thus the answer to the questions being asked by companies such as Global Crossing may well be found in the limits to substitution. Unfortunately, more infrastructure companies may have to discover this the hard (and costly) way.

¹ Howell, B (2002) *Broadband Uptake and Infrastructure Regulation: Evidence from the OECD Countries*. ISCR Research Paper <http://www.iscr.org.nz/research/>

² *Knowledge at Wharton: Factors Behind Global Crossing's Failure*. <http://knowledge.wharton.upenn.edu/>

³ *Local loop unbundling can give newcomers the opportunity to install their own equipment on the incumbent's infrastructure thus giving them some ownership and control rights over the enhanced infrastructure. This is the distinction between unbundling and wholesaling, where the incumbent must provide the newcomer with services on the network as determined by the regulator.*

⁴ Galbi, D (2001) *Some Economics of Personal Activity and Implications for the Digital Economy*. Paper presented at the 19th ICFC Conference, Washington, DC.; June 26-29, 2001.