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A Pendulous Progression: New Zealand's Telecommunications Regulation 1987-2007

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Abstract

New Zealand was the first country in the OECD to adopt a 'light-handed' approach to telecommunications regulation when, in 1987, it eschewed industry-specific regulation for a generic competition law-based approach. The 'light-handed' regulatory environment prevailed throughout the 1990s, during the privatisation of the incumbent provider, the entry of competitive fixed-line infrastructure and services suppliers, the establishment and growth of mobile market competition, the expansion of the commercial internet and the consequent emergence of the 'information economy'. Over this period, New Zealand emerged as one of the earliest-adopting and highest-utilising OECD countries, with its ADSL services amongst the earliest, highest quality, most widely-available and lowest-priced in the OECD.

Since 2000, however, there has been a sea-change in the New Zealand approach to telecommunications regulation. Following a Ministerial Inquiry into the industry in 2000, industry-specific regulation was introduced in 2001, limited bitstream unbundling was imposed in 2004, full unbundling and the ability to undertake standard terms determinations were mandated in 2006 and in 2007, operational separation, overseen by the Minister and not the regulator, was imposed. Regulated mobile termination was also rejected in 2007, in favour of ministerially-brokered agreements.

By tracing the economic performance of the New Zealand telecommunications sector during the periods of regulatory change in terms of productive, allocative and dynamic efficiency, this paper finds that there is little evidence to suggest that the 'light-handed' regime performed any worse than comparable industry-specific regimes over the same period. Rather, the return to industry-specific regulation and each successive increasing of regulatory pressure appears to have been associated with reduced economic performance and reductions in competition relative to the regime replaced. Increased regulatory tension has also been associated with replacement of pursuit of economic efficiency as the sector objective with pursuit of competition, in isolation from the efficiency consequences of this policy change. It is therefore unlikely that the latest changes, including direct political control, will deliver greater welfare to the New Zealand market.

The paper suggests that an unjustified focus upon the incumbent's dominance as the underlying cause of poor competition metrics has resulted in policy-makers overlooking the role of the contribution of different regulations to the competition metrics observed. In particular, the only regulations forming part of the light-handed regime which have not been overturned, a universal service obligation and a mandatory tariff requiring no charges be

levied for residential local telephony calls, are materially connected with all of the poor performance indicators which have been used to justify increased sector regulation. These requirements, persisted with because of political, rather than economic efficiency imperatives, provide a more plausible explanation for practically all of the positive and negative efficiency, competition and strategic interaction observations observed in the New Zealand sector over the past 20 years than the alternative hypotheses that competition law has failed and the incumbent has exercised its dominant position unduly.

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Introduction

New Zealand was the first country in the OECD to adopt a ‘light-handed’ approach to telecommunications regulation when, in 1987, it eschewed industry-specific regulation, “relying instead on the potential for entry to discipline behaviour within the context of a business environment for which the competitive practices of all firms are subject to a single Commerce Act” (Boles de Boer & Evans, 1996:24). The Telecommunications Act 1987 marked the end of combined state sector ownership and political control of the telecommunications sector that had characterised the New Zealand industry’s first hundred years (Wilson, 1994). The reforms resulted in the removal of all regulatory restrictions on the supply of telecommunications equipment from mid 1988, the creation of a stand-alone telecommunications State-Owned Enterprise (SOE) on 1 April 1989, and the simultaneous removal of all statutory monopoly provisions protecting the state-owned enterprise from competition in any of its activities.

The ‘light-handed’ regulatory environment established under the Commerce Act 1986 and the Telecommunications Act 1987 prevailed throughout the 1990s, during the privatisation of the incumbent provider (Telecom Corporation of New Zealand Limited, hereafter Telecom) in 1990, the entry of competitive fixed-line infrastructure and services suppliers from 1991¹, the establishment and growth of mobile market competition from 1994², the expansion of the commercial internet from 1996 and the consequent emergence of the ‘information economy’ (Howell & Obren, 2003). Contemporaneously, New Zealand emerged as one of the earliest-adopting and highest-utilising OECD countries in respect of most of the demand-side indicators typically used to assess improved economic performance arising from the Internet, such as the number of individuals connected, the number of hours spent online, the number of secure servers per capita, the number of transactions per secure server and the number and use of autonomous and routed IP addresses per capita (Howell & Marriott, 2004; Howell, 2006; 2007). Furthermore, on the supply side, New Zealand’s ADSL services were initially amongst the earliest, highest quality, most widely-available and lowest-priced in the OECD. Nonetheless, the country’s broadband uptake has been low by OECD standards (Howell, 2003; 2006).

¹ Clear Corporation, held by majority owners MCI International and Bell Canada Enterprises, with minor partners New Zealand Railways, Television New Zealand, and Todd Corporation (Boles de Boer and Evans, 1996), entered the market using the then New Zealand Railways fixed fibre-optic cable to bypass the Telecom network. Clear invested in the provision of local infrastructures servicing the business districts in most New Zealand cities, as well as the domestic and international long-distance markets (Evans, Grimes, Wilkinson and Teece, 1996). In 1991, Saturn Communications was established on the Kapiti Coast, near Wellington, providing telephony and television services via fibre-optic cable. Telstra Corporation (Australia) established Telstra New Zealand in 1996. Telstra New Zealand purchased Saturn in 1999 and Clear in 2001, forming TelstraClear Ltd on December 15 2001 <http://www.telstraclear.co.nz/companyinfo/history.cfm>.

² BellSouth started its GSM cellphone service in 1994 (Evans, Grimes, Wilkinson and Teece, 1996). Vodafone purchased BellSouth in November 1998, forming Vodafone New Zealand <http://www.vodafone.co.nz/personal/about/company-information/>

Since 2000, however, there has been a sea-change in the New Zealand approach to telecommunications regulation. Following a Ministerial Inquiry into the industry in 2000³, a Telecommunications Commissioner was established in 2002 to oversee industry activity⁴, an inquiry was held in 2003 on the merits of unbundling the local loop⁵, limited bitstream access was granted in 2004⁶, full unbundling and the ability to undertake standard terms determinations were mandated in 2006⁷ and in 2007, the Telecommunications Minister announced his intention to instruct Telecom to operationally separate its network activities from its wholesale and retail activities⁸ and that he, rather than the Telecommunications Commissioner, would take the lead in overseeing the separation process⁹. A return to direct political control of sector strategy is further evidenced by the decision of the Minister of Economic Development to directly broker a fixed-to-mobile termination agreement with the two mobile network operators after the Minister of Communications twice rejected the Commissioner's recommendations to regulate prices and terms in this market¹⁰.

The swing of New Zealand's regulatory pendulum from political control to light-handed regulation to increasingly more stringent industry-specific regulation and finally back to significant political direction of sector strategy and activity in the space of only twenty years poses some interesting questions. The radical changes suggest demonstrable failure of the 'light-handed' regime to deliver the desired objectives in the New Zealand context, begging answers to two important questions:

- what were the objectives for the 'light-handed' regulatory regime, and what evidence supports a finding of failure sufficient to justify such wide-sweeping change in regulatory direction?; and
- how have the return to industry-specific regulation and the incremental changes to the new regulatory regime since its inception in 2001 addressed these shortcomings, and what have been the drawbacks?

The most recent changes imposing operational separation and a return to significant direct political control beg answers to further questions, not least because they deviate significantly

³ Ministerial Inquiry Into Telecommunications http://www.med.govt.nz/templates/StandardSummary_16318.aspx

⁴ Commerce Commission <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Overview.aspx>

⁵ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Investigations/LocalLoopUnbundling/Overview.aspx>

⁶ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Investigations/Unbundling-BitstreamServices/correspondenceandrelateddocuments.aspx>

⁷ http://www.med.govt.nz/templates/ContentTopicSummary_20266.aspx

⁸ http://www.med.govt.nz/templates/ContentTopicSummary_26310.aspx

⁹ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=29595>

¹⁰ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=29126>

from the regulatory best practice principles promulgated by both the OECD and the ITU and proceed in a direction diametrically opposed to that pursued in most other OECD countries:

- why has New Zealand embarked upon some of the most stringent regulatory actions possible at a time when other countries are debating the merits of reduced reliance upon ex ante industry-specific regulation and greater emphasis upon competition law to govern industry interaction (e.g. the members of the European Union) or are actively dismantling sector-specific regulation (e.g. Canada¹¹ and the United States)?; and
- why is operational separation being pursued at a time when the industry in most other countries is strongly characterised by consolidation amongst existing players and vertical integration of content, service and transport providers in order to justify the business case for investment in next-generation technologies¹²?

Furthermore:

- what can be learned from the New Zealand experience to inform the debate in other countries?; and
- what are the likely consequences for the future of the New Zealand industry as a result of the regulatory choices that have been made?

This paper traces the evolution of the New Zealand regulatory framework and sector performance in order to provide some insight and possible answers to these questions. Section one details the origin of the 'light-handed' regime, competitive interaction from 1987 to 2000, and the concerns raised about the efficacy of the New Zealand approach. Section two examines the return to industry-specific regulation between 2000 and 2006. Section three discusses the politicisation of telecommunications regulation and the resumption of direct Ministerial intervention between 2005 and 2007. Section four draws out and discusses the prevailing trends. In each of these four sections, the relative performance of the relevant regime is discussed, in the dimensions of static and dynamic efficiency, the extent to which gains and losses are shared between producers and consumers, and the effect of the regime on the strategic interactions between sector participants (that is, the nature and extent of competitive interaction). Section five concludes by directly addressing the questions posed above.

¹¹ http://www.telegeography.com/cu/article.php?article_id=19089&email=html

¹² See, for example, Ford, Koutsky and Spiwak (2007) for a discussion on the different approaches to competition policy necessary to support investment in a market characterised by inter-platform competition.

1. 'Light-Handed' Regulation: 1987-2000

New Zealand's light-handed telecommunications regulatory regime formed part of an economy-wide move away from extensive government ownership and industry-specific control of a very substantial amount of commercial activity towards reliance predominantly upon the provisions of the Commerce Act 1986 to govern all commercial interactions. This move began in 1984, when a constitutional and foreign exchange crisis propelled the newly-elected Labour government into "one of the most notable episodes of liberalization that history has to offer" (Henderson, 1995 cited in Evans, Grimes, Wilkinson & Teece, 1996: 1856). A consensus of politicians and government officials agreed that "whatever the source of New Zealand's economic difficulties, the solution to its critical structural problems must be sought in far-reaching structural reform and liberalization" (p 1862).

The package of policies settled upon was based on "stable, credible and mutually consistent macroeconomic policies which would assist in the efficient allocation of resources" and a microeconomic policy "achieving, wherever possible, a competitive environment in which markets can operate relatively free from subsequent intervention by government" (p 1863). The pursuit of economic efficiency (across all of its productive, allocative and dynamic dimensions) thus became the guiding principle for the economic restructuring that occurred largely unchanged between 1984 and 1999. Economic theory holds that the appropriate performance standard is social welfare (the sum of consumer and producer welfare). However, when the impacts on consumer and social welfare differ, such as when competition leads to increases consumer welfare but decreases in total welfare, the effects on total welfare (efficiency) should prevail¹³. Competition thus became the principal, but not necessarily the exclusive, means towards achieving the end of increased economic efficiency in New Zealand's regulatory regime.

1.1 The New Zealand Economic Context

A specific efficiency challenge in designing the New Zealand liberalization principles lay in characteristics of the New Zealand economy: its small size, small population, low population density, geographical isolation, challenging terrain, thin capital markets and historically highly-concentrated industries. The high per-capita and per-account costs of regulatory regimes in small economies had to be considered, along with the challenges of providing

¹³ Tensions between total welfare and consumer welfare are characteristic in many industries. For example, Gaynor (2006) discusses the tension with respect to the effects of increased competition in the United States healthcare markets. The Kaldor-Hicks criterion holds that pursuit of total welfare is preferred, as society is better-off under this condition. If total welfare is greater as a consequence of a policy change, then the gains to the 'winners' will exceed the losses incurred by the 'losers', meaning the change is a net benefit to society, even if the gains are not actually shared with the losers (e.g. via taxes and redistribution).

incentives to investors given the higher risks and higher costs of capital associated with smaller markets. Even in the face of free entry and negligible other barriers to competitive interaction, as firms pursue efficiencies of scale, small economies tend to be characterised by industries with a small number of firms with considerable individual or joint market power, (Arnold, Boles de Boer & Evans, 2003). Furthermore, vertical integration and entry into adjacent markets to take advantage of economies of scope can also result in large firms with the potential to exert considerable influence in shaping interactions across large sections of the economy.

The predominant competition issue in small markets is not the elimination of market power *per se*, as the pursuit of efficient scale and scope makes this objective very rarely obtainable. The relevant issue is rather trading-off the risks and costs of possible, but uncertain future exertion of a dominant position against the certain high per-unit costs of ex ante regulation, the risks of regulatory distortion of investment incentives in highly concentrated industries with thin capital markets, and the consequences of natural, as well as regulatory, barriers to the accrual of economies of scale and scope. Removal of legislative entry barriers enables threat of entry to discipline behaviour, but this is insufficient where structural barriers (e.g. natural monopoly) remain. Competition and regulation frameworks in such a context must permit dominant firms to invest and trade (for without their presence, a missing market for investment in and production of their products and services will emerge), whilst cost-effectively disincentivising the exercise of further dominance, monitoring any exertion of a dominant position, and enabling cost-effective punitive and remedial action to be taken when necessary (Arnold, Boles de Boer & Evans, 2003).

1.2 The New Zealand 'Light-Handed' Approach

The New Zealand policies of the 1980s, relying upon generic competition law, with its emphasis on allowing dominance to exist, but punishing its exertion, were born from a pragmatic need to promote efficient commercial activity, given the country's economic constraints. The use of a single court-based mechanism to arbitrate disputes offered economies of scope in the use of precedents determined in respect of one industry across all commercial activities (most of which were simultaneously facing changes to their competitive environments as part of the economy-wide deregulation), at the same time as it facilitated the 'depoliticization' and 'commercialization' of decision-making in the industries historically used as instruments for delivering political objectives at the expense of economic efficiency¹⁴.

¹⁴ For example, employment in New Zealand government departments had historically been used extensively as a substitute for welfare (unemployment) benefits, and it was not uncommon for the timing of infrastructure investment in specific industries or geographic locations (e.g. upgrading of a local telephone exchange) to be correlated with electoral cycles, the degree of influence

The purpose statement of the Commerce Act 1986 required the promotion of competition in markets “for the long-term benefit of consumers within New Zealand”. The pivotal clause was Section 36, requiring that “no person who has a dominant position in a market shall use that position for the purpose of restricting entry or preventing competitive conduct in any market, or eliminating any person from any market”. It carried heavy financial penalties for non-compliance. Section 27 sought to constrain the opportunities for two or more firms to jointly exercise their dominant position via explicit or implicit contractual co-operation. Section 47 specified the terms under which firms can legally merge.

However, contrary to claims that the New Zealand ‘light-handed’ reforms relied upon competition law alone to govern activity (e.g. Spiller & Cardilli, 1997), vertically integrated natural monopolies created from historic government operation (subsequently corporatized and in some instances privatized) faced obligations over and above the requirements the Commerce Act placed on other firms. The corporatized and privatized former government-owned firms were further bound by either statute or contract with the Crown to undertake “specific information disclosure to make transparent the performances of businesses with market power; this facilitates both negotiations with these businesses and recourse to the provisions of the Commerce Act” and faced “the threat of further regulation (such as the introduction of price controls under part IV of the Commerce Act) if market dominance is abused” (MoC/Treasury, 1995:2).

It is the bundle of legislative, contractual and regulatory obligations on, along with the removal of all statutory protections for, the former government businesses that has come to be known as “New Zealand’s ‘light-handed’ regulatory regime” (*ibid*), and which distinguishes the markets for services such as telecommunications, electricity, post, railways, air transport, banking and gas, where elements of natural monopoly prevail, from other markets such as supermarkets, medical services, dairy and petroleum products¹⁵.

1.3 The Road to Privatization: 1987-91

Telecommunications in New Zealand was historically a government monopoly, bundled with postal services and a trading bank. In 1987, it was characterised by substantial productive

of the local politician in national decision-making, and the closeness of competition between political parties in marginal electorates (ISCR, 1999; 2000).

¹⁵ These industries have all been subject to high-profile determinations under the Commerce Act regarding either the extent of competition in the event of a merger (supermarkets, dairy products), or the exertion of market power by a party with a dominant position (medical services and petroleum products).

inefficiencies (Boles de Boer & Evans, 1996), poor service quality, obsolete equipment¹⁶ and long queues for both connections and call placement (McTigue, 1998). Liberalization began with the Telecommunications Act 1987, which allowed for separation of telecommunications from postal and banking services (Boles de Boer & Evans, 1996). The ‘light-handed’ legislative and contractual restrictions imposed upon separation derived principally from the need to ensure the new firm was limited in its ability to exert its dominance, and a political imperative that the tariff structure developed under government ownership, with its attendant socially- and politically-motivated wealth transfers effected via telecommunications pricing, was substantially unaltered with respect to residential (i.e. voting) customers.

1.3.1 Regulation and the Government’s Provision Monopoly

Initial investment in the New Zealand telecommunications sector was undertaken by an assortment of provincial government and military interests, who built telegraph service facilities in response to the local economic or strategic necessity to transmit messages quickly¹⁷. Newspaper owners were ardent advocates for increased civic and government investment in telegraph facilities (notably refraining from investing themselves¹⁸), and became important non-government customers when the services were made available. Development of telegraphy, like that of the postal service, was rapid, driven by both commercial imperatives and political aspirations to provide nationwide telegraph connection¹⁹ and to encourage settlement in New Zealand’s interior²⁰. As telegraph services developed contemporaneously with rail and postal services (indeed, telegraph lines improved co-ordination, thereby making railway construction more efficient, just as railways improved the reliability of the postal services), problems of scale and geography combined with common ownership to result in joint post/rail/telegraph offices in many locations.

The pattern of telegraph regulation closely followed the pattern established with postal services. The inauguration of colonial self-governance in 1856 resulted in central government

¹⁶ McTigue (1998) states that in 1984, while large amounts of fibre-optic cable had been laid, subscriber details continued to be recorded and maintained manually, and “telephones could be purchased from only one supplier: the government, and the choice was black or white, both with a round dial on the front” (p 35). State-of-the-art equipment such as faxes had to be purchased from the government, whose competing interests meant that sourcing equipment that would allow New Zealand companies to remain competitive was not a high priority. He contends that this resulted in major disincentives to foreign investors, and compromised the financial returns of New Zealand’s export-focused firms who relied on timely communication for their competitiveness in world markets.

¹⁷ The first telegraph was commissioned by the Canterbury Provincial Council in 1858, although it did not become operational until 1862, due to lack of funds, technical difficulties and litigation with the original contractor (Wilson, 1994:25-28). The second was commissioned by British military forces in Auckland province from the Royal Engineers in anticipation of attack by Waikato Maori. Following the defeat of the Waikato Kingite movement, the military asked central government to take over the economically profitable line, which it did in 1866 for £2,276 (Wilson, 1994: 29-30).

¹⁸ Wilson (1994:26) notes that William Reeves (father of Prime Minister William Pember Reeves) and Crosbie Ward, owners of the Lyttleton Times, used their newspaper to successfully advocate for government investment in a telegraph from Lyttleton to Christchurch.

¹⁹ Postmaster-General, in the Department’s Annual Report 1863 (Wilson, 1994:26).

²⁰ Wilson (1994:22) notes an intention of the Local Posts Act 1856 was to “establish a system commensurate with the rapid increase of population nationwide ... and to encourage and facilitate settlement of the interior”.

assuming responsibility for regulating standard, nationwide postal tariffs to replace a plethora of inconsistent and confusing locally-established inter-provincial tariffs (Wilson, 1994:20). By 1864, central government had assumed overall regulatory responsibility for the developing telegraph as well as postal services, with both services operating under the umbrella of the Post Office, initially in Christchurch where the first telegraph service began operation in 1862 and subsequently in Wellington (Wilson, 1994:28). In 1876, following the disestablishment of provincial government, central government assumed ownership of all provincial government telegraphy assets. Combined with its existing ownership of the former military telegraph in Auckland, central government thus became both regulator and predominant owner and operator of telegraph services from 1876.

Following an approach in 1878-9 by the privately-owned Melbourne Telephone Exchange Company about starting a New Zealand service, the administrative head of the Post Office telegraph service urged the Commissioner of Telegraphs (politician) to amend the Electric Telegraph Act to prevent anyone other than the government from operating a telephone service without the consent of the Governor in Council (Wilson, 1994:63)²¹. The amendment was passed in 1880. The legislation enabled consent to be given under a contract system for some private lines (equipment, wire and installation funded by the owner, but laid and operated by the government service)²² and exchanges²³ to operate in (especially rural) areas where the government had no intention of investing itself²⁴. Most of these contracts involved the stipulation of high sureties to cover any operating losses incurred by the government and the right for the government to take over the privately-funded assets in the event of default on any government charges. Granting of such consents was centralised in Wellington and undoubtedly subject to political influence²⁵. The government was thus able to exercise effective monopoly control over investment and service provision without having to underwrite the full capital and operating cost (especially in rural areas), via the combination of its and regulatory powers and ownership of the key facilities.

²¹ Wilson suggests the administrative head's strong advocacy for government ownership and restrictions against private sector competition be a consequence of his desire to expand the ambit of his personal level of bureaucratic control. The new technology provided an opportunity to achieve this objective.

²² From 1899, the government required that individuals seeking private contracts be part of a group comprising six 'reputable people'.

²³ These were often run as co-operatives, were small in number and generally had very short lifespans before being subsumed into government ownership (Wilson, 1994:70).

²⁴ Wilson (1994:71) notes that from the 1880s to 1900s, "the state met the demands of rural telephony only when called upon to do so through the contract and petition system". From 1912, the Country Telephones Act enabled local bodies to supply wires and connect residents to the government-owned exchanges, thereby replacing much private funding of many rural connections with ratepayer funding. Adjacent local bodies were also enabled by this Act to pool resources and raise loans for the purpose of telephone service provision.

²⁵ Wilson notes that local authority support was routinely provided for 'petitioners' seeking to enter into such contracts, which were granted in limited numbers according to strict bureaucratic procedures, including the political sanction required under the legislation in order to receive the Governor's consent.

The pattern of nationwide tariffs set independently of costs, established in postal and telegraph services, was carried over to telephony. Although initially based upon a complicated set of factors including the length of the wire to the exchange, the duration of subscription and order of connection to a new rather than existing exchange, national line rental tariffs were simplified and standardised in 1883 (£12 per annum for the first year and £10 per annum thereafter), albeit with official and business consumers being prioritised over household consumers in connection order as a consequence of an administrative and political perception that telephones were a luxury item (Wilson, 1994:66). From the start of service provision in 1879, local per-call charges between individuals connected to the same exchange were eschewed by both administrators, who deemed them “complex and onerous for exchange staff who would have to log the calls” and politicians who considered them to be “politically unpopular”. Whilst line rentals altered over time as economies of scale accumulated and politicians adjusted tariffs for political purposes²⁶, the principles of universal rentals and free local calling prevailed.

Whilst centralised control of investment may have been theoretically efficient in the New Zealand market initially, it appears to have arisen not as a consequence of a conscious pursuit of efficiency, but as a consequence of the pursuit of centralised control for largely bureaucratic purposes. The ensuing government ownership ensured that political considerations and bureaucratic convenience governed ongoing investment, service operation and tariff-setting²⁷. Concomitant development and joint management of both postal and telephony services, whilst initially born of an economy of scope, persisted despite growing evidence that increasing specialisation meant that the two services and their third partner, banking, would be more efficiently operated separately. Reluctance to separate them was underpinned principally by arguments of historic, political and bureaucratic preference.

1.3.2 New Zealand’s Light-handed Telecommunications Regulation Approach

By 1987, the individual post, telephone and banking services operating under the Post Office umbrella were managed essentially as separate, although quite inefficient, businesses. Irrespective of the issue of ownership, there was a growing awareness under the post-1984 policy paradigm of the efficiency gains available from separating the businesses, not just

²⁶ Wilson (1994:66) notes that Vogel, as Postmaster General in 1884, criticised the 1883 reductions by the previous Ministry as premature, and then reduced the tariffs to £9 (new subscribers) and £8 (renewing subscribers) in 1885. Ward criticised Vogel’s tariffs in the house in 1888, and in due course reduced them to £6 and £5 in 1891 when he became Postmaster General in the new Liberal government.

²⁷ Wilson (1994:151-3) describes the politicisation of ‘free local calling’ areas and differential rentals for areas with different populations covered by ‘free local calling’ as consolidation of exchanges occurred with improvements in technology. Whereas ‘free local calling began as an efficiency consideration (transaction cost-reducing, as it saved exchange staff the bother of logging calls), it rapidly became a distributional issue subject to arbitrary political decision-making that resulted in ‘free calling’ areas expanding. These decisions resulted in costs from toll revenues foregone

operationally, but also by separating their operation from their regulation (Wilson, 1994:chapter 10). The first step towards regulatory separation was to establish a telecommunications regulatory regime independent of the operation of the business, via the passing of the Telecommunications Act in 1987. The Act allowed for the establishment of a corporate entity subject to the Commerce Act, but eschewed an industry-specific regulatory body.

Whilst the policy analysis backing the Telecommunications Act 1987 included an evaluation of the relative efficiency-based merits of the introduction of an industry-specific regulator (as in Australia) and structural separation of access from downstream services (as in the United States), the government of the day recognised “the theoretical and practical drawbacks of extensive regulatory intervention” (MoC/Treasury, 1995:2) and opted instead for the ‘light-handed’ option. The Government policy statement for the telecommunications sector in 1991 proclaimed “the Government sees competition as the best regulator of telecommunications markets”. However, the possibility of more extensive regulation via Part IV of the Commerce Act should the need arise was explicit.

Consistent with the requirements of ‘light-handed’ regulation, the Telecommunications Act 1987 removed all regulatory barriers to the supply of equipment immediately, and paved the way for the creation on 1 April 1989 of a stand-alone corporation facing no regulatory protections. The Act required the separated telecommunications entity to disclose retrospectively the terms and conditions of any contracts with discounts in excess of 10 per cent of listed prices, and to provide regular reports on specific activities to the Ministry of Commerce (subsequently the Ministry of Economic Development).

1.3.3 Privatisation and the ‘Kiwi Share’

Telecom was sold to a consortium led by Bell Atlantic and Ameritech on 12 September 1990 for NZ\$4.25 billion. The sale terms required the purchasers to sell a majority of the shares to private investors. On 19 July 1991, the consortium complied with this requirement, selling 724.5 million shares (Boles de Boer & Evans, 1996). From its inception, the privatised Telecom Corporation of New Zealand Limited has been the largest firm listed on the New Zealand stock exchange (NZX), and one of the most influential actors in the New Zealand economy. It is exceeded in commercial size only by the farmer-owned dairy co-operative Fonterra²⁸ and the government itself. Over its lifetime, it has consistently comprised

²⁸ With over 13,000 farmer-members (96 % of the country’s dairy farmers), Fonterra is the world’s sixth-largest dairy company and is the largest company in Australasia. Its formation in 2001 reflects the pragmatic New Zealand approach towards the acceptance of large firms with market power in order to capitalise on scale economies.

between 20% and 25% of the total capitalisation of the approximately 200 NZX-listed companies. Its dominance of the NZX means that it comprises a substantial proportion of the holdings of a large number of New Zealand's managed and indexed investment funds, including the Government's own superannuation fund.

Upon privatization, all reporting obligations of the predecessor State-Owned Enterprise were transferred to the new owners. In addition, the terms of sale included specific undertakings known as the 'Kiwi Share'²⁹. The Kiwi Share bound Telecom to an agreement whereby the price of residential telephone rentals would not rise faster than the Consumer Price Index (CPI) unless profits were unreasonably impaired (the 'price cap' obligation), rural residential rental prices would not exceed urban residential rentals (the 'universal service' obligation) and residential customers would continue to be offered a tariff with no charges for local³⁰ calls (the 'free local calling' obligation) (Boles de Boer & Evans, 1996). The 'Kiwi Share' in effect bound the new entity to maintain the tariff structure prevailing since the inception of telephony in New Zealand, with all of its inherent redistributive and political implications. Despite the fact that competitive entry was anticipated under a liberalized regime, it does not appear that the likely effects of the social and political obligations upon the development of competition in the market (as per Farrell, 1996) were explicitly addressed at the time of privatization³¹.

1.3.4 A 'Lightly-Regulated', but not Unregulated, Market

The New Zealand telecommunications market post-1990 was thus 'lightly regulated' but far from 'unregulated'. The monitoring and policy advisory duties typically undertaken by industry-specific regulatory bodies were undertaken by the Ministry of Commerce/Ministry of Economic Development, whilst the courts, rather than an industry-specific regulator, made determinations in respect of the actions of any participant in the sector. The Commerce Commission, as guardian of the public interest under the Commerce Act, had the power to bring to court cases of alleged exertion of market power, as did any aggrieved potential or active market participant. Arguably, these arrangements offered most of the informational monitoring protections of a regime with an industry-specific regulator, albeit with the attendant risks of free-riding on each other's monitoring efforts, but without the overheads of maintaining a separate regulatory institution and industry-specific regulations. Obligations

<http://www.fonterra.com/wps/wcm/connect/fonterra.com/fonterra.com/Our+Business/Fonterra+at+a+Glance/About+Us/Our+History>.

²⁹ Subsequently the Telecommunications Service Order or TSO.

³⁰ NZIER (2005) notes that the local calling areas in New Zealand, where the 'free calls' are made, are amongst the largest in the OECD.

³¹ It is noted that the New Zealand approach to retail tariff regulations differs substantially from the retail tariff changes in many other OECD regimes, where there has been substantial rebalancing of tariffs, both between customers of different types (residential and business), and between the line rental and calling charge components (OECD, 2007).

which in other jurisdictions were the subject of regulations, such as price controls and universal service obligations, were instead agreed contractually between the government and Telecom.

The bundle of obligations was theoretically well-suited to the operation of a market where pursuit of economic efficiency was the primary objective and achievement of economic scale was problematic. However, as New Zealand was the first country to pursue such deregulation, the regime lacked any legal or operational precedents to guide participants' behaviour. The result was some uncertainty as to how all of the parties concerned – politicians, government officials, Telecom, actual and potential entrants, and customers – would interact in the new environment.

1.4 Entry, Competition and Litigation: Clear v Telecom 1991-4

Market liberalization and the removal of entry barriers rapidly led to competition for the newly-privatized Telecom. Clear Communications Ltd (hereinafter Clear) held by majority owners MCI International and Bell Canada Enterprises, with minor partners New Zealand Railways, Television New Zealand, and Todd Corporation, entered the market in 1991, using the then New Zealand Railways fixed fibre-optic cable to bypass the Telecom network (Boles de Boer & Evans, 1996). Clear subsequently invested in the provision of local infrastructures servicing the business districts in most New Zealand cities, as well as the domestic and international long-distance markets (Evans, Grimes, Wilkinson & Teece, 1996).

Clear initially appeared to have little difficulty in negotiating a satisfactory long-distance interconnection agreement (ICA) with Telecom. McTigue (1998:36) reports Clear acquired a 20% market share in national long distance and 23% market share in international calling in its first five years of operation. However, the negotiations for a local calling ICA quickly became contentious. The ensuing litigation remains to date the only completed action brought by a competitor against Telecom under Section 36 of the Commerce Act³², but its consequences have become the principal foundations for accusations of 'failure' levelled at the 'light-handed' regime in telecommunications in particular, and the New Zealand economy in general, and therefore became the 'springboard' from which subsequent reforms were launched.

³² There is an action currently under consideration, brought by the Commerce Commission, citing the public interest, regarding Telecom's separation of data from voice traffic on the PSTN via the use of an special 0867 calling prefix . This is discussed subsequently.

1.4.1 Three Decisions on a Pricing Rule

At the core of the case brought by Clear in August 1991 was the use by Telecom of the Efficient Component Pricing Rule (ECPR) in its local calling ICA with Clear. Telecom argued that this pricing mechanism allowed it to recover profits foregone, thereby enabling continuing cross-subsidy of unprofitable residential services that it was obliged to provide under the 'Kiwi Share'. The ECPR offers the advantage of discouraging inefficient entry when an incumbent is required to deliver social obligations, but under some circumstances it may also discourage efficient entry (Economides & White, 1995). The ECPR was found not to violate Section 36 by the New Zealand High Court in 1992³³. The court ruled that Section 36 prevents monopoly pricing only when used with the intent of restricting, preventing or eliminating competition in a market; it deemed that monopoly pricing to recover 'Kiwi Share' costs does not if itself constitute restriction, prevention or elimination of competition. However, the Court of Appeal³⁴ found in 1993 that Telecom could not lawfully charge an interconnection price that included a component of monopoly rent (i.e. cost-based prices, excluding the Kiwi Share costs, must be charged)³⁵.

Telecom then appealed to the final arbiter, the Judicial Committee of the Privy Council of Great Britain³⁶. The case was heard in 1994. The Privy Council decision argued that Clear's Section 36 case rested upon showing that Telecom had used its dominant position for the purpose of preventing, deterring or excluding competitive conduct. As Telecom had set its prices for Clear on the basis of opportunity cost, it was deemed to be behaving exactly as would any firm in a competitive market, so the appeal was upheld. Further, it was held that the application of the ECPR would put Clear in a position to compete out over time any monopoly profits obtained by Telecom, and that, if they were not competed out, the Government had the ability to introduce price controls under Part IV of the Commerce Act. Moreover, the Privy Council found that Clear had not demonstrated that Telecom's prices

³³ Clear Communications v Telecom Corporation (1993) 5 TCLR 166 (HC) 25, 27, 35, 103

³⁴ Clear Communications v Telecom Corporation (1993) 5 TCLR413 (CA) 25

³⁵ It is noted that the opportunity costs used by Telecom in calculating its income foregone were based upon the retail prices charged little more than a year earlier by the government owner, and were subject to the 'Kiwi Share' 'price cap' obligation. By extension, if the prices based on opportunity cost used by Telecom for the Clear contract included monopoly rents, then so too did the retail prices charged by the government-owned corporation only a year earlier. The implication of the Court of Appeal decision is the (apparently implausible) conclusion that the government-owned Telecom Corporation was charging prices that knowingly included market rents, and that the government sold the company subject to an agreement that allowed the purchaser to continue to accrue these rents (adjusted for inflation) indefinitely in the event of no competitive entry ensuing. It is difficult to argue that the retail prices at the time of sale reflected substantial unknown productive inefficiencies that might be converted into rents immediately by private owners. Boles de Boer & Evans (2006) cite substantial productivity improvements that had already occurred in the period 1987-1990. The government owners could not have been unaware of the costs and potential productivity improvements on offer at the time of sale. If the bulk of potential improvements given current technologies had already been achieved, then a sale price with $cpi-x$ ($x=0$) price controls is plausible, given that future competitive entry will provide the incentive for ongoing productivity improvements. If the current prices did include identified production inefficiencies that could be converted into rents, then given it would take time for competition to ensue, a price cap of $cpi-x$ ($x>0$) would have been anticipated. The lack of a positive value for x in the price cap suggests that either the government believed the 1990 prices to be efficient, or that it was negligent in selling Telecom under the terms that it did.

³⁶ Telecom Corporation v Clear Communications [1994] 5 NZBLC 103, 552 (PC); [1995] 1 NZLR 385 (PC) *passim*

included monopoly rent, above that necessary to meet the social obligations of the 'Kiwi Share'.

The Privy Council determination raised some concerns about the New Zealand 'light-handed' regulation. These concerns challenged both the processes of light-handed regulation, and the roles and responsibilities of the institutional structures overseeing competition law in order to pursue increased economic efficiency.

1.4.2 Procedural Implications

From the procedural perspective, the key issues were the length of time taken to reach a settlement and conflicting court decisions highlighting differing positions on who should bear the costs of the Kiwi Share obligations (Blanchard, 1994a; 1994b; 1995). The three years taken to settle the case resulted in ongoing uncertainties that militated against further entry, as other potential entrants delayed their entry decisions until the case was concluded.

The decision also resulted in residual disquiet amongst potential and actual entrants and in the political arena about who should bear the cost of the Kiwi Share obligations, and, if they were to be shared amongst entrants, how they should be determined and levied. Telecom's competitors and opponents to privatisation supported the contention that Telecom's shareholders alone should bear the costs, whereas others, including Telecom shareholders and management, and advocacy groups such as the Business Roundtable, supported the view that the costs of regulation were legitimate costs to be recovered from both retail and commercial customers via retail and ICA charges. The High Court and Privy Council decisions supported the Telecom view, whereas the Court of Appeal ruling supported the alternative. The philosophical differences about who should fund the losses arising from the social obligations subsequently provided an ongoing platform for political lobbying for legislative force to be given to the Court of Appeal's ruling.

Irrespective of the differing views about redistribution, the supremacy of the Privy Council decision meant that legally, the Kiwi Share costs could be shared amongst all market participants. In order to make reasoned decisions about both entry and pricing, it was now material for all actual and potential market participants to know what their likely Kiwi Share obligations would be. Yet, the existing disclosure requirements did not make Kiwi Share costs transparent. Both competitors and the Commerce Commission were in a poor position to assess whether Telecom's prices were reasonable, thereby making the cost-benefit trade-off about whether to enter the market or to bring an action under Section 36 of the Commerce Act problematic. As the costs of court action were high, especially given the strong likelihood of

going through one trial and two appeals, there was a legitimate fear that Telecom could exploit the information asymmetry by charging prices substantially in excess of cost, and face little risk of punishment, especially if new entrants lacked the financial backing to undertake the lengthy litigation process.

1.4.3 Institutional Implications

From the institutional structure perspective, the key concerns raised were the inability for the courts to examine alternative proposals without the parties having to resort to separate actions, the court's narrow interpretation of Section 36 in relation to what can be considered in defining use of a dominant position, and the enshrining in legal precedent of a particular pricing methodology that may not lead to the most efficient outcome (Blanchard, 1994a; 1994b; 1995). The last issue was especially cogent in light of the principal motivation for the 'light-handed' regime being the pursuit of increased efficiency.

Blanchard posits that the Privy Council decision created a potentially irresolvable tension between courts setting precedents and enforcing legislation related to a specific incidence of behaviour of only one party to the contract, which may or may not be anti-competitive, and the pursuit of efficient outcomes, which may or may not be furthered by the dominant firm's specific action adjudged to be an acceptable competitive behaviour. The inability of the court process to consider other alternatives (i.e. the court cannot adjudicate on any other efficiency-related aspects, such as alternative offers made by the competitor) was an apparent weakness in the structure of the light-handed regime and the institutional processes charged with overseeing and enforcing it. That is, a definition of competition specified in statute narrowly and literally interpreted and enforced by the courts potentially compromises the objective of the pursuit of efficiency.

1.4.4 Pursuit of 'Competition' Not Always Efficiency-Enhancing

Blanchard's observation highlights the classic tension in economics between static assessments and dynamic outcomes. It also highlights the fact that there are many different forms of competitive interaction, all of which have different effects upon long-term efficiency, depending upon specific circumstances in which they are applied. For example, drawing upon the principles of perfect competition, cost-based pricing leads to maximum efficiency in a static market, but impedes investment in the development and implementation of successor technologies – i.e. in the long run, dynamic efficiency is reduced as the development or investment does not occur, depriving consumers of the even greater benefits of the new technologies (Carlton & Perloff, 2000; chapter 16). Likewise, drawing upon the principles of monopolistic competition, in the presence of fixed and sunk costs and where

customer preferences for different product attributes differ, welfare can be reduced by over-investment in variety when the firm's fixed costs are relatively low and firms do not take into account their effect upon rivals' profits, or under-investment in variety when fixed costs are relatively high and firms paying the full social cost are unable to recoup the full social benefit (*ibid*, chapter 7).

The risk of a precedent-based court system is that a set of assumptions about competitive behaviour used for one assessment of a set of case facts locks in place that set of criteria to be used for all other future cases (unless or until the decision is successfully replaced). Industry participants will now shape their behaviour according to the currently acceptable set of legally-enforced criteria, even though it may be more efficient given the underlying economic circumstances to behave in a different manner. The precedent thus potentially induces less efficient outcomes if circumstances necessitate the adoption of a different set of competitive interactions to maximise efficiency. The pursuit of a predetermined form of the competition process thus comes to dominate pursuit of the efficiency-maximising outcome because reliance upon competition law systematically and indiscriminately proxies the competition process means for the efficiency end.

For example, under the Court of Appeal's interpretation, only prices that contain no element of monopoly rent (i.e. perfectly competitive prices) would become enshrined as the legitimate pricing principle. In an industry characterised by high fixed costs and therefore governed by principles of monopolistically competitive interaction, the only legitimate form of pricing available to the incumbent would induce inefficient over-entry in the current technology whilst simultaneously reducing the incumbent's ability to invest in new networks (dynamic efficiency). Likewise, whereas the High Court's acceptance of ECPR as a legitimate pricing methodology recognises the dynamic effects of subsidy obligations, thereby preventing inefficient over-entry of duplicate networks (one risk in monopolistically-competitive markets), it risks locking in place a set of pricing principles that, although legitimate under a specific set of assumptions, militate against efficiency-raising entry by a competitor with lower production costs than the incumbent in a complementary product that relies upon the contested input (i.e. leads to lower product variety - another of the risks of monopolistic competition) (Economides & White, 1995).

It is not immediately obvious how this dilemma can be resolved under a court-based process. Neither is it apparent that industry-specific regulation would be any better at resolving the tension. Blanchard (1995:474) notes "heavy-handed regulator-based regulation is not the answer" because "across the world this style of regulation has proven itself to be inflexible,

overly bureaucratic and very costly to administer” – that is, its inherent inefficiencies may outweigh any benefits. The challenge, as Blanchard saw it, was to design a process that sat under the Commerce Act and the courts (e.g. an arbitration process) that enabled swifter resolution of disputes and wider consideration of participant interactions, thereby preserving the efficiency principles of the ‘light-handed’ regime without imposing the negative consequences of ex-ante industry-specific regulation.

1.5 Review: 1995-6

The government responded to the Privy Council finding by commissioning an inquiry by the New Zealand Treasury and Ministry of Commerce³⁷. The inquiry reported back on August 15, 1995.

Taking as its guiding principle the policy objective to “maximise the contribution of this sector to the overall growth of the economy through the promotion of economic efficiency”³⁸, and “trading off the risks of market failure against the risks of regulatory failure” (*ibid*), the inquiry concluded that there was “no conclusive evidence that the existing regime has failed”, even though the Privy Council finding had “give(n) rise to a few concerns” (MoC/Treasury, 1995:9). These concerns were: the uncertainty associated with the regime; the efficacy of the ECPR; and the dilemma of how to efficiently reimburse Telecom for the ‘Kiwi Share’ costs in a market where Telecom would undoubtedly be losing market share to new entrants.

Notably, the limitations of the court-enforced competition process in the pursuit of greater efficiency were neither identified nor addressed. Rather, the review focused upon structural issues within the operation of the telecommunications sector. Several options were proposed and evaluated in dimensions of Telecom’s ownership, ranging from state ownership of an integrated firm via structural separation with state and private owners to the status quo of a private integrated firm, and regulation, defined via the degree of external control over prices³⁹. The preferred policy was for no restraints on ownership, price restraints on the essential input (i.e. interconnection), and government recourse to price controls on the final product under Part IV of the Commerce Act if necessary. The relevant criterion for selecting a pricing rule would be “economic efficiency (i.e. productive, allocative and dynamic efficiency)” (para 209), but no preferred pricing rule was suggested.

³⁷ http://www.med.govt.nz/templates/MultipageDocumentPage_4560.aspx

³⁸ http://www.med.govt.nz/templates/MultipageDocumentPage_4563.aspx

³⁹ http://www.med.govt.nz/templates/MultipageDocumentPage_4571.aspx

1.5.1 Industry Response

Following the 1995 review, Telecom offered Clear a contract based upon the Court of Appeal judgement (which had been accepted by Clear), including a separately-identified contribution to the 'Kiwi Share' costs which enabled cost-based pricing of interconnection, a varying scale of interconnection price discounts decreasing over time, and provision for an audit by a jointly-approved independent auditor of both the interconnection and 'Kiwi Share' cost calculations. Clear rejected the offer, claiming it did not recognise network reciprocity or take differences in call volumes into account, and counter-offered with a contract equalizing the per minute charge between the networks (Blanchard, 1995). In the face of contractual break-down, the Minister threatened to invoke his regulatory powers if the parties did not arrive at a satisfactory agreement in a timely manner (Webb & Taylor, 1998).

Telecom and Clear eventually signed a five-year ICA in March 1996 (Evans & Quigley, 2000). This agreement had Clear paying Telecom 2c per minute for calls terminating on Telecom's network, Telecom paying Clear a fee scaling from 1c per minute to 2c per minute over the term of the contract, all of these charges being discounted by 75% for off-peak calls and Clear paying a further (undiscounted) charge of 1c per minute, recognising the 'Kiwi Share' obligations and a contribution towards the fixed and common costs of the Telecom local network (Karel, 2003). Contemporaneously, Clear and Telecom "completed a settlement agreement, expressed to have the effect of settling all disputes, claims, arbitration or litigation between the parties outstanding as at 4 September 1995" (Dammary, 1999:2).

1.5.2 Government Affirmation

In June 1996 the Government "reaffirmed its reliance on general competition law to achieve its objectives in telecommunications and stated its expectation that interconnection would be provided based on terms that would promote efficiency and deliver the benefits of competition to consumers. The Minister made it clear that there would be no changes to the existing arrangements"⁴⁰.

1.6 The Competitive Era: 1996-1997

The greater certainty offered by apparently mutual agreement between Telecom and Clear and the Minister's endorsement of continuation of the 'light-handed' regime resulted in a rush of new entrants into the market. The Telecom-Clear ICA became the basis for similar agreements struck between Telecom and Telstra (November 1996), Saturn (June 1997) and Compass (September 1998) (Karel, 2003). The Clear-Telecom disputes, however, continued.

⁴⁰ http://www.med.govt.nz/templates/MultipageDocumentPage_4802.aspx#P132_7990

1.6.1 Back to Court

In August 1996, Clear wrote to Telecom requesting a variation to the ICA, citing duress as a consequence of Telecom's capped-price retail long distance call offers, which were becoming common in the market⁴¹. Given the history of litigation with Clear, that the ICA was only five months into a five year term and that capped-price offers had been trialled by Telecom prior to the ICA being signed, Telecom declined the request. Telecom claimed Clear should have had knowledge of the possible use of capped-price calls (Dammery, 1999). Moreover, both companies had access to extensive expert advice before signing, so should have been aware of both industry trends and the risks associated with the contract (Evans & Quigley, 2000).

From February 1997, Clear began withholding a proportion of interconnection revenues due to Telecom⁴². Telecom had the ability under the ICA to suspend its dealings with Clear. However, as such an action might be construed to be unduly aggressive, and therefore potentially invoke a further accusation of exertion of dominance under Section 36, the firm instead commenced legal proceedings in May 1997 to recover the debt (Dammery, 1999). Clear counterclaimed, citing Telecom's retail offers as breaches of Sections 27 and 36 of the Commerce Act. At both the High Court⁴³ and the Court of Appeal⁴⁴, it was found that Clear could legally withhold payments, pending a substantive determination on the alleged Commerce Act breaches.

1.6.2 Implications

The 1997 court decisions threw the market back into a new milieu of uncertainty. Telecom was now required to supply services to Clear for an indeterminate period without any certainty that it would be compensated for them. "Clear has defaulted on its contractual obligations, but may, with court sanction, fund its operations using monies withheld from Telecom pending trial" (Dammery, 1999:5). The new uncertainties materially affected Telecom's incentives to invest in new infrastructures and services: "this risk of illegality and threat of non-payment equally overhangs the introduction of all new interconnection services

⁴¹ These offers, made by both Telecom and Clear, characteristically offered unlimited national calls for a fixed price (e.g. \$5 for all calls made in a given time – e.g. a weekend).

⁴² By mid 1999, the amount withheld was approximately 20 million dollars, and by October 2000 it was alleged to have reached 30 million (Karel, 2003).

⁴³ *Telecom New Zealand Limited v Clear Communications Limited* (High Court, CL 20/97, 18 July 1997, unreported).

⁴⁴ *Telecom New Zealand Ltd v Clear Communications Ltd* (Court of Appeal, CA 206/97, 9 December 1997, unreported)

to Clear and impacts on a number of key forward-looking investment decisions by Telecom” (*ibid*)⁴⁵, thereby threatening pursuit of dynamic efficiency.

Moreover, the decision was apparently contrary to a contemporaneous finding in the gas industry, where unilateral rejection of contractual arrangements, even when those arrangements were subsequently challenged (successfully) under the Commerce Act, was found to be "totally unjustified unless and until the plaintiffs achieved a resolution of [the] litigation which invalidated or varied the Kapuni gas contract with retrospective effect"⁴⁶. The Telecom decision contributed to a further eroding of confidence in the ability of the court-adjudicated competition law process to prioritise the pursuit of efficiency. Furthermore, concerns arose that the principles of court-based ‘light-handed’ regulation were being applied inconsistently across industries as generalist courts struggled to come to grips with complex, industry-specific issues (Dammary, 1999).

1.6.3 Further Tension Between Competition and the Pursuit of Efficiency

The 1997 litigation further illustrates the tension between the effect of court-based interpretations of legitimate competitive actions and the pursuit of efficiency. It also raises questions of judicial activism, as the court’s decision to make Telecom carry the cost was justified by its assessment of Telecom’s ability to obtain debt in the interim to cover any cash flow shortfalls caused by Clear’s withholding of payments, rather than the terms of the contract which bound Clear to pay for agreed delivery of service (Dammary, 1999). The decision appears to suggest that, until such time as a decision could be made on the substantive matter of the alleged Section 36 breach, as the dominant firm Telecom was effectively presumed to be ‘guilty until proven innocent’, and should therefore be required to bear the interim financial cost of the competitor’s unilateral actions, even though it was the competitor who had breached a mutually-agreed contract by withholding payments.

Despite the High Court and Court of Appeal determinations, there has to date been no judicial ruling on Telecom’s potential exertion of market power via its residential capped-price call offers. Clear did not proceed with Commerce Act litigation. Instead, the contentious agreement ran its full course of five years, with the parties agreeing to a new ‘bill and keep’ agreement in 2001. In large part, the need for a ruling was overtaken by the emergence of the internet, and the effect that changes in calling patterns had on the cash flows between the two companies as a consequence of the ICA. Ironically, the consequences of dynamic efficiency

⁴⁵ Evans and Quigley (2000) discuss how the decision grants strategic options to entrants that may lead them to under-invest in pre-contractual research about likely outcomes of the contract as they, but not the incumbent, have the option of recourse to action under the Commerce Act if, after signing, they gain new information that changes the payoffs from the contract

⁴⁶ 27 *Shell (Petroleum Mining) Co Ltd v Kapuni Gas Contracts Ltd* (High Court, CL5/94, 4 June 1996, unreported) at 146.

(technological innovation, and commercial responses by both incumbent and entrant) competed away the need to make a decision on the competitive implications of the capped-price call offers.

1.7 Vigorous Competition: 1997-2000

The early emergence and very rapid growth in uptake and usage of dial-up internet services in New Zealand was greatly facilitated by the residential ‘free local calling’ obligation in the ‘Kiwi Share’ (OECD, 2000; Howell, 2007). For residential consumers, Telecom was obliged to provide the telephony component of dial-up internet calls at no charge. Internet calls quickly came to exceed voice calls on the network (Figure 1), reaching a peak in 2003, when data traffic comprised more than two thirds of the traffic on the local loop, and the owners of New Zealand’s 850,000 dial-up internet accounts averaged over 35 hours per month each online (Howell & Obren, 2003).

The terms of the Telecom ICAs offered substantial strategic advantages to competitors such as Clear, Telstra and Saturn. Due to Telecom’s large market share in the PSTN market, most calls to ISPs would originate on the Telecom network. Because internet calls substantially exceeded voice calls in length, if they crossed between networks they would create much larger ICA liabilities than voice calls. Telecom’s competitors faced a strong incentive to sign up ISPs, where the data calls would terminate, as network customers. If proportionately more of the data calls were to non-Telecom ISPs, then there would be a net flow of ICA cash from Telecom to its rivals. Clear entered into several agreements where ISPs were given substantial shares of the interconnection revenues in exchange for becoming Clear customers (Karel, 2003). It is highly likely that all other entrants did likewise.

1.7.1 The ‘ISP Wars’: 1997-1999

Arbitrage on ICA revenues led to the emergence of aggressive price discounting as ISPs aligned to carriers other than Telecom passed on the benefits of the termination revenues to customers in order to induce a financially favourable pattern of calls to competing networks. Karel (2003) terms this interaction the ‘ISP Wars’. Ironically, the ICA alleged ‘uncompetitive’ by an entrant, and potentially ruled out by a court had it been tested, led to a substantial increase in consumer welfare. Enright (2000) reports a reduction in the average ISP cost for a mid-range user from \$150 per month in 1996 to \$30 in 1999. The strategic interaction induced by the ICA terms undoubtedly contributed to New Zealand’s rapid and early emergence as a prolific internet-using country (Howell, 2007), and its demonstrated significant out-performance of Australia in ISP competition metrics in this period. New

Zealand had 13% more internet users per capita than Australia in 1999, with prices on average 30% lower, despite having a very much smaller number of ISPs per capita (i.e. a ‘less competitive’ market measured by entrant numbers and market share) (Boles de Boer, Enright & Evans, 2000).

However, the ‘ISP wars’ had profound effects upon Telecom. Firstly, the increase in internet customer numbers and demand resulted in huge increases in traffic on the PSTN that had to be managed. Secondly, in little more than a year following the 1997 court cases, Telecom’s financial viability had become critically dependent upon stemming the ICA cash flows to competitors. Karel (2003) identifies that a single dial-up ISP customer on line 700 hours in a month (that is, nearly full-time) to an ISP on the Clear network would generate a monthly termination liability for Telecom in excess of \$840. The average monthly residential line rental at the time was around \$30. Even an ‘average’ user online for an hour per day at peak times to a non-Telecom ISP in June 1999 would generate a monthly termination liability of around \$36⁴⁷.

In theory, Telecom had two possible strategic options open to it: change contract terms and conditions in the dial-up ISP market to stem the cash flows; or divert internet traffic away from the PSTN altogether, thereby neutralising the effect of the ICAs upon its financial viability. Any action taken in the PSTN market was likely to be subject to further accusations of exertion of dominance, especially as the company also held a strong position in the ISP market via its vertically-integrated ISP subsidiary Xtra, which had approximately 50% market share. In practice, Telecom pursued both strategies simultaneously.

1.7.2 The ‘0867 Package’: 1999-2000

Xtra entered the ‘price wars’ and in 1999 began aggressively marketing flat-rate ISP packages in order to increase its appeal to both new and existing customers (iHug had introduced flat-rate plans in 1996). However, Xtra’s efforts were insufficient to stop the flow of new internet customers and ICA cash flows to rival networks. Despite aggressive pricing, Xtra’s market share in the rapidly burgeoning market remained consistently around 50% (Enright, 2000). Dial-up ISP usage per account by both existing and new customers was increasing, compounding the cash-flow problem. Moreover, competing ISPs backed by Clear responded to Telecom’s flat-rate pricing with announcements of plans to aggressively market ‘free’ services to customers (Karel, 2003).

⁴⁷ Derived from figures in Howell & Obren (2003).

In September 1999, Telecom resorted to a network-based solution, which came to be known as the '0867 package' after the calling prefix used. On the pretext that it needed to separate data and voice calls on the PSTN to better manage voice service quality, Telecom announced that from November 1, only dial-up internet calls made to numbers on the Telecom network with an 0867 prefix would qualify for unlimited uncharged dial-up internet telephony access. Data calls made to any other numbers would be charged to the caller at 2c per minute (the cost to Telecom of calls terminating on other networks) after 10 hours per month of uncharged access had been accrued. This plan would still leave Telecom with a \$12 ICA cost per line per month for each customer using a non-Telecom ISP (on average, 400,000 dial-up internet account users were consuming 27 hours each per month in July 1999 – Howell & Obren, 2003). Voice calls terminating on non-Telecom networks would continue to be uncharged.

Faced with the threatened loss of their high-volume, high ICA revenue-generating customers to Xtra and other Telecom-aligned ISPs with 0867 numbers, the non-Telecom ISPs were obliged to enter into agreements with Telecom to buy access to 0867 accounts. The net effect was to cancel out Telecom's losses on the ICA induced by the internet-related changes in PSTN demand and utilisation.

Whilst the government announced its satisfaction with the 0867 package, as long as customers faced no charges for data calls made to 0867 numbers and voice service quality was maintained⁴⁸, the Commerce Commission announced in August 2000 that it would prosecute Telecom under Section 36. The Commission alleged that "in introducing 0867 Telecom sought to prevent or deter competitive conduct by other telecommunications network operators and Internet service providers" (MED, 2001). At the time of writing, some seven years later, a ruling on this case has still not been made.

The eventual outcome of the Commerce Commission case will be of considerable interest, as it is a moot point whether, given the change in the effective operation of the market from pure voice telephony provision to an information exchange market, it can be argued that the relevant market for the decision is the mature market for voice interconnection, as in the 1991-4 litigation, where Telecom had dominance, or the embryonic market for information exchange, where despite its large market share it is debatable whether Telecom had market power given the nature of the prevailing ICAs and the fact that the internet market was still emerging. A finding against Telecom would suggest that under the Commerce Act, a

⁴⁸ http://www.med.govt.nz/templates/MultipageDocumentPage_4850.aspx

dominant firm may not even take actions to preserve its own future financial viability if in doing so it affects another market participant's short-term ability to compete. Yet, if the dominant firm fails, the competitor is also harmed, as it relies on inputs supplied by the dominant firm. It is also difficult to see how such an outcome could be in the long-term interests of consumers. In this respect, the inability of courts to take account of the actions of firms other than the incumbent when determining Section 36 cases is likely to be further exposed, providing additional support for concerns about possible inconsistencies between the pursuit of competition and the delivery of efficient outcomes under the 'light-handed arrangements as interpreted and enforced by the New Zealand courts.

With the end of the 1996 ICA looming, in October 2000 Telecom and Clear announced a relationship package "incorporating interconnection agreements and committing both sides to a more open and commercial relationship"⁴⁹. A 'bill and keep' ICA was struck in 2001.

1.7.3 Dynamic Efficiency Gains via the ADSL Roll-Out: 1998-2003

Given the history of Section 36 litigation, Telecom could not be certain that the 0867 package would be either legal or sustainable as a solution to the problems caused by either ICA cash transfers or its dominance in the PSTN market. A sustainable long-term solution was to migrate data traffic away from the PSTN altogether, thereby eliminating the need for interconnection agreements in relation to the burgeoning internet data traffic. ADSL broadband technology offered a potential solution.

New Zealand's first broadband services were provided on Ethernet LAN by CityLink in Wellington⁵⁰ in 1995. iHug began offering satellite services in 1998, and Saturn had committed to having a cable broadband system operating throughout Wellington from 1999 (Howell & Obren, 2003). There was already broadband infrastructure competition in the form of the iHug and Saturn services, and it was not at all clear at the time which of the technologies would gain either technological superiority or customer preference. Whilst Xtra, with 50% market share, was the largest ISP in the market, in the fixed-line market Telecom's market share nationally exceeded 95% but was very substantially less in the areas served by Saturn⁵¹.

⁴⁹ *Ibid.*

⁵⁰ Wellington, New Zealand's second-largest city is the national capital. It was at the time also the centre of the country's banking, insurance and finance industries, the location of the NZX, and had the most highly-educated and wealthiest population. It was thus the location where the most prolific exchange of information for business purposes would exist, and had a highly-educated population with greater levels of disposable income, providing further opportunities for the development of residential use.

⁵¹ Anecdotal evidence suggests that in some localities, Saturn's share was as high as 75%. Other estimations place it at around 25% in the Wellington region. Unfortunately, reliable contemporaneous reports of these shares are difficult to find.

If it was presumed that dial-up internet access customers would eventually substitute to broadband connections⁵², a strategic solution was for Telecom to roll out high-quality, low-price ADSL nationwide early and rapidly, in order to bring forward the time at which the substitution would occur. If similar patterns of linked valuation of connection and the value of use derived from the connection applied to internet connection and use as occurs in voice telephony connection and use, low-price⁵³, high-speed ADSL would appeal most to the high-volume dial-up users who were causing most of the ICA cost liabilities. Traffic growth on the PSTN would be constrained and total volumes eventually reduced. Moreover, ADSL would generate new incoming cash flows to offset the ICA liabilities and other costs related to those internet users continuing to use dial-up access. The latter issue was not trivial, as the emergence of the internet had caused substantial costs for Telecom and generated no additional residential revenue as, unlike other countries, the 'Kiwi Share' obligations meant Telecom received no income for either residential dial-up internet calls placed (as in Australia) or residential minutes of use (most of the OECD).

Whilst the timing of the decision to proceed with the ADSL roll-out is unknown, it was most probably made in early-to-mid made in 1998, well over a year before the 0867 'solution' was introduced, and was therefore almost certainly causally linked to the consequences of the 1996 ICA. The spillovers from this contract were therefore material in the timing of new technology introduction (dynamic efficiency). When Telecom first offered commercial ADSL services in Wellington in January 1999, New Zealand became only the third country in the OECD (after the United States and Canada) to do so (Howell & Obren, 2003)⁵⁴. The initial product offered was a 2Mbps service, although 128kbps was added in 2001 and 256kbps in 2003, largely in response to consumer demand for an intermediate product and the Government's specifications for subsidised rural access (Howell, 2003). Rollout was rapid, with 85% of customer lines being ADSL-capable by 2003⁵⁵. The residential packages were the 2nd and 3rd-lowest priced in the OECD in 2001⁵⁶, and have continued to rank amongst the most competitive in the OECD given the speeds offered and average volume of data consumed (Howell, 2003; Network Strategies, 2006; OECD, 2007; de Ridder, 2007).

⁵² Vintage-to-frontier technology substitution, as per Greenwood and Yorukoglu (1997), Greenwood & Jovanovic (1998) and Cummins & Violante (2002).

⁵³ For a discussion of pricing strategies in telecommunication markets, see Laffont & Tirole (2002).

⁵⁴ Howell (2003) notes that New Zealand's ADSL deployment preceded Australia's by 18 months. Initially 256kbps and 512kbps were the only residential products offered in Australia, with higher-speed 1.5Mbps being restricted to business users.

⁵⁵ The United States had ADSL available to 65% of lines and the United States 67% at the same time (Howell, 2003). At the current point in time (August 2007), approximately 94% of lines are DSL-capable. The remaining 6% are rural lines facing technological impediments to the deployment of DSL. The predominant download speed purchased by customers in 2007 is between 2 and 10 Mbps.

<http://www.stats.govt.nz/NR/rdonlyres/3492D2CA-177E-4759-9F9F-90C0C8EE45AF/0/internetprovidersurvey07mar.pdf>

⁵⁶ OECD (2001), recognising that the data cap pricing structure applied is principally a function of the data charges for transfer across the monopoly Southern Cross cable. Over 95% of data transferred in New Zealand comes via the United States over this cable (Howell, 2003).

ADSL was clearly positioned to be competing in the ISP, rather than telephony, market. Telecom faced competition nationwide in this market from iHug's satellite service. Competitive pressure and prevailing pricing policies led to Telecom offering ADSL at prices that were identical across the country and across market segments, despite the different costs of providing services in different geographic locations (Alger & Leung, 1999). Residential and business packages differed only in respect of the bundles of data and additional services provided (e.g. web hosting, email addresses). Howell (2003) identifies that throughout the period up until the introduction of regulated wholesale products in 2003, even though Telecom had a very much larger broadband market share, iHug's satellite service was the price leader. TelstraClear cable packages appear to have been priced very similarly to the Telecom products. The 'competitive fringe' was thus able to impose a very strong price discipline on the market via its national availability and technological differentiation.

Howell concludes that, in 2003, there was little evidence of a supply-side market failure in the New Zealand broadband market that could plausibly explain New Zealand's internationally low broadband uptake. Rather, the low uptake was more plausibly explained by factors in the residential market, where very low dial-up usage costs, the independent investment by the monopoly pay TV company on its own satellite broadcast infrastructure limiting content-and-infrastructure bundling opportunities, a limited range of applications necessitating the speed and quality of broadband (VoIP and peer-to-peer applications were still in their infancy) and the very small volumes of data exchange demanded by the vast majority of residential users⁵⁷ resulted in a pattern of infrastructure and application substitutes that made it difficult for most internet users to justify the small additional costs of broadband access.

1.8 Efficiency: the 'Light-Handed' Years

It is apposite at this point to consider the effectiveness of the 'light-handed' regime in respect of the benchmark of "long-term benefit to consumers". In a small market, or in one where the economic characteristics indicate that there will optimally be only a small number of participants, the number or market share of entrants may not be a good proxy for either total welfare or consumer benefit. Indeed, Ford, Koutsky & Spiwak (2007:349-50) illustrate that in markets characterised by high fixed and sunk costs, more intense price competition results in a smaller number of firms at equilibrium than either less intense competition or perfect collusion: "a highly concentrated market may be the result of intense price competition rather

⁵⁷At the time, the average data volume exchanged on broadband connections was 1500 Mb/month, with a median of 700 Mb/month (p 31); even in 2007, with respect to its bitstream ADSL services, iHug reports "most of our customers use less than 3 GB (3000MB) over an entire month" http://www.ihug.co.nz/products/broadband/bband3_detail.html.

than a lack thereof'. Thus, the efficacy of a regulatory regime cannot be reliably measured by market share 'competitiveness' indicators alone. It must also be assessed in conjunction with other indicators as proxies for changes in static and dynamic efficiency, such as prices and availability of services, investment in and timing of service introduction, and consumer uptake. Moreover, the analysis should be undertaken in comparative rather than absolute terms, in respect of both historic performance in the same market, and comparative performance against other countries where the regime differs.

The preceding discussion illustrates that with respect to the internet market, the New Zealand regime delivered benefits demonstrably in excess of those in most other OECD countries at the time (recorded by the OECD (2001; 2003) as well as the many ISCR publications on this subject, in addition to the evidence above), in respect of both static and dynamic efficiency. Dial-up and broadband prices were low, uptake of dial-up internet access and usage was very high, substantial investment in new technologies was occurring by both Telecom and its rivals, and new services of high quality were introduced early and at low prices by international standards, especially compared to the main comparator country, Australia. Furthermore, the efficiency gains from privatization were substantial (Boles de Boer & Evans, 1996).

1.8.1 Telecommunications Price Indexes

Ideally, price comparisons provide a measure of relative efficiency of regimes. All else being equal, lower prices for equivalent services imply greater efficiency, with benefits being passed on to consumers. However, direct price comparisons are not good indicators when the costs of providing services differ for reasons that cannot be controlled by service providers. For example, New Zealand's small market, low population densities and rugged terrain make it comparatively more expensive to deliver telecommunications services there than in more benign geographical environments (Alger & Leung, 1999). Different social characteristics (e.g. large migrant populations) and social obligations (e.g. universal service and New Zealand's mandatory flat-rate residential pricing option) results in different calling patterns, leading to different demands for different types of services that reflect ultimately in different prices. Whilst standardised baskets can compare the price for a bundle of calls, unless the bundles accurately reflect the calling patterns of the respective countries, the outcome of a comparison based upon baskets can be highly misleading. A price index for a standard set of products and services used in a given country, when compared with that of another country, gives perhaps the most neutral assessment of the long-term relative performance of different regimes across time, in that it eliminates the effect of many of the country-specific characteristics that make individual price comparisons problematic.

For the purposes of this paper, price indexes will be used as a proxy for the welfare gains under each regime. A falling index indicates that there are gains in welfare (from falling prices) that are being shared with consumers. Figures 2 and 3 illustrate the residential telephone charge indexes for New Zealand 1991-2001 and the OECD average for 1990-2006 respectively (the relevant portion of this discussion is that up to the end of 2001). Whilst these are not strictly directly comparable, they are broadly illustrative. If the New Zealand regime was delivering substantially different outcomes, the patterns exhibited would be substantially different. A worse performance in respect of consumer benefits would be exhibited as a more positive trend in the New Zealand index across time than the comparator index.

Despite the high level of dispute in the courts and only a limited amount of competitive entry, the bundle of New Zealand line rental and national calling costs fell to 65% of the base level (1991) over the 1990s. By 2001, the OECD index fell to only 83% if its base level (1990). Notably, New Zealand fixed line rental charges fell (to 90%), principally because, even though it was legal and contractually permissible, Telecom's residential rental prices were not raised in line with increases in the CPI after 1993. This is in sharp contrast to the rest of the OECD, where on average fixed line charges increased over this period (to 124% of base), largely as a consequence of regulatory requirements in most countries to rebalance tariffs so that per-call costs were no longer used to subsidise line rentals (in the New Zealand pricing, line rentals subsidise calling). The OECD average price for the bundle of residential line rental and usage fell by 17%, but the New Zealand residential bundle fell by 35%, largely reflecting the substantial real decrease in fixed line rental in New Zealand relative to the increase in the OECD average.

Bearing in mind that the threefold increase in local PSTN usage from dial-up internet usage over the second half of this period is not captured in the New Zealand index, as it was uncharged, but any increase in PSTN usage would presumably be reflected in the OECD usage figures where for the vast majority of countries it would have been charged, the New Zealand index pictured actually substantially overstates the real index as reflected in consumer gains over the period. The real price per call minute of the New Zealand bundle thus would have fallen by considerably more than that exhibited by the 'average' OECD country over this period.

1.8.2 Internet Expansion with no Revenue Growth

The trends indicated by the price index figures are confirmed by Figure 4, showing telecommunications revenues across the OECD between 1991 and 2002. These prices are indexed to expenditure in 1997, to reflect the effect that commercialisation of the internet had on telecommunications revenues.

Figure 4 clearly shows that on average across the OECD, telecommunications revenues rose steadily relative to 1997 levels, reaching 133% of 1997 levels by 2002, as operators in most countries were able to charge for internet-related services. By contrast, in New Zealand, where the vast majority of internet use of the PSTN was unchargeable, telecommunications revenues did not exceed 1997 levels until 2002. Incidentally, 2002 was the year in which (chargeable) DSL connections passed the threshold of 5% of all internet accounts, meaning that internet data charges would finally start making a measurable impression upon the New Zealand revenue index.

Only two countries in the entire OECD (Norway and the United Kingdom) exhibited lower revenues relative to 1997 levels than New Zealand. The choice of 1997 as the base year is largely responsible for this effect, as both countries recorded their highest revenues of the entire decade in 1997. Iceland, which exhibited similar levels of internet uptake and utilisation to New Zealand in the late 1990s (Howell, 2003) was recording revenue increases in excess of 50% over 1997 levels by 2000. Korea, cited as one of the most successful internet-accessing countries over the period, records revenues 250% higher than 1997 levels by 2000. Finland, with similar population, land area, population density, urbanisation, and isolation to New Zealand also illustrates consistently higher revenues compared to the 1997 base. Even those countries with unmetered dial-up internet access – Australia, Canada and the United States – registered revenues between 25% and 50% higher than 1997 levels over most of the period.

1.8.3 Net Accrual of Consumer Benefit/No Compelling Evidence of ‘Harm’

Figures 2, 3 and 4 confirm that in the period between 1997 and 2002, New Zealand became one of the world’s leading internet-using economies without any increase in revenues paid by consumers to telecommunications firms relative to 1997. Combined with the evidence of substantial and early investment in new technologies, it appears that the bundle of competition and ‘light-handed’ regulation delivered substantial efficiency benefits to New Zealand economy (static and dynamic efficiency), most of which were transferred to consumers in the form of either lower prices or substantially greater use for the same prices, along with the potential to use new technologies at OECD-leading prices. Almost certainly

the benefits to New Zealand consumers exceeded those of the ‘average’ OECD consumer, even though individual OECD countries may have performed better in individual assessment dimensions. Arguably, as New Zealanders were consuming substantially more internet-related services than the only other two countries where total revenues did not rise relative to 1997, the net benefits transferred to consumers were greater in New Zealand over the 1990s than in any other OECD country. Despite the apparently low levels of competition as measured by the market shares of entrants, and despite the inability to deliver either a perfectly competitive or perfectly efficient market, the interaction of competitive and regulatory forces appeared to have served New Zealanders well, in both the PSTN and internet markets.

As nearly all of the other OECD countries had adopted some form of industry-specific regulation, it cannot be concluded from this data that the New Zealand ‘light-handed’ regime had performed substantially less well than the industry-specific regimes. Therefore it cannot be concluded that the regime had ‘failed’. Despite the apparent procedural weaknesses of a competition law approach, and the inherent tensions between pursuit of competition and pursuit of efficiency, on balance the regime appeared to be delivering superior efficiency benefits to New Zealand consumers, as anticipated by its designers when it was created in 1987.

2. Industry-Specific Regulation: 2000-2006

The ‘light-handed’ regulatory era ended following the election of a Labour Party coalition-led government in November 1999. In part as a response to entrants’ dissatisfaction with the outcomes of the 1991-4 court decisions and popular politicized perceptions of the ‘failure’ of the ‘light-handed’ regime to result in reductions in Telecom’s market share and degree of dominance, and in part to differentiate its approach from both the previous Labour government that had introduced ‘light-handed’ regulation from 1984, and the subsequent National Party and National-led coalition governments that had endorsed it, the Labour Party manifesto for the 1999 election promised reforms to the Commerce Act to tighten controls on firms with a dominant position, and an inquiry into the conduct of both the telecommunications and electricity industries. The new government stated its policy objective for the telecommunications industry as being “to ensure that the regulatory environment delivers cost efficient, timely, and innovative telecommunications services on an ongoing, fair and equitable basis to all existing and potential users”⁵⁸.

⁵⁸ http://www.med.govt.nz/templates/Page_16432.aspx#tor

2.1 Commerce Act Reforms: 2000-1

On April 5 2000, the government announced its intention to amend Section 36 of the Commerce Act, “broadening the range of firms and conduct subject to the prohibition against unilateral anti-competitive conduct by prohibiting persons with “a substantial degree of power in a market from taking advantage of that power” for the proscribed purposes”⁵⁹. The intention was to align the New Zealand legislation with that in the Australian Trade Practices Act, and to extend its application to “major participants in an oligopolistic market and to a leading firm in a less concentrated market” (*ibid*). The change of the term ‘use’ to ‘take advantage of’ would retain the causal connection between the firm with market power and the alleged conduct, but was also to “signal to the courts some dissatisfaction with the focus on “use tests” as a basis of interpretation of the section” (*ibid*). The changes also altered Section 47, covering mergers and acquisitions, from the use of a “dominance” test to one of “substantially lessening competition”.

The changes illustrate a distinct focus upon the competitive activities of the sector as the objective of the Act as opposed to either deterrence of the ‘use of dominance’ or the promotion of more efficient outcomes in the presence of dominance. The discussion papers accompanying the proposals contain no discussion of the efficiency issues that had underpinned the original Commerce Act and that were raised by the 1995 inquiry, or any indication of what proxies would be used to determine either the nature of competitive interaction or the degree of ‘competition’ present⁶⁰. The changes were enacted on 25 May 2001⁶¹.

2.2 The Ministerial Inquiry: 2000

In February 2000, as promised in the Labour Party manifesto, the new Telecommunications Minister established an Inquiry into the operation of the telecommunications industry. The Inquiry was charged with assessing the extent to which the existing arrangements furthered the government’s industry objective, and to make detailed recommendations about necessary changes. The Inquiry was specifically instructed in its terms of reference to address (amongst other issues): “alternative means of establishing interconnection terms and conditions; pricing principles and other terms and conditions (such as service quality standards) for current and future forms of interconnection; processes applying to interconnection negotiations, including

⁵⁹ http://www.med.govt.nz/templates/Page_9159.aspx

⁶⁰ Subsequent Commerce Commission publications indicate a substantial reliance upon market shares as the primary indicator. <http://www.comcom.govt.nz/Publications/ContentFiles/Documents/MergersandAcquisitionsGuidelines.PDF>

⁶¹ For a contemporary discussion of the issues, see Berry and Evans (2003).

dispute resolution and enforcement mechanisms; local loop unbundling; resale of telecommunications services; information disclosure;”⁶² the Kiwi share obligations, the numbering regime, number portability and the development of an information economy, including the impact of, and the effect of regulatory regimes on incentives to invest in, new technologies. There was specific instruction to consider regulatory developments in other countries.

The focus of the Inquiry was thus very much upon processes within the industry and the nature of interaction between industry participants against the new government’s objectives, rather than an assessment of the light-handed regime’s performance against its original policy objectives. The emphasis upon finding “alternative means” provided a strong indication that recommendations supporting change were anticipated.

2.2.1 Tension: Efficiency and Equity

The Inquiry panel reported back On September 27 2000. The Final Report is notable for the explicit identification of efficiency as the primary criterion for assessment in its analysis, but the limited application of efficiency principles in its analyses. In regard to the new policy statement, the panel considered “cost-efficient” to mean that services are produced “at the lowest cost and delivered to consumers at the lowest sustainable price” (p 11) (i.e. perfect productive and allocative efficiency), ‘timely’ to mean “the absence of barriers that would impede the implementation and uptake of innovative services” (dynamic efficiency) and ‘ongoing’ to mean “that regulation should be forward-looking, robust, durable and consistent over time, and not sacrifice long term gains for short-term considerations” (the trade-off between dynamic and static efficiency).

No explicit voice was given to the tensions between efficiency and equity⁶³ as they related to the government policy objectives, or how, when in contention, they should be prioritised. Rather, in respect of the distributional issue of a “fair and equitable” delivery of services to “all existing and potential users”, the panel took the statement to mean “ensuring that all existing and potential users have affordable access to a minimum level and standard of services”. The interpretation by the Inquiry of “fair and equitable” to also mean “the way in which services are provided, the conduct of the industry players and their interactions” suggests weight must be given to competitor equity in addition to consumer equity in any analysis. However, this point is not elaborated upon, so no indication of which form of equity should take precedence is provided. Given the extent to which the equity issues embedded in

⁶² *ibid*

⁶³ See Connolly and Munro (1999) for a discussion.

the 'Kiwi Share' social obligations contributed significantly to both the 1991-94 disputes and the 'ISP Wars' and '0867 package', the absence of explicit consideration of the tension invoked by juxtaposing these objectives in the industry policy statement is puzzling.

The Inquiry thus set up an impossible hurdle for the industry to meet – that of a perfectly efficient (both static and dynamic) and equitable (both consumers and competitors) outcome, with no guidance given as to how to trade-off the competing issues. It was therefore inevitable that the previous regime would be found to 'fail' in at least some dimensions against this 'perfect' but also 'perfectly inconsistent and unachievable' ideal.

The Inquiry found that Telecom's prices still contained elements of prices above cost, so the market was deemed not to be perfectly allocatively efficient. The recommendation to regulate prices for a range of services using TSLRIC methodology, thereby departing from the ECPR prices which allowed recovery of 'Kiwi Share' costs, signalled that the Inquiry deemed Telecom alone to be responsible for the costs of the social obligations, up to the point where, in order to survive, it would be required to request permission from the Minister to raise its prices to its customers above the level allowed by movement in the CPI.

That is, in order to be deemed not to be exerting its dominance, Telecom would be required to charge its competitors TSLRIC-based prices, offering competitors the opportunity to undercut Telecom's retail prices in the lucrative urban areas where Telecom would have to charge prices including the Kiwi Share costs in order to remain financially solvent. If Telecom matched competitor prices in order to try and retain market share, as any other firm would in a competitive market, it would be forced to fund the losses from any retained profits. Once any accrued Telecom surpluses had been eliminated, an ever-diminishing number of remaining urban customers on the Telecom network paying prices above cost, and thereby subsidising the costs of the Kiwi Share incurred by customers paying less than their costs, would inevitably face price increases. Raising retail prices in order to break even would further exacerbating the difference between Telecom's retail prices and the cost of urban rentals, providing even greater margins for arbitrage to entrants and increasing the acceleration of switching of Telecom urban customers to rivals and even greater risk to Telecom's profitability. With Telecom needing to charge higher urban rentals, strategic pricing amongst entrants would enable them to maintain prices above costs that could rise in tandem with Telecom's prices, but still undercut them.

The implication is that, whilst a competitor could accrue profits from selling services either acquired at cost from Telecom or provided at lower cost on its own infrastructure but sold at

the market price set by Telecom's costs, Telecom could not. Any profits Telecom made must be used to offset the social costs. However, competition from market entry would reduce both its profits and the ability to offset the social costs. In practice, the prices charged by Telecom to urban customers in regions where there was no competitive entry would be used to cover the social costs, as these will be the only areas where Telecom could realistically retain any customers paying a price above a cost excluding the cost of the Kiwi Share. The result would be not the promotion of competitive equality, but explicit regulatory prohibitions to Telecom acting as any other firm would in a competitive market. These provisions appear to go far beyond the mere prevention of exertion of a dominant position, instead punishing the incumbent for its past dominance, even though there was no guarantee that the dominance would continue into the future. Indeed, the recommendation is reminiscent of the unequal treatment applied to Telecom in the 1997 court cases. Simply because of its dominant position, it would face impediments that would prevent it from competing in the manner of a normal competitive firm, despite the High Court and Privy Council decisions in 1991-4 affirming that it could behave as any other firm in a competitive market under competition law. The effect of this recommendation on any of the equity for consumers, equity for providers or efficiency either the equity (either consumer or competitor) or efficiency objectives set by the terms of reference is not discussed.

Interestingly, however, when benchmarking against comparable international performance using an analysis similar to that undertaken in section 1.8 above, the Inquiry failed to find any convincing evidence that New Zealand had performed worse than any other regime in respect of any of the dimensions of retail pricing, introduction of new products and services and even the time taken for disputes to be resolved (pp 23-24). Whilst not perfect, it appeared to be no less imperfect than the alternative regimes that could have been applied. Nonetheless, the Inquiry appears to have disregarded the importance of this finding when choosing in its recommendations to prioritise the pursuit of cost-based pricing of Telecom products to competitors (but not to consumers – the 'Kiwi Share' was to prevail) and the introduction of institutional mechanisms designed to ensure that such pricing policies eventuated.

2.2.2 'Light-handed' Regulation with a Stand-Alone Regulator

Despite its initial acknowledgement of the efficiency principles embedded in its terms of reference, the Inquiry's recommendations ultimately focused upon issues of process. No changes to the Commerce Act were proposed. A recommendation was made to move to a light-handed industry-specific regulatory regime for the electronic communications (as opposed to telecommunications) industry, overseen by a stand-alone industry-specific regulator, funded by the industry, but based upon the principles of mutual agreement between

parties as the first step. The recommendation was made, despite the admission that the members had been unable to fully compare the costs and benefits of each regime, because on balance those aspects that could be analysed empirically indicated that the result would be an increase in consumer welfare (p 53-55). It is noted that the Inquiry did not consider any dynamic efficiency effects in its analysis, because these were amongst the factors that could not be easily quantified. Hence, despite the assertions of recognition of dynamic efficiency in the objectives, in practice dynamic efficiency outcomes were ultimately subjugated to the pursuit of perfect static efficiency via cost-based pricing as a consequence of the Inquiry's empirical analytic methodology.

Under the proposals, recourse to the regulator, who could make binding determinations, was seen as a last resort in disputes over regulated services. Two levels of regulated service were identified: lower level "specified" services (interconnection between all networks other than Telecom's fixed line network), carrier pre-selection, wholesaling and roaming on mobile networks, co-location at mobile sites, and access to Sky TV's digital system) and higher level "designated" services (interconnection on Telecom's fixed line network and data tail (excluding value-added services such as ADSL⁶⁴ and full local loop unbundling⁶⁵), wholesaling of services on Telecom's fixed line network, and number allocation and number portability. The test for determining whether a service should be specified or designated was based on efficient competition, connectivity and investment, where "efficiency takes into account all of its productive, allocative and dynamic contexts" (p42-43). Cost-based pricing principles would apply only to designated services. Interconnection and data tail services prices would be ultimately based on forward-looking costs, using TSLRIC methodology (p 66). In the interim, until New Zealand-specific TSLRIC prices could be determined, international benchmarking would be used as the guide. The Inquiry recommended that wholesale designated services be based on retail prices less Telecom's avoidable costs.

⁶⁴ Regulation of ADSL was excluded because the Inquiry "believes Telecom should be allowed the normal competitive incentive to develop such new services with above-cost returns" and "that a judgement has to be made when considering regulation about the maturity of a market. It is inherently more risky to regulate prices of evolving services than those that are more mature, since regulation focussed on efficient pricing would erode rents that are necessary to spur innovation and rapid deployment of a new technology" (p 64).

⁶⁵ "Other reasons the Inquiry is not recommending full local-loop unbundling are:

§ it does not seem to offer significant benefits to end users over and above those that could be achieved by requiring Telecom to wholesale its local-loop service in the way recommended by the Inquiry;

§ the objective of local-loop unbundling – competitive delivery of local-loop services – is likely to be achieved in many areas and through a variety of technologies without regulatory intervention;

§ full unbundling may not be exploited in areas where local-loop competition is not likely, given that such investment would likely be unprofitable in the presence of the Kiwi Share and/or technically infeasible. In these areas, wholesaling or data tail access (leased lines) would give other providers the ability to offer customers a total service; and

§ full unbundling is technically complex and would require Telecom to give up control of parts of its network" (p 64-5)

The Inquiry also recommended the establishment of an industry forum, comprising all network operators, to work with the Commissioner in the preparation of codes for designated and specified services. Codes approved by the Commissioner would be binding on all forum members. The forum was seen as the appropriate body to negotiate network management issues, such as the need to manage traffic that contributed to the '0867' debate.

2.2.3 LLU Not To Be Mandated

As part of its activities, the Inquiry had examined the likely benefits of introducing local loop unbundling (LLU) as either a designated or specified service. A cost-benefit analysis (Ovum, 2000) indicated that the efficiency gains would be negligible, and in the Inquiry's opinion, the extensive entry into the market by providers of high-speed internet access on competing technologies indicated that "New Zealanders living in urban areas will have access to broadband services in the near to medium term at affordable prices. However, for people living in rural areas, the availability of affordable broadband services is likely to be more problematic in the absence of specific initiatives to address this problem" (p 92). Thus it was recommended that LLU not be regulated, but that a watching brief be kept on the situation by the Commissioner (p 65).

The LLU recommendation was clearly underpinned by dynamic efficiency considerations: "a judgement has to be made when considering regulation about the maturity of a market. It is inherently more risky to regulate prices of evolving services than those that are more mature, since regulation focussed on efficient pricing would erode rents that are necessary to spur innovation and rapid deployment of a new technology" (p 64). The effect of such regulations on the investments already made and incentives for future investment by competing platform owners was noted: "any regulatory erosion of producer surplus related to enhanced services such as ADSL is likely to have an adverse impact on dynamic efficiency by dampening incentives for investment in competing infrastructure. The Inquiry considers this may be a factor in Telstra Saturn's objection to the full unbundling of Telecom's local loop" (p 64). The Inquiry recommended the use of threat of further regulation to discipline Telecom in respect of future investment and its actions with respect to wholesale customers (p 65).

2.2.4 'Kiwi Share' Remains, but as Telecom's Obligation Alone

With respect to the 'Kiwi Share' the Inquiry recommended that "Telecom's interconnection prices should not include a contribution to any losses arising from the Kiwi Share obligations" (p 5). Such an arrangement would remove the need for prices to deviate from cost-based principles, so would theoretically remove much of the litigious contention over pricing experienced in the preceding decade as a result of the lack of transparency of the

'Kiwi Share' costs. The ability for Telecom to deviate from price equalization between rural and urban consumers was recommended in order to allow Telecom to compete with new entrants in urban areas, but with the 1990 price cap remaining in place for rural consumers (p 85).

However, the Inquiry also recommended that Telecom continue to bear the cost of the 'Kiwi Share' uncompensated until such time as it could demonstrate financial impairment sufficient to require it to apply to the government to increase its prices, as well as being prevented from charging ISPs for calls made on the 0867 numbers (pp 5, 89). The recommendation was supported by the Inquiry's assessment that there were still substantial rents within Telecom to be competed away.

The 'Kiwi Share' recommendation is somewhat puzzling, as it reversed the 1994 court finding, endorsed by the 1995 Inquiry and the 1996 ICA, that entrants be required to share the costs of the social obligation. In addition to the tension between efficiency and equity in regard to customers in areas where entry occurred and those in the unprofitable areas discussed above, the recommendation also appears to be at variance with the government's finding just over a year previously that, after three years of substantial disbursements to competitor ISPs from the ICA and dial-up internet use, the '0867 package' was justified to maintain Telecom's ongoing financial viability. Furthermore, echoing the 1997 court cases, it invokes an inherent dynamic efficiency tension, whereby Telecom would be required to subsidise unprofitable users of existing technologies with revenues accrued from new investments whilst its competitors would not. It also set up a conflict between a Commissioner charged with overseeing wholesale market investment and pricing and a Minister required to arbitrate on retail prices that have a material effect upon the Commissioner's decisions. The Inquiry is silent upon these violations of the efficiency and equity objectives embedded in its recommendations.

2.3 Telecommunications Act 2001

The government's response to the Inquiry was the Telecommunications Act 2001, passed on 19 December. Whilst most of the Inquiry recommendations were followed, key differences were the creation of a Telecommunications (as opposed to Electronic Communications) Commissioner inside the Commerce Commission (as opposed to a stand-alone regulator), and the removal of the cost burden of the 'Kiwi Share' obligations from Telecom alone and their replacement with a 'Telecommunications Service Obligation' (TSO). Under the TSO, arrangements, the cost of social obligations was effectively 'ring-fenced', but still allocated

across the industry as determined by the High Court and Privy Council decisions. Telecom would still be required to provide the services as agreed in 1990, but the costs of providing unprofitable ‘Kiwi Share’ services would be determined on an annual basis by the Commissioner with Telecom being compensated as the Commissioner determined appropriate via a levy on other market participants⁶⁶. This deviation from the recommendations reasserted the legitimacy of the 1991-94 court decisions regarding industry-wide responsibility for the social obligation costs, and the principles of competitive equality for Telecom in regard to its retail pricing. In addition, Section 64 of the Act required that the Commissioner review the case for LLU and report back with a recommendation by the end of 2003.

Whilst there was considerable debate about the merits of the Commissioner being within the Commerce Commission rather than independent, and the nature of the pricing principles recommended, in theory the proposals as enacted appeared to constitute a pragmatic response to the contentious processes of contract negotiation and social cost allocation. The reallocation of social obligation costs via the TSO appeared to resolve any residual questions about Telecom’s prices to competitors being subject to any distortions from this source, although it did not resolve the issue of dynamic efficiency distortions in the retail market where prices would still largely be averaged. Furthermore, Telecom would bear the costs of other market participants’ social obligations until such time as the Commissioner could retrospectively reallocate the costs. The emphasis on bilateral negotiation as the first step, with recourse to the Commissioner only as a last resort, was consistent with the spirit of the ‘light-handed’ regime – indeed, the Inquiry report states “that this recommended approach would still see New Zealand at very much the light-handed end of the regulatory spectrum, arguably the lightest within the OECD” (p 30). The hope was that the new regime would allow rapid resolution of the residual disputes in a way the court processes had been unable to achieve, leading to even greater and speedier accrual of benefits by consumers than had already been evidenced.

2.4 Telecommunications Commission: The Early Years 2002-6

A Telecommunications Commissioner was appointed in December 2001 and took up duties in March 2002⁶⁷. The first tasks included establishing the Industry Forum, setting up the terms of reference for the TSO obligation ruling, and agreeing the terms for interconnection pricing.

⁶⁶ http://www.med.govt.nz/templates/Page_4166.aspx#P32_2498

⁶⁷ <http://www.beehive.govt.nz/Print/PrintDocument.aspx?DocumentID=12604>

By the end of May, applications had been received from both Telecom and TelstraClear⁶⁸ for determinations on interconnection to each other's network. By the end of July, conferences had been held on the TSO, price benchmarking and TSLRIC methodologies. The first draft determination was released on November 5, on interconnection between Telecom and TelstraClear (1.13c per minute backdated to June 1, applicable for 12 months). The Commissioner deemed the exercise "an effective blend of commercial negotiation and regulation. The parties can take credit for resolving most of the issues originally raised in the application"⁶⁹.

On November 29 2002, a draft determination was delivered on TelstraClear's access to Telecom's wholesale services (discount range 14% to 18%). The final determination on this matter was released on 12 May 2003. The TelstraClear CEO welcomed the November determination: "we believe its more industry efficient for TelstraClear to buy from Telecom rather than build duplicate networks to reach consumers who are widely spread throughout New Zealand"⁷⁰. TelstraClear had previously suspended rollout of its fibre-optic cable network⁷¹, not long after launching in Christchurch, its third geographic region, in July 2001⁷². It is noted that at the 2000 Inquiry, TelstraClear's predecessor company Telstra Saturn had advocated against LLU because access to Telecom's infrastructure would undermine the case for ongoing investment in its own fibre-optic network.

2.4.1 2001 Act Accelerates Telecom's Acquisition of Broadband Market Dominance

The early evidence under regulation begs the question of whether regulated availability of specified wholesale Telecom services under the Telecommunications Act was instrumental in triggering a reduction in inter-platform competition relative to the pre-2000 scenario. Paradoxically, the presence and likely future development of vibrant inter-platform competition was one of the reasons why the 2000 Inquiry refrained from recommending LLU. Yet, even at this very early stage, it appears that changes in the regime, and in particular the focus upon downstream competition based upon access to services provided on Telecom's network, were leading to reduced, rather than increased competition in the market for technology-differentiated internet services (as per Crandall & Sidak, 2007), and critical changes in the ways in which fringe competition would be able to exert influence on the dominant participant.

⁶⁸ TelstraSaturn purchased Clear Communications on 15 December 2001, renaming the new entity TelstraClear. <http://www.telstraclear.co.nz/companyinfo/history.cfm>

⁶⁹ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa1.aspx>

⁷⁰ http://www.telstraclear.co.nz/companyinfo/media_release_detail.cfm?newsid=81&news_type=tclArchive

⁷¹ <http://www.wordworx.co.nz/TelecomsReviewBBandCity.htm>

⁷² http://www.med.govt.nz/templates/MultipageDocumentPage_4850.aspx#P324_40851

The TelstraClear CEO's comments and the 2000 Inquiry report confirm that whereas in 2000 it was unclear which internet technology would prevail, by 2002, the regulatory arrangements in the 2001 Act had conferred upon Telecom a dominance in the broadband market, simply because it altered the investment incentives of new entrants. By requiring all of Telecom's fixed line services to be subject to regulated access by competitors, including the wholesaling of broadband products, entrants had been granted options not present in 2000 (Pindyck, 2004). The legislation actually created a self-fulfilling prophecy that Telecom's network would become dominant in the broadband market by actively disincentivising the build-out of competing platforms (Jorde, Sidak & Teece, 2000).

With no distinction in the availability of and terms of access to wholesaled products by competitors with and without their own networks, the low-risk option available to all new broadband market providers was to suspend their own further investment (even to the point of letting existing investments run down) and resell Telecom products. The reselling option was even more appealing because of the widespread availability of Telecom's ADSL product. Entrants could service a nationwide market immediately, without incurring any further investment risk. In a market with no alternative infrastructure investment and no immediate prospect of duplicate investment, then by the 'ladder of investment' (Cave, 2006), such arrangements allow new entrants to join the market without having to invest in infrastructure. However, Cave cautions that great care must be taken when designing such options that they encourage investment by the entrants in their own infrastructures across time (e.g. by raising the access price), and do not encourage the entrant to continue using the incumbent's infrastructure when entry on the incumbent's own infrastructure is economically feasible. He suggests that the presence of competing infrastructure in a given geographic location is a strong indication that the assumption of natural monopoly may not be valid, as the entrant has already deemed it feasible to invest in some infrastructure.

The danger of erroneously assuming that an incumbent's infrastructure is a natural monopoly is to limit the accrual of dynamic efficiency benefits via delays in investment in and availability of access to existing and differentiated products (Bittlingmayer & Hazlett, 2002; Hazlett, 2005; Hausman & Sidak, 2005; Crandall & Sidak, 2007). The risk of delay is greatest when the costs of new infrastructure are less than that of the incumbent (i.e. falling technology costs, as has occurred in telecommunications over the past two decades) and there is uncertainty about future market sizes (as occurred in the broadband market in the early 2000s). Under these circumstances, as long as the entrant can make a fair return on reselling the incumbent's products, it is optimal for the entrant to delay its own investment until there is greater certainty about the future direction of the market, relative to the point at which it is

optimal to invest absent the option granted by regulated access. The incumbent carries the financial risk of the market not growing (including the sunk costs of investment if it fails) and entrant has a 'free option' to exit if the market fails to develop. Meanwhile, consumers forfeit the benefit of lower prices and higher product quality from services provided on lower-cost infrastructures and variety from differentiated technologies that they might otherwise have enjoyed because neither the incumbent nor the entrant have invested in the newer technologies. The effect is further exacerbated if the regulated prices do not fully compensate the incumbent for the services provided to the entrant, as there are no resources to invest in either routine maintenance or replacement of the existing infrastructure (Pindyck, 2004).

The upshot of the presence of such regulated options is that, even if it was not dominant at the time the options are made available, the infrastructure on which the options are offered will quickly become dominant because of the altered investment incentives. By presuming that Telecom's monopoly in fixed line voice telephony would automatically be transferred into dominance in the broadband market, and regulating accordingly, the Telecommunications Act 2001 ensured that Telecom's ADSL did become the dominant product, even in areas where it was not at all clear that duplication was economically infeasible (e.g. densely-populated areas, such as Christchurch and Auckland). The TelstraClear decision verifies the use of such reasoning in the New Zealand broadband market. It is also noted that once regulated services from Telecom became available, iHug gradually altered and then withdrew the satellite services which had provided significant market discipline upon Telecom's ADSL products during the light-handed regime.

2.4.2 Incentives to Bargain and Increases in Determination Volume

Despite the apparent early successes in resolving the long-standing Telecom and TelstraClear ICA issues, a pattern quickly emerged of nearly all potential access contracts sought with Telecom ending up at the Commissioner for a determination⁷³. In 2003 alone, determinations were sought by TelstraClear, iHug, CallPlus, Compass and WorldXChange for interconnection and wholesale access. In 2006, Vodafone joined the round of access-seekers seeking Commission determinations. Furthermore, as most agreements covered only a 12 month period, at the conclusion of each contract, the parties were generally back again seeking determinations on the superseding agreements.

As each draft determination was subject to consultation with all concerned parties at both the initial investigation and draft ruling stages, the regulatory process was little different to the

⁷³ An examination of the Commission's media releases provides an interesting snapshot of the pattern of the Commission's activities over this period. <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/MediaList.aspx>

much-maligned court process. However, whereas pre-2002, one contract struck, contested and then resolved became the benchmark for all other contracts, under the regulatory regime, each contract with every market participant was in effect litigated, subject to an appeal and then rapidly re-litigated, even though the terms finally agreed were often very little different from other contracts determined.

Whilst it has been suggested that the volume of determination activity under the regulatory regime was a consequence of Telecom's intransigence in negotiations (e.g. TUANZ, 2006), it is equally, if not more, plausible that easy access to a regulatory determination removed most of the incentives for either party to commit effort to resolving the issue independently (Evans & Quigley, 2000). Industry-wide funding of the Commission also precluded individual parties from internalising the full costs and risks of requesting investigations, leading to a higher probability of small market participants seeking their own determinations rather than utilising the precedents established by other decisions in a contract directly with Telecom, as occurred following the resolution of the court case in 1994. Moreover, any agreement struck outside of the regulatory process between any other party and Telecom for the delivery of any service precluded the other party from subsequently seeking regulated access to the product at terms subsequently granted to other applicants. In order to preserve the option to access equivalent contracts, even if agreement could be reached without mediation in the present, the other party had a dominant strategy to seek a regulatory determination as the first step. Such arrangements made it inevitable that nearly all contracts with Telecom for designated or specified services, rather than just those where a party perceived Telecom to be exerting its position of dominance, would become 'contentious' and placed before the Commissioner⁷⁴.

The consequence of the regulatory system design was therefore a substantially larger-than-expected burden of work for the Commission, and an increase in the combative tensions between Telecom and its competitors, who now had strong incentives to collaborate in actions against Telecom in addition to pursuing individual determinations. The 2000 Inquiry indicated an expectation that most contracts would be negotiated bilaterally, as in the previous 'light-handed' regime. Thus, its cost-benefit analysis supporting the establishment of the Commission failed to anticipate the much higher costs associated with the perverse procedural incentives of the post-2001 regime. In addition to the explosion in determination workload, in 2003 the Commission was also required to make rulings on the TSO, and prepare an investigation into LLU. It quickly became evident that the 2000 Inquiry estimates

⁷⁴ One notable exception is iHug's request for a determination on access to Telecom's commercial bitstream services. Initially, iHug applied for a determination on 5 November 2004, but subsequently withdrew the request on 24 December 2004, having successfully agreed to terms with Telecom in the interim.
<http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsactihugwithdrawsappli.aspx>

of a budget of 8 to 10 staff and a budget of \$1.5 million per annum (Inquiry, p 28) would be quite inadequate for the volume of work to be undertaken. By the 2004/5 financial year, expenditure exceeded \$3.7 million, made up of \$2.1 million in meeting its obligations to the Crown and \$1.6 million of costs recovered from applicants⁷⁵.

2.4.3 No Improvements in Time Taken to Make Decisions

It is therefore far from clear that the post-2001 regulatory regime has resulted in more efficient turn-around of decisions than under the court-based system. The mobile termination action, begun in April 2004, was not finally resolved until April 2007 – a time of three years, and exactly the same time taken to resolve the original interconnection dispute between 1991 and 1994. It is also unlikely that the use of a Commission has reduced the costs of legal and economic advice in reaching a decision. As the volume of Commission-mediated interaction has increased, the cost for all market participants in preparing submissions, attending conferences and fulfilling other regulatory obligations has also increased in proportion. The major companies are now employers of much larger teams of in-house legal, economics, regulatory strategy and political lobbying counsel relative to pre-2000, in addition to continuing to hire external consultants. As is made evident in TelstraClear's recent threat to stop investing in New Zealand unless the regulated prices meet its agreement, the Commission has been subject to lobbying from market participants both in the forums established for resolving disputes, politically and via the media⁷⁶ that would likely have been less had the decisions been made via court rather than regulatory processes. Ultimately, these extra costs must be passed through to consumers in product prices, along with the increases in industry costs from running an expanded Commission.

The Commission, on the other hand, with its limited resources constrained in the short-term by government budgets, has struggled to keep up with the demand for its services. This has impacted upon both the timeliness and quality of its determinations and recommendations. For example, the final TSO determination for the 6 month period 21 December 2001 to 30 June 2002, begun in March 2002, was delivered on December 18, 2003⁷⁷. Whilst it was anticipated that the first settlement might take time to execute, as principles that would become ongoing precedents had to be established, the second determination, for the period 1 July 2002 to 30 June 2003, was not finalised until 24 March 2005. With more competitors, the determination of the TSO has become even more fraught with contention, as the concerns of multiple parties have to be addressed in coming to both the draft and the final

⁷⁵ Commerce Commission Annual Report 2004/5 p 24.

⁷⁶ http://www.telegeography.com/cu/article.php?article_id=18212&email=html

⁷⁷ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsact/commercecommi.aspx>

determinations. The third TSO determination, for the 2003/4 year, was finally announced on March 26, 2007⁷⁸. The 2004/5 and 2005/6 determinations were jointly announced on July 9 2007⁷⁹, by which stage a review of the entire TSO arrangement, led by the Ministry of Economic Development, was in process⁸⁰.

2.4.4 Regulatory-Induced Delays in the Timing of Competitive Entry

Without doubt, delays in making TSO and other determinations have had a substantial negative effect upon dynamic efficiency, in respect of the incentives for either entry into the market or investment in any new technologies. It is notable that new entry in the market since the passing of the 2001 Act has been dominated by alternative infrastructure providers (e.g. Woosh Wireless and Wired Country), most of whom were associated with either the subsidised provision of rural broadband under the government's Project Probe and Broadband Challenge initiatives, or Fonterra's contracts to provide broadband to its farmer members. The firms who have sought regulated access to Telecom's services were all present in the market prior to the passing of the 2001 Act, as providers of voice, internet and backhaul services. Indeed, the most significant market changes post 2001 concern the consolidation of existing participants via mergers and takeovers, especially infrastructure-owning firms acquiring ISPs (e.g. Vodafone acquiring iHug, Kordia acquiring Orcon; Woosh acquiring Quicksilver).

Under the post-2001 rules, it is quite unclear for any entrant what the potential liabilities for the TSO, levied some several years after costs have been incurred and revenues collected, would be. Making any retail pricing decision for either an entrant or existing market participant is thus extremely problematic. The extent of uncertainty created is far more substantial than the uncertainties in 1991-2002. Under the court-based regime, an entrant had certainty in relation to Telecom's current Kiwi Share compensation expectation, irrespective of the competitive nature of the ECPR or other pricing principles upon which offers were based. These costs created an 'upper bound' on the entry decision – if a business case could be made for entry using these costs, then entry could occur, even if the resulting market interaction was based upon component prices that were not perfectly efficient, and even if, subsequently, litigation might alter the distribution of the gains in favour of the entrant.

Furthermore, the regulatory decision-making process itself imposes delays in the time at which services can be provided by Telecom's competitors, relative to the original regime. When Telecom and Clear were disputing both the 1991 and 1996 ICAs, they were competing

⁷⁸ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsactcommercecommi5.aspx>

⁷⁹ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsactcommercecommi6.aspx>

⁸⁰ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=30366>

simultaneously in both the courtroom and the disputed product market. This enabled the early accrual of at least some of the allocative and dynamic efficiency benefits by consumers because an agreement, no matter that it was disputed, had been struck and services were being provided by both parties. By contrast, under the 2001 Act, no services can be offered by the new parties until the contracts have been investigated and mediated by the Commission, ratified by the market participants and the decisions made final. Thus, consumers are denied access to any of the benefits for a longer period than under the counterfactual arrangements. For example, it took sixteen months (November 2002 to April 2004) for TelstraClear's residential wholesale access determination request to be successfully progressed⁸¹. During this period, all potential consumer benefits were forfeited as no new services covered by the disputed contract were being offered by TelstraClear.

Moreover, the services that TelstraClear might have offered by increasing investment in their own infrastructure had no mandatory access to Telecom's infrastructure been available were also forfeited almost as soon as it became certain that regulated access would be available. By contrast, the uncertainty associated with a court process may have encouraged entrants to persist with alternative investment plans as a hedge against losing a court case. The consequences for consumers can be directly compared to the welfare gains enjoyed during the 'ISP wars'. Delays in market entry and technology deployment have replaced early accrual of gains.

2.4.5 Other Consumer Benefits

Higher overheads and transaction costs, delays in the implementation of competitive pressures, delays in the introduction of new technologies and sacrifice of dynamic efficiency benefits were the principal disadvantages that the designers of the 'light-handed' regime sought to avoid when they eschewed industry-specific regulation in 1987. These were also the consequences which the 1995 inquiry cautioned against. The New Zealand experience of industry-specific regulation, even in the most 'light-handed' form possible, appears to confirm that most of the concerns postulated about industry-specific regulatory regimes are real, sizeable and predictable, in form if not in magnitude. The New Zealand experience of moving from a light-handed to an industry-specific regime appears to confirm that it is impossible to have just a 'little bit of regulation'. The mere existence of a set of regulatory processes based upon ex ante intervention to preclude the possible, but unproven, exertion of dominance appears to have invoked a set of behaviours diametrically opposed to independent negotiation. This is in sharp contrast to the costs of the 'light-handed' regime, with its

⁸¹<http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa17200.aspx>

emphasis on ex post punishment of dominance actually exerted, and where the parties themselves are charged with taking responsibility for managing their strategic interaction.

The most striking feature of the post-2001 period is that the competitive dynamism that characterised the latter years of the 'light-handed' regime, especially evident during the 'ISP Wars', appears to have evaporated. Replacing it has been a static market, with key terms, conditions and prices to competitors changing only intermittently, and then only by regulatory intervention. Such measured decision-making is antithetic to typically dynamic processes of competitive interaction, marked by parties continuously interacting strategically and commercially directly with each other and consumers.

Regulatory decision-making cannot easily incorporate the effects of a constantly changing market or strategic interaction occurring outside the decision-maker's jurisdiction in the manner of typical competitive processes. Interaction lurches episodically from one set of static conditions, characterised by the regulator's last view of how the interaction should look, to the next static view, as reassessed through the lens of a new set of underpinning conditions. Importantly, the regulator is always working with historic information. By the time a decision is made and ratified, environmental conditions have very likely changed. Yet the decision is binding on the parties. In the New Zealand context, repeated use of regulatory agreements has ensured that all contracts for designated services would struck at no price other than TSLRIC cost at the time of decision-making, and the terms would prevail for the length of the contract (typically 12 months). Such a regime ensured that there was minimal likelihood of the parties acting innovatively in respect of either exogenous changes or contractual imperfections. It is difficult to see how the vibrant interaction with its consequent passing through of benefits to consumers that occurred occurring during the 'ISP Wars' could have been reproduced under the post-2001 arrangements.

Figure 5 provides a cogent illustration of the effect of the change in regulatory regime on market dynamics. Concomitant with the move to industry-specific regulation, both the residential telephone service (rental and installation) index and long distance call index flattened. This is in contrast to the consistent falls in both during the 1990s. Whilst the flattening in usage charges is consistent with that observed in other OECD countries from 2000, the rental and installation index also flattens, but only from 2002, following a sharp decline beginning in 1999. The OECD average over this period continued to rise. The period between 1999 and 2001 reflects the active period of infrastructure competition between Saturn (Telstra Saturn/TelstraClear) and Telecom. The introduction of regulated access to Telecom's services and the associated removal of the long-run threat of infrastructure

competition from TelstraClear has, as predicted, resulted in the removal of all downward movement in the local telephone service index. Furthermore, neither does the position appear to have improved under the new telecommunications service index, introduced in 2005, incorporating wider aspects of mobile and internet communications. Figure 6 illustrates that this index has also been static, and indeed rising in recent quarters, despite the rapid fall in equipment prices.

Importantly, Figures 5 and 6 also reveal that, even though the prices agreed under the contracts for designated services post-2001 were cost-based, there appears to have been no passing-through of any benefits to consumers, such as occurred throughout the 1990s, at least in respect of fixed-line services. If, as indicated by the 2000 Inquiry, there were still substantial rents in the Telecom interconnection prices at the end of 2001, then the cost-based prices regulated in 2002 should have resulted in falls in the indexes as rents were competed away and benefits passed on to consumers (noting that the 2c/minute fees from the 1996 ICA and 'bill and keep' in 2001 were replaced by 1.13c/minute regulated prices in 2002). That none has fallen suggests that either rents were not present in the first place, or that the gains from their elimination have not been passed through to consumers in the form of reduced prices for services, but rather have been absorbed by competitors (e.g. to compensate for the fixed costs of establishing a market presence, or as competitor profits). If the former is correct, then the very much higher costs of the regulatory regime have been incurred when they were not necessary; if the latter is correct, competitor welfare appears to have taken precedence over consumer welfare in the distribution of the gains under the New Zealand regulatory system. Neither of these scenarios is consistent with the furtherance of the long term benefit of consumers. It is therefore difficult on balance to see how the 2001 arrangements have furthered the position of consumers, relative to the regime that they replaced. Rather, competitors and those deriving their incomes from the operation of the regulatory regime (consultants, bureaucrats, lawyers, economists and managers engaged in regulatory activity) appear to have been the primary beneficiaries.

2.5 The Section 64 LLU Review: 2003-4

The 2000 Inquiry had found no efficiency-based justification for introducing LLU in New Zealand, but had recommended that the issue be kept under review. The Telecommunications Act 2001 required the Commissioner to make a recommendation by the end of 2003 on whether to introduce LLU (Section 64). The Commissioner was to make a recommendation to the Minister, and if any changes to the schedule of designated or specified services were recommended, and the Government agreed, the Minister would proceed to amend the Act. It

is noted that this review was undertaken concomitant to the settlement of the first TSO and the flurry of activity prompted by the first round of determination applications by a Commission with limited resources and under considerable pressure from politicians and industry participants, both entrants and incumbent, to arrive at a recommendation favourable to each party's individual interests.

2.5.1 The Process

Whereas most of the Commission's early determination applications had hinged specifically upon the agreement of each contract price in isolation, using a framework of legislated pricing rules that providing the starting point for investigation of all applications, the LLU inquiry required the Commissioner to undertake a thorough analysis of all dimensions of the New Zealand market and the outcomes of LLU in other jurisdictions, and make a new set of recommendations. Whilst the Ovum (2000) report offered a process precedent, arguably the environment in 2003 was different from that prevailing in 2000, so justified a fresh approach.

The process began with a request for submissions based upon an issues paper released on April 10, 2003. The issues paper reiterated the efficiencies-based criteria used by the 2000 Inquiry to interpret the government's policy statement, but identified the key role that high-speed internet access would play in the future of the market. New Zealand's low broadband uptake was identified, but no speculation as to its cause was made. Indeed, the paper identified the lack of theoretical and empirical information about the underlying drivers of broadband uptake. Consultants were hired to prepare a cost-benefit analysis (Oxera, 2003), and a draft report was released on 18 September 2003. Using an efficiency-based approach and the consultants' cost-benefit analysis, the Commission's draft recommendation was to proceed with making full LLU a designated service. Many of the benefits hinged upon a projected decrease in the price of broadband connections, with different scenarios considering the effects of bitstream unbundling, line-sharing and full LLU.

However, it quickly became evident that there were material base assumptive, computational and input errors in the cost-benefit analysis. A revised draft was reissued on October 14, with substantially reduced net benefits, but still recommending unbundling. At the subsequent conference, held between November 10 and 14, robust debate occurred regarding the assumptions underpinning the cost-benefit analysis. These centred predominantly around the approach to dynamic efficiency, the effect of investment and competitive entry by alternative infrastructure providers (for example, the effect of investment in either Telecom's or entrants' infrastructures was not considered in the cost-benefit analysis methodology – Hausman & Sidak, 2005), and the incentives for Telecom to continue with its planned upgrade to a fibre-

based Next Generation Network (NGN)⁸² if LLU was mandated. Another material point related to the degree to which unbundling of itself had been associated, in the international experience, with increases in broadband penetration, relative to competition from alternative infrastructures and other demographic and country-specific factors⁸³.

On November 13, Telecom presented an offer to the conference of access to an unbundled partial circuit (bitstream) service in lieu of full LLU (Covec, 2004). This offer had advantages for entrants as it would allow them more flexibility to deliver ADSL bundles to consumers than allowed under the existing wholesale arrangements, and without the risk of investing in assets that would become stranded when Telecom deployed the NGN. The disadvantage was that entrants would be reliant upon Telecom technologies in the interim. From Telecom's perspective, the offer preserved the incentives to invest in the NGN. These incentives would be severely diluted if unbundling proceeded, given the uncertainties as to whether the new networks would also become subject to open access obligations once LLU had become entrenched (Gans & King, 2004). Given the assumption that Telecom's network had to be replaced due to the pending obsolescence of the existing equipment, and the very low likelihood that an alternative nationwide fixed-line network would be built by another operator following TelstraClear's decision to stop its fibre investment, the critical issue facing the Commission was the need to ensure that someone would invest in a replacement network in order to ensure the ongoing provision of existing services to consumers, whilst simultaneously providing incentives for investment in new technologies, both Telecom's NGN and other services, such as wireless, mobile and satellite broadband services.

2.5.2 The Recommendation

In the final report presented to the Minister on December 22, 2003 (4 days after the first TSO decision), the Commissioner reversed his earlier decision and on efficiency grounds did not recommend either the specification or the designation of unbundled local loops: "the overall benefits from unbundling are not sufficiently persuasive to satisfy the Commission that a regulated solution is warranted"⁸⁴. Platform competition (e.g. from wireless networks) was considered likely to evolve and reduce the extent of Telecom's control of the bottleneck to access (para 788) – reminiscent of the similar findings by the 2000 Inquiry with respect to alternative infrastructures - and the experience of LLU internationally had been mixed in

⁸² Telecom formed a strategic partnership with Alcatel in 2002 to build what was anticipated to be the first commercially-deployed network of this type in the world <http://www.telecom.co.nz/content/0,2502,200633-1548,00.html>

⁸³ A full record of all transcripts and papers presented is available on <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Investigations/LocalLoopUnbundling/conferencetranscriptsandsubmissions.aspx>

⁸⁴ Executive Summary, (v). <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Investigations/LocalLoopUnbundling/ContentFiles/Documents/Finalreportexecutivesummary.PDF>

respect of increasing broadband penetration (para 792). The high costs of mandatory unbundling were also cited, including the critical point that the incentives for the incumbent to invest would be substantially reduced under LLU, and that this would have very significant effects upon the potential welfare gains for consumers (para 794). Line-sharing was not recommended for designation either as there was limited interest (vi).

However, the Commissioner did recommend that:

“access to an asymmetric DSL bitstream service suitable for the residential and SME broadband market and related interconnection should be a designated service. Additional entry in that market is likely to result in lower prices, act as a spur to improvements in Telecom’s productive efficiency, and encourage process innovation on the part of entrants. The Commission has weighed the potential impacts on current or future alternative technology platform providers. However, the Commission believes that those impacts should not be significant, given the capacity of those providers to differentiate their service offerings” (vii).

Access to associated backhaul services was also recommended for designation (viii). According to a subsequent Commerce Commission media release, “the decision not to recommend unbundling of other elements was influenced by Telecom’s announcement of an Unbundled Partial Private Circuits services offer that has the potential to provide a commercial solution to a competition problem in the supply of high grade data services to corporates and other large users”⁸⁵.

2.5.3 The Reaction

The recommendation reversal was met with considerable dismay by Telecom’s competitors⁸⁶. From the perspectives of regulatory economics and international precedents, however, the decision was notable in that the supporting analysis took account of both total welfare (sum of consumer and producer surplus) and dynamic efficiency in coming to its recommendations (Hausman & Sidak, 2005). The Commission appeared to be using as the guiding principle in the decision the efficiency mandate underpinning the 1987 Act and apparently embodied in the government’s policy statement for the sector as interpreted in discussion but not in recommendations, by the 2000 Inquiry. In following this interpretation, the Commission applied the principle of long-term efficiency prevailing over short-term effects, at least as far as access to copper-based assets and a replacement network replicating its functionality was concerned. The decision also recognised that, in the thin markets for investment in new large-scale infrastructures, ongoing reliance upon Telecom’s willingness to invest in an improved

⁸⁵ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa23200.aspx>

⁸⁶ See, for example, iHug’s submission to the Minister on the matter <http://www.med.govt.nz/upload/5898/tcl-rsp-to-comcom-llu-rpt-submission040209.pdf>

nationwide network was critical to ensuring the ongoing delivery of existing and future services to all New Zealanders. In this respect, the equity issues pertaining to long-term universal access to a nationwide new infrastructure also appeared to prevail over short-term competitive entry, which would almost certainly result in price reductions for some urban customers, but increase inequities in access for rural consumers.

The backhaul and limited bitstream service designation recommendation was targeted specifically at increasing broadband uptake in the residential market, where there had been little evidence of competitive entry compared to the business market (Howell & Obren, 2003). The bitstream recommendation partially addressed competitor requests for more extensive access to Telecom's infrastructure, albeit further reinforcing the effect of ADSL becoming a more dominant technology as further options were provided to new entrants as substitutes to their own investments (Gruber, 2007). By the 'ladder of investment' theory (Cave & Vogelsang, 2003; Cave, 2006), bitstream and backhaul services are the next investment 'step' upward for entrants who have already invested in retail and IP network services. Allowing entrants access to bitstream recognised Telecom's control over copper wires, and would (arguably) allow entrants to build market share in the DSL business in areas where bypass of the 'last mile' was less likely to occur.

The designation of backhaul, however, appears a little puzzling, given the extensive competition already present in the ISP and long-distance markets. ISPs other than Xtra had approximately 50% of the dial-up market via interconnection and 35% of DSL lines at December 2003 via wholesale and resale agreements⁸⁷, and vibrant competition in long-distance calling had been evident since the mid 1990s. Given the evidence of substantial historic and anticipated growth in data transmission, significant new investment in backhaul would be required. The case for competitors with existing market shares to begin investing in their own backhaul infrastructure appears compelling.

By designating backhaul, the implication is that it too is an 'essential service' or 'bottleneck' that will be provided by no party other than Telecom in the foreseeable future. Yet designation poses disincentives to competitor investment in the 'next step' of the ladder. A Commissioner-mediated cost-based price to access Telecom's existing and future backhaul investments provides options to competitors to delay investment in their own infrastructures, especially where the costs are falling (Pindyck, 2003). Meanwhile, Telecom's incentives to invest in maintaining and increasing backhaul capacity to meet growing demand would also

⁸⁷ Telecom Management Commentary 4 February 2005, p 16.
Available on http://www.telecom.co.nz/binarvs/q204_managementcommentary.pdf

be diminished under cost-based pricing and diminishing returns (Bourreau & Dogan, 2005). Arguably, access to backhaul was required for the bitstream service to be viable quickly, but it is not clear why designation, rather than specification, was the regulatory tool chosen. Higher prices under specification might have led to earlier and more substantial entrant investment in backhaul, reducing reliance upon Telecom's infrastructure and increasing total sector investment. It is noted that as ADSL speeds and data volumes transacted increase, service quality is determined principally not by the capability of the DSLAM but the extent of congestion of the backhaul network. Anecdotal evidence suggests that in some areas of New Zealand, such congestion is markedly impairing broadband performance⁸⁸.

2.5.4 Endorsement and Bitstream Operationalization

On May 24, 2004 the Minister announced his decision to accept the Commission's recommendations. The final package was formally accepted on July 13. On June 25, Telecom undertook to have its cost-based unbundled bitstream (UBS) product, as offered at the November 2003 conference, available by 30 September, 2004. This undertaking included an agreed national target of 250,000 broadband connections being sold by the end of 2005, of which a third would be wholesaled bitstream or resold retail products⁸⁹.

In the interim, however, Telecom began making available a more limited bitstream service⁹⁰, with the anticipation that both offers would be available to access-seekers from September 30⁹¹. This caused some debate due to provisions of the Telecommunications Act precluding access-seekers with an existing commercial contract seeking a determination from the Commissioner. The Commission moved swiftly to clarify the position⁹². On September 3, the Commission released a benchmarking report on TSLRIC-based pricing for UBS (Covec, 2004) in anticipation of the mandated service being available from 30 September⁹³. The designated service was available at the time expected, and on October 8, the Commission announced that it was satisfied that Telecom was meeting its commitments, in respect of both cost-based prices according to the benchmarking report and non-price terms⁹⁴.

It is noted, however, that the benchmarking prices in Covec (2004) and accepted by the Commission are geographically averaged. The authors place a caveat on their study that geographically averaged prices are likely to lead to distortions in the market, with inefficient

⁸⁸ http://www.ispanz.org.nz/work_plan#Telecom_UBS_Backhaul_and_Interconnection

⁸⁹ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecombroadbandtargetclear.aspx>

⁹⁰ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/currentubsnotttheser1.aspx>

⁹¹ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecomclarifiesits1.aspx>

⁹² <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa24.aspx>

⁹³ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa23200.aspx>

⁹⁴ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa27.aspx>

over-investment in competing technologies in urban areas and under-investment in rural areas, cream-skimming by entrants in high-value areas such as CBDs leaving the incumbent bearing the costs of serving more unprofitable customers in less-desirable locations, and inappropriate technology choice (p 11). The second of these effects is likely to ultimately be relevant to the TSO, should it be extended to include broadband services in addition to basic PSTN access.

On November 4 2004, TelstraClear applied for access determinations in respect of wholesale bitstream and backhaul, and retail virtual private network services⁹⁵. TelstraClear sought to have access to bitstream services with a downstream speed as fast as the DSLAM allowed. A similar bitstream and backhaul request was made by iHug on November 9⁹⁶. iHug subsequently withdrew its application on 23 December 2004, having come to a satisfactory agreement with Telecom⁹⁷. The TelstraClear final determination on virtual private network services was released on December 8 2005 (retail less 16%)⁹⁸ and the bitstream decision on 20 December 2005 granting a single nationwide price of \$27.87 per month for the best available service on the line⁹⁹. On January 4 2006, TelstraClear applied to the Commission for a pricing review of the December 8 decision¹⁰⁰. Telecom responded with an application on January 10¹⁰¹. Both companies subsequently withdrew their applications on January 17 2006. The Commissioner's press release notes "the Telecommunications Act encourages commercial negotiations and settlements between parties, and the Commission welcomes the agreement reached by TelstraClear and Telecom in relation to these services"¹⁰².

On 29 March 2006, iHug and CallPlus both applied for determination on a nationwide contract for higher-speed services. The determination given on June 22 granted them access at \$28.04 per line per month, for a 2-year period¹⁰³. An updated price of \$27.76 was announced on October 20¹⁰⁴. iHug requested a reconsideration of the pricing terms on December 12¹⁰⁵, followed by CallPlus on December 18¹⁰⁶. At the time of writing, a decision has yet to be announced, possibly due to the fact that on December 22 2006, the provisions of the Telecommunications Amendment Act 2006, discussed subsequently, which largely

⁹⁵ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telstraclearapplies1200.aspx>

⁹⁶ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa30.aspx>

⁹⁷ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsactihugwithdrawsappli.aspx>

⁹⁸ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/decisiononresaleoftelecombroadband.aspx>

⁹⁹ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Wholesale/WholesaleDeterminatons/ContentFiles/Documents/Bitstream%20Determination%20Decision%20568.pdf>

¹⁰⁰ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telstraclearapliestocommissionfor.aspx>

¹⁰¹ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecomapliestocommissionforprici.aspx>

¹⁰² <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telstraclearandtelecompricingrevie.aspx>

¹⁰³ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/ihugandcallpluswillhavebitstreamac.aspx>

¹⁰⁴ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/commissionapprovesupdatedpriceforw.aspx>

¹⁰⁵ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/commissionapprovesupdatedpriceforw.aspx>

¹⁰⁶ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/commissionreceivesapplicationforbi1.aspx>

supersede the previous arrangements, came into force. This Act enabled (amongst other things) the Commission to make standard terms determinations for all parties seeking access.

2.5.5 Processes Under Bitstream Access

As the preceding description indicates, the addition of more services to those subject to regulation did not result in a smoother process to contractual agreements. Indeed, the opposite seems to have occurred. Whilst the transcripts and reports reveal Telecom utilising strategic, legal and procedural arguments to support the company's cause in regulatory proceedings, the same can also be said of access-seekers. Access-seekers have been applying for redeterminations within days of determinations being made public. Moreover, applications for reconsiderations have also been lodged within days of the determinations being announced, even when with the resulting re-determinations have been only marginally different from the original determinations and reviews.

As cost-based pricing based upon transparent international benchmarking provides the basis for bitstream price-setting, and the determination process allows multiple opportunities for participants' views to be voiced, it is difficult to see why the bitstream decisions have been subject to so much dispute. In 1997, the High Court judge declared Clear's behaviour in seeking a contract variation five months after the deal was agreed as acting "before the ink on the contract was scarcely dry" (Dammery, 1999). CallPlus and iHug's requests for reconsiderations slightly more than a month after the Commissioner's decision appear even more precipitate. It is difficult not to conclude that competing for the regulator's attention under the post-2002 regime has been as, or even more, instrumental in shaping sector outcomes than competing for customers in the marketplace. This is in sharp contrast to the post-1997 period.

2.5.6 Market Performance Under Bitstream Access

Figure 7 illustrates the effect of bitstream access availability upon market performance. There is no support for the contention that bitstream unbundling has resulted in the stimulation of a more competitive market, in the sense of the regulations facilitating greater competitor entry, or even higher broadband uptake, as envisaged by the 2003 recommendation. Indeed, increased ADSL penetration is strongly correlated with a decrease in competitiveness following the bitstream access decision.

As a consequence of the post-2002 determinations, by quarter 3 2003, whilst the LLU inquiry was underway, over 37% of ADSL connections were sold by competitors to Telecom under resale and wholesale arrangements. Using the market share of competitors as a proxy for

competition¹⁰⁷, quarter 3 2003 marks the point of greatest competition in the New Zealand ADSL market. Throughout 2004, whilst the terms of the bitstream agreements were being negotiated, the share of connections sold by Telecom's competitors actually fell consistently, reaching a low of 19% by the end of quarter 1, 2005. This occurred despite a substantial sustained upswing in the number of connections being sold per month beginning in quarter 3 2004. This upswing, constant and sustained throughout 2005 and 2006, represents the third-highest growth rate in broadband penetration per capita in the OECD in 2006, after Denmark and the Netherlands¹⁰⁸. Following the bitstream product being made available, the share of connections sold by Telecom's competitors has increased only marginally, to 25% in quarter 1 2007, despite a fourfold increase in the number of connections sold. Whilst there was a small competitor market share upswing in 2005 from 19% to 25% of accounts, there has been no noticeable change in market shares since quarter 1 2006.

Figure 8 indicates that practically all of the increase in the number of broadband connections from quarter 4 2003 can be accounted for by user substitution away from dial-up connections. This is confirmed by Figure 9. Prior to quarter 4 2003, there was a positive correlation between the number of broadband connections and the number of dial-up connections, consistent with a growing market for internet connections of both types. Dial-up internet accounts were at a peak in the first two quarters of 2004. Dial-up usage per dial-up ISP account also peaked in quarter 2, 2003. From quarter 4 2003, however, there has been a very strong negative correlation between the number of dial-up and broadband accounts as consumers substitute broadband for dial-up (for every 100 new broadband accounts, dial-up accounts reduce by 76 - the account substitution is not complete as individuals may keep a dial-up account for access to the internet from remote locations such as holiday homes, as ADSL is location-specific but dial-up access is not).

2.5.7 A Demand-Side Explanation for Observed Broadband Uptake

Whilst the timing of the significant upswing in broadband connections occurred at the time of the LLU inquiry, and continued with the availability of bitstream connections, it is not at all clear that this can be attributed to the change in regulatory arrangements, as prices to consumers and the range of products before and after the availability of bitstream were very similar, and were sold by the same providers who repackaged Telecom wholesale and resale products previously. Rather, the pattern observed in Figure 7 is more consistent with the hypothesis that, as average internet consumption reaches a threshold whereby it is more cost-

¹⁰⁷ Although with the proviso that it is not necessarily clear in either the empirical or theoretical literature that this is always true (Ford, Koutsky & Spiwak, 2007).

¹⁰⁸ http://www.oecd.org/document/7/0,3343,en_2649_37441_38446855_1_1_1_37441,00.html

effective for consumers to migrate from dial-up to DSL technology, then substitution will occur based upon the change in demand-side characteristics (Howell & Obren, 2003; Howell, 2007).

That the increase in broadband connections is associated with a decrease in dial-up accounts and average dial-up usage per account confirms that it is the most usage-intensive and increasing demand dial-up consumers who are substituting, leaving the less-intensive users on dial-up as it is the more cost-effective access method given New Zealand prices and their lower demand. As it is increased use of existing and new applications that causes average consumption per account to increase, it is more plausible that learning effects and the availability of new, transfer-intensive applications such as YouTube and VoIP around this time were responsible for the increase in broadband penetration than regulatory intervention. It is noted that, using the model in Howell (2007), a ‘tipping point’ of 35.7 hours per month at New Zealand broadband and dial-up prices suggests a marginal value of user time of less than \$0.70 per hour in respect of the additional value conferred by broadband access. Whilst apparently very low, this value of time is consistent with other experimental evidence about the willingness of users to pay for faster internet access, especially where the usage is in personal (i.e. leisure) time (Varian, 2002).

As ISPs other than Telecom’s Xtra had approximately 50% market share in the dial-up internet market in 2003, so already had established relationships with customers, it is very puzzling that despite access to the bitstream products under regulated terms and prices, competitors’ share of the ADSL market was so low over a period of such rapid customer substitution. Figures 7, 8 and 9 suggest a net loss of internet market share from competitors to Telecom Xtra of around 50% during the period of most rapid growth of the broadband market. The decline in competitor market share in 2004 suggests that there was little competitor interest in marketing wholesale and resale ADSL products once the intention to offer regulated bitstream became clear. This would support the contention that access regulation interferes with dynamic incentives not just in the delivery of technology platforms themselves but also in the timing of service availability based upon technological platforms subject to access disputes. However, it does not explain the persistence of the low competitor market share once bitstream access became available.

2.5.8 Strategic and Market Characteristic Explanations for Reduced Competitiveness

It cannot be discounted that following the disappointment of the reversal of the LLU recommendation, the competitors who had lobbied strongly for LLU had few incentives to make the bitstream arrangements work successfully. It was clear in the Minister’s acceptance

of the Commission's recommendation not to fully unbundle that Telecom was 'on notice' from both politicians and the Commission to meet the broadband account and market share targets agreed in June 2004. Strategic gaming by dissatisfied entrants seeking to frustrate Telecom's ability to meet the Commission's targets (e.g. low investment in marketing effort) in the hope of subsequently gaining more favourable access terms from either regulatory or political intervention (i.e. full LLU) offers a plausible explanation of the market share enigma. An alternative, but apparently less plausible, explanation is that Telecom employed non-price tactics to frustrate the ability for competitors to sign up new customers. The plausibility of this explanation is diluted by the fact that Telecom voluntarily made the bitstream offer at the November 2003 LLU conference and had very strong incentives to meet the targets set, so it is difficult to see why it would deliberately put its ability to meet the market share target in jeopardy.

A third possible explanation is that the margins available to entrants at the regulated bitstream prices were so small that the business case for competitors was barely viable¹⁰⁹. This explanation is particularly plausible if the vast majority of consumers purchased products with low data caps, as the retail prices for these products were only very slightly more than the regulated bitstream price (around \$30 per month for entry-level products compared to regulated bitstream prices in the vicinity of \$27 to \$29). Empirical evidence (Howell, 2003; Statistics New Zealand ISP Surveys; iHug website) indicates that average data consumption per New Zealand broadband account is low, confirming that, if rational consumers aware of their consumption habits and faced with two-part tariffs purchased packages with low data caps consistent with their known usage (as per Miravete, 2003; 2002), the margins available to entrants from selling bitstream products to the vast majority of consumers would likely be small. Competitors would face few incentives to aggressively market the bitstream packages, especially if margins from bitstream sales were less than those available when retaining existing customers as dial-up (accounts were priced in the vicinity of \$10 per month) rather than broadband customers (it is noted that New Zealand's already very high internet access penetration left few avenues available for growing the total size of the market from non-users, and even then, very low-cost dial-up access provided the most cost-effective access method for new users). Thus, Telecom Xtra would face greater incentives to convert its dial-up customers to broadband accounts than its competitor ISPs, yielding a plausible explanation for the outcome illustrated in Figure 7.

¹⁰⁹ <http://computerworld.co.nz/news.nsf/fry/C047FEC66E9B47B3CC25723900423E2A>

As cost-based pricing principles and international benchmarking were used to set bitstream access prices, if Telecom's competitors could not make sufficiently high margins to induce substantial substitution to broadband amongst their existing customers at regulated access prices given the already-low prices at which Telecom was selling its own products, then Howell's (2003) finding of an absence of supply-side 'problems' in the broadband market is confirmed, at least in respect of pricing. If competitors faced few entry incentives following the availability of cost-based bitstream products, then it is difficult to support the hypothesis that Telecom's retail ADSL prices contained substantial rents, or that bitstream access would lead to substantial increases in broadband uptake when there was so little room to engage in aggressive price-based competition. Where bitstream access is introduced in the presence of monopoly pricing, the outcome expected would be intense price-based competition, with subsequent increases in broadband uptake being driven by lower prices bringing forward the point of substitution from dial-up (Gruber, 2007; Howell, 2007) and inducing first-time internet users to buy broadband, as opposed to dial-up, accounts (Wallsten, 2006). With no room to create a price war, and little scope for product differentiation, bitstream access has therefore likely had minimal effect upon the New Zealand broadband uptake statistics, relative to other factors. Instead, the effect has been a (predictable) reduction in competitive intensity in a rapidly-expanding broadband market.

Indeed, that the margins for competitors were so low under TSLRIC-based bitstream access pricing suggests that in small markets such as New Zealand, there may also be economies of scale in the size of the customer base (e.g. lower marketing and customer management costs per customer for larger providers) as well as any natural monopoly characteristics in the underlying infrastructure costs that favour a large provider (e.g. Telecom, with 50% of the internet market) over many smaller providers (e.g. ISPs with 10% to 15% each). Intensive price-based competition in such circumstances has been shown to be associated with an increase in market concentration as competitors merge to take advantage of further economies, and as the removal of rents reduces the optimal number of firms in equilibrium (Ford, Koutsky & Spiwak, 2007). However, if there are no rents present in the first place, then price-based competition will not ensue, and there will be no entry based upon retail and access price arbitrage opportunities. An increase in market concentration in the presence of cost-based pricing thus would thus be consistent with the absence of rents in Telecom's retail prices and efficient allocation of the majority of substituting customers to the lowest-cost producer – in this case, Telecom.

Whilst the explanations offered here are speculative, and must be considered simply hypotheses until they can be tested against more substantial data, the evidence from Figure 7

is clear. More extensive regulatory intervention, and specifically the introduction of bitstream access, has been correlated with a reduction in competitive intensity in the New Zealand broadband market, just as the introduction of industry-specific regulation appears to have been similarly correlated with a reduction in competitive intensity in the residential telephony market.

2.6 Mobile Termination: 2004-6

The introduction and development of the mobile telephony market in New Zealand has occurred principally since the passing of the Telecommunications Act 1987. Services were provided first in 1987 by Telecom on AMPS analogue technology, subsequently replaced by TDMA and CDMA networks. BellSouth entered in 1992, using a GSM network. The BellSouth network was sold to Vodafone in November 1998. By 2001, Vodafone had 40% market share. In May 2003 its market share exceeded that of Telecom for the first time, reaching a peak of 57% in 2006 before falling to 53.7%¹¹⁰ in March 2007. The New Zealand mobile market is relatively mature, with a 2005 penetration rate of 101.93 per 100 population (OECD, 2007). In a rapidly-growing market with two networks and two relatively equal-sized participants, it was not clear at any stage that either party could be said to be 'dominant'. The 2000 Inquiry made no recommendations regarding regulation in the mobile market.

2.6.1 Mobile Market Performance

Historically, international comparisons undertaken by the Ministry of Economic Development and the Commerce Commission, using standard call baskets, have been used to support claims that New Zealand's mobile market prices are quite high by international standards¹¹¹. However, the most recent OECD statistics suggest that, using the OECD baskets, New Zealand prices are now very close to OECD averages (OECD, 2007:217-8)¹¹². Furthermore, at least 15 other OECD countries exhibited higher peak rate mobile termination rates in 2006 than the current New Zealand peak mobile termination rate of 20c per minute, when converted to US dollars PPP (OECD, 2003:31).

Concerns have also been voiced that the dual technologies used (CDMA and GSM) are restricting opportunities for sharing of infrastructure between firms. It is also claimed that restricted opportunities for infrastructure sharing is limiting the desirability of entry by third-

¹¹⁰ <https://www.vodafone.co.nz/personal/about/media-centre/2007-media-releases/q4-financials-release.jsp>

¹¹¹ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/MonitoringandReporting/ContentFiles/Documents/Telecommunications%20Key%20Statistics%20-%20Quarterly%20Monitoring%20Report%20-%2031%20December%202006.pdf>

¹¹² 18th-lowest (of 30) for the low and high user baskets, 19th-lowest for medium user; notably, the low user and high user baskets are cheaper than Australia (23rd in each – the high user basket is 23% higher-priced in Australia than in New Zealand).

party virtual operators, thereby reducing the possible effects of competition upon prices¹¹³. However, consumers have benefited from real and early product differentiation relative to other countries as the network operators sought to influence market shares by the early introduction of new, differentiated technological platforms offering innovative customer services. For example, 3G mobile broadband services became commercially available in New Zealand substantially earlier than some comparator European countries such as Finland (Howell, 2007a), and New Zealand exhibits the highest penetration of 3G technology per capita outside of Asia in the latest statistics reported by the OECD (OECD, 2007:98)¹¹⁴. However, recent threats of increased regulation have resulting in Vodafone management confirming in September 2007 a suspension in the expansion of investment in its 3G mobile network pending decisions by the Commission and Government on how the company would be regulated in respect of the compulsory provision of access to its cellsites by third parties¹¹⁵.

It would therefore appear that, as with the fixed line market, whilst the mobile market may not exhibit ‘perfect competition’ in the sense of many players and perfectly cost-based prices, it is delivering services to consumers that are not substantially out-of-line with those offered in other OECD countries (allocative efficiency), and benefits potentially higher in terms of early availability of better products and services (dynamic efficiency). However, increased access regulation will likely compromise the achievement of both in the future, just as LLU impacts upon incumbent investment incentives in the fixed line market.

2.6.2 Commission Instigates Investigation

On April 29 2004, the Commissioner announced an investigation into mobile termination rates. The investigation was initiated using discretion under Schedule 3 of the Telecommunications Act 2001 allowing the Commission to investigate whether or not a new telecommunications service should be regulated. In justifying the decision to investigate, the Commissioner cited “features of the mobile termination market that give rise to concerns about the exercise of market power by mobile carriers” that had led to “complaints that lack of competition in the mobile termination market means charges for fixed-to-mobile calls in New Zealand are unreasonably high”¹¹⁶. An issues paper was issued in June, a draft report was released in October, and a conference was held in February 2005.

¹¹³ See, for example, Econet’s submission on LLU <http://www.med.govt.nz/upload/5898/tcl-rsp-to-comcom-llu-rpt-submission040209.pdf>

¹¹⁴ Whilst Korea (74.73 per 100) and Japan (37.82 per 100) have higher penetrations of 3G per capita than New Zealand (24.21 per 100), they have lower total penetration of mobile connections overall (Korea 79.39 per 100; Japan 75.51 per 100; New Zealand 101.93 per 100) <http://ocde.p4.siteinternet.com/publications/doifiles/932007021P1G22.xls>

¹¹⁵ <http://www.stuff.co.nz/4191018a13.html>

¹¹⁶ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsa18200.aspx>

The Commission made its recommendation to the Minister on June 9 2005 that mobile termination charges for voice calls on 2G networks, but not 3G networks, be regulated. The recommendation was supported by a cost-benefit analysis based upon efficiency considerations, albeit using as the criterion for recommendation the net benefit to consumers, rather than total surplus as had prevailed in the LLU inquiry. Regulating the different generations of technology differently was justified by the risks to dynamic efficiency from dampening incentives on both participants to continue the rollout of their 3G networks. On August 9, the Minister announced that he required the Commission to review its recommendation, with reference to the “definitional and implementation issues concerning 2G and 3G” and in “consideration of commercial offers made by Telecom and Vodafone following the Commission’s final report”¹¹⁷. The Commission released a reconsidered recommendation on 22 December, and on 21 April 2006, announced its final recommendation that all fixed-to-mobile voice calls on all technology types be subject to regulation¹¹⁸.

2.6.3 Commerce Act Clarification

In the second final decision, the Commission’s cost-benefit analysis demonstrated “substantial net benefits to end users were likely to arise from making mobile termination a designated access service” (para 32)¹¹⁹. Whereas the LLU decision had been characterised by the use of a total welfare framework, in the mobile termination decision a consumer welfare approach prevailed: “where wealth transfers which are sustainable and not themselves conducive to inefficiency are likely to result from a measure promoting competition, the Commission ought to give weight to such transfers in the cost-benefit analysis” (para 34). Submissions had been made to both the Commission and the Minister that the consumer welfare approach was inconsistent with decisions made by the Commerce Commission, where transfers are considered to be neutral – that is, total welfare and not consumer welfare is the appropriate benchmark (paras 37-40).

The Commission argued, however, that the Telecommunications Act created a distinction between the Commerce Act as amended in 2001, seeking to promote competition by restricting the aggregation of market power and controlling its use (sections 36 and 47), whereas the regulation of existing market power, as provided for in Part IV focuses upon the net benefit to acquirers – that is, it must take into account “the wealth transfer that occurs in

¹¹⁷<http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Investigations/MobileTerminationRates/ContentFiles/Documents/Ministers%20letter%20to%20commission.pdf>

¹¹⁸<http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Investigations/MobileTerminationRates/reportsandsubmissions.aspx>

¹¹⁹Paragraph references relate to the final, revised report, which summarises the material in all of the preceding draft and final reports.

reducing the excessive profits of the regulated party” (para 46). In addressing the fundamental tension between the promotion of competition and the pursuit of efficiency, the Commission was in no doubt that the Telecommunications Act gave primacy to competition: “where there is a tension between the net public benefits and promotion of competition, the statutory context indicates that the primary consideration is the promotion of competition” (para 47). A paragraph later: “the Telecommunications Act is focused on regulating access to promote competition. It does not provide a mechanism that specifically allows for efficiency considerations to take precedence over the promotion of competition. Nor is there anything in the statutory scheme to suggest that this should be the case”. Rather, the Commission is required to exercise its judgement when making recommendations – with the proviso that in the context of investigations: “the role of the Commission is to recommend and it is for the Minister to determine” (para 53). This conclusion is made despite Section 18 (2) of the Act stating “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”.

2.6.4 Competition Supersedes Efficiency as Pre-Eminent Sector Objective

The principles in the final revised decision appear to be the first substantive articulation in any policy, inquiry or recommendation since 1984 that efficiency is no longer the pre-eminent principle governing regulation of the New Zealand telecommunications sector. The first Final Report (June 9, 2005) gave no hints of the sea-change that was to follow nine months later. Rather, it asserted the prevalence of the efficiency principle, confirming that the Commission when exercising its judgement should give greater weight to dynamic effects in assessing the trade-off between static and dynamic efficiency: “the Act does not direct the Commission as to the weight that it should give to efficiencies, as opposed to other considerations. This is a matter for the Commission to consider. Where there are tensions between short-term allocative efficiency and long-term dynamic efficiency, the Commission takes the view that giving greater weight to the latter will generally better promote competition for the long-term benefit of end-users” (para 28).

The Commission’s interpretation of the supremacy of competition over efficiency in the hierarchy of statutes expressed in the 2006 Mobile Termination decision raises exactly the same tension between institutions interpreting and enforcing legislation favouring competition at the expense of efficiency as raised in the aftermath of the 1991-94 court action. Strict legalistic interpretation by the courts and their inability under the Commerce Act to consider the wider economic context was a principal justification for setting up the Commission with a

wider brief, as expressed in the 2000 Inquiry's efficiency-based interpretation of the incoming government's 1999 policy. The 2000 Inquiry's intent to prioritise efficiency, and dynamic efficiency in particular, had clearly been followed by the Commission up to and including the first mobile termination decision. Yet the second mobile termination decision abrogates the use of Commission's discretion to prioritise efficiency, citing as the basis a hierarchy of statutes reinforcing the pre-eminence of competition.

2.6.5 Tension: Commission Legitimacy vs Statutory Intentions

By prioritising efficiency, the Commission was interpreting the legislation in the spirit articulated in its 2000 Inquiry genesis. However, the second mobile termination decision implies that in doing so it has apparently been acting contrary to these intentions. This gives rise to many questions. If the intention of the Telecommunications Act is, as interpreted, is primarily to regulate access to promote competition, and Section 18(2)'s statement of the requirement to take efficiency into account is strictly secondary, this is a clear violation of the intentions for the Commission voiced in the 2000 Inquiry. If the discretion exercised by the Commission in prioritising efficiency was never intended to be granted, then all parties have apparently laboured for six years under an uncorrected misapprehension. If so, why has it taken so long for the apparent misapprehension to be corrected? If it was intended in the 2001 Act that such discretion be exercised, and for six years the spirit, if not the letter, of the law has been followed by a Commission that genuinely believed that it was intended to act in such a manner, then what is the justification for the recent reinterpretation?

There is little information available in the Commission's decisions to shed light on these questions. However, the implications arising from the apparent removal of the Commission's ability to exercise its discretion in favour of efficiency considerations are largely predictable. Such tight proscription of Commission activities means its decisions will become little more than an extension to the process of court-based decisions based upon literal legalistic statute interpretation and historic precedents. Legal finesse in the definitions of acceptable competitive practice will prevail over economic analysis, rendering redundant any Commission-generated inquiries into the efficacy on efficiency grounds alone of regulating, or removing from regulation, any existing or new products and services.

If access is granted to a previously-closed infrastructure, then ipso facto, competition is promoted even though such an action might reduce investment incentives and long-term dynamic efficiency. If regulating a service lowers its price to competitors, then ipso facto, competition is increased, because competitors who would not have entered at the higher price may now make a positive return sufficient to justify entry, even though such a decision might,

too, threaten incumbent investment and hence dynamic efficiency. Neither is increased competition induced by regulated pricing necessarily in the long-term interests of consumers if the margins available from regulatory arbitrage induce over-much entry (as per monopolistic competition) and in the ensuing intensive price-based competition incumbent rents transferred to entrants are in large part lost to the economy via the sunk costs of entry that the failed entrants walk away from rather than passing them through to consumers in price decreases as would have resulted from efficient entry. Yet when there is doubt about the effects (which is inevitable given the uncertainty associated with future events – i.e. any dynamic effect), the Commission is now clear – pursuit of competition must prevail over the accrual of both total and consumer welfare.

2.6.6 Subjugation of Efficiency and the Role of Commission

If neither the courts nor the Commission can prioritise the efficiency consequences of actions when making decisions, then it begs the question of what role the Commission fills in a market where courts enforce competition law and government Ministries enact political intentions. Without the scope to prioritise efficiency in its investigations, the Commission ceases to be a quasi-independent industry-specific arbitrator with discretionary powers that free it from the constraints of the Commerce Act-governed court processes prioritising competition. Instead, it simply becomes an instrument carrying out the telecommunications competition policy of the government of the day (as can now be directed under Section 19A without recourse to any discretion when pursuit of competition conflicts with the pursuit of long-term sector welfare. The role of the Commission as an industry forum is weakened and transparency is reduced.

If efficiency-based arguments cannot be given weight by the Commission over competition ones, then there will be little incentive for parties to present or debate them via submissions and conferences. The quality of decision-making will be compromised by the reduction in information provided and the lower-quality debate that will ensue, and transparency will be lost as positions never presented will never be documented in the Commission's proceedings. The only avenue left to give efficiency considerations weight will be the political process. However, this process is less transparent, and political decision-makers are less directly accountable for decisions made, and arguably less qualified to make judgements as they typically lack the expertise available in an industry-specific regulator's office.

2.6.7 Increased Regulatory Risk

The likely consequences illustrate the difficulties inherent in making a process (competition – the means), rather than a defined metric (efficiency – the end) the primary objective of sector-

specific regulation. In legislation, as in any incentive contract, giving force to a proxy will further the pursuit of the desired outcome only insofar as the proxy closely matches the objective. The greater the gap between the proxy and the objective, the less satisfactory the proxy is as the subject of either an incentive or monitoring (Milgrom & Roberts, 1992: 221-8). Prioritising competition as the proxy will be a valid action only if it closely matches the efficiency end. However, competition is a process which can take many different forms (e.g. Bertrand, Cournot, monopolistic, dominant firm-competitive fringe), each of which plays out in different ways and has different effects upon sector efficiency depending upon underlying circumstances. Unless the appropriate form of competition to maximise efficiency in each specific circumstance is selected and applied, the risk is that incentivising and monitoring the proxy will militate against achievement of the desired end.

The risk in applying a generic standard of ‘promoting competition’, measured by a concentration ratio, as might occur in other industries, to natural monopoly industries, or even to industries where high levels of concentration have naturally efficiently ensued (such as New Zealand), is that precedents associated with one specific form of competition will be inappropriately and indiscriminately applied, making the desired objective less, rather than more, likely to occur. The LLU and first mobile termination inquiries illustrate the strength of the Commission-based processes in identifying sector-specific factors and balancing competition and efficiency issues in a way that minimises the risk of inappropriate modes of competition being indiscriminately applied. The second mobile termination decision suggests that the scope for regulatory error is now substantially greater, as there is no clarity in either the statutes or the Commission’s decision as to which form of competition is the one to be promoted, or how the Commission might respond where different market circumstances suggest different forms of competition are more desirable. In the absence of an obligation to prioritise efficiency considerations, and in the removal of incentives for market participants to debate the issues, the risk is that arbitrary selection of an inappropriate set of competition standards will occur unchallenged, to the detriment of the New Zealand economy.

3. *The Politicisation of Competition: 2005-2007*

The inconsistencies between the revised mobile termination decision and historical Commission precedents, combined with the reversal of the initial LLU decision, appear to have had a significant effect upon the Commission’s credibility, and contributed to growing uncertainty in the sector. Whilst the absence of a transparent policy debate makes it difficult to ascertain the underlying motivation for the sudden change in the Commission’s

prioritisation of competition over efficiency, it likely had its origin in a changing political landscape.

Between the delivery of the first and second mobile termination decisions, on September 17 2005, New Zealand held its triennial general election. The election resulted in a Labour Party-led minority government holding a narrow one-member majority on the basis of one coalition partner and supply agreements with two minor parties. The Labour Party manifesto for the election stated “this Labour-led government has ended the destructive period of ultra-light handed regulation that stifled competition, growth and consumer choice in ICT markets” and promised to “closely monitor and enforce commitments made by Telecom New Zealand under the local loop unbundling decisions and ensure targets for broadband uptake for the next three years as outlined in the Digital Strategy are met”¹²⁰. This statement identified the unconditional pursuit of competition as a Labour Party political objective, and signalled the party’s intention to focus political attention directly and specifically upon Telecom’s activities in isolation from the wider telecommunications market and other market participants. Moreover, unlike the sector policy statement guiding the 2000 Inquiry and the policies in the 1980s and 1990s, it contains no reference to any efficiency or equity considerations. Competition is to be pursued as an end in itself, meeting broadband uptake and market share targets are to be the relevant performance metrics, and Telecom as the dominant firm is identified as the primary political target.

On November 9, in the speech from the throne outlining the new Government’s agenda, the Governor General confirmed the shift to a purely competition-based policy based upon advancing broadband uptake targets: “with respect to ICT, my government will be advancing policies to ensure that the telecommunications sector becomes more competitive and that we achieve faster broadband uptake in line with our competitors”¹²¹. On December 2, the Ministry of Economic Development began a ‘Stocktake’ of the telecommunications industry, with its primary focus “the broadband market and our broadband performance as a factor in economic performance” (MED, 2006)¹²². On February 14, at the opening of parliament, the Prime Minister declared “we want to work with other parties on solutions which not only

¹²⁰ http://www.labour.org.nz/policy/jobs_and_economy/2005policy/Pol05-Comms/index.html

¹²¹ <http://www.scoop.co.nz/stories/PA0511/S00104.htm> (Despite successive attempts in June 2007 to retrieve the official version from [http://www.dia.govt.nz/Pubforms.nsf/NZGZT/Speech187Nov05.pdf/\\$file/Speech187Nov05.pdf](http://www.dia.govt.nz/Pubforms.nsf/NZGZT/Speech187Nov05.pdf/$file/Speech187Nov05.pdf), it could not be retrieved.) This source appears to have reproduced the text complete, but this fact cannot be verified.

¹²² Notably, the Stocktake report makes no attempt to quantify the likely effect of broadband on the New Zealand economy. Neither is this issue addressed in the Digital Strategy. It is simply presumed in both policy exercises that, as a matter of faith, the effects will be large and unequivocally positive.

enable New Zealand to catch up with the rest of the world, but also enable us to keep up as these technologies develop further”¹²³.

The presumption that the quality of New Zealand’s infrastructure lagged OECD comparators appears to derive simply from the lower-than-average per-capita broadband uptake, as no substantiated empirical policy evidence to support the claim has been produced. The political promulgation of the technology lag impression has occurred despite the substantial body of supply-side infrastructure quality and availability evidence indicating that no such lag exists. For example, Point Topic data indicates that in 2006, New Zealand sat at the OECD average in the number of households capable of connecting to ADSL (95%), and exceeded (with 50%) the OECD average number of telephony households capable of connecting to the frontier ADSL2+ technology (35%) (Mueller, 2007:3). Notably, New Zealand substantially exceeds other comparator countries in this statistic, for example Luxembourg (0%), Ireland (7%), the United Kingdom (10%) and Finland (23%). Moreover, in 2006, the vast majority of New Zealand broadband consumers had connections capable of 2Mbps or faster¹²⁴, whereas only 28% of connections in Finland were of this standard¹²⁵. The pattern of accrual in the OECD Communications Outlook publications in 2001, 2003, 2005 and 2007 confirms that New Zealand’s ADSL2+ position is largely a consequence of the investment decisions made between 1998 and 2002, when the basic DSLAM speed chosen was 2Mbps, and strategic imperatives resulted in widespread and rapid deployment.

On February 2 2006, the Commissioner notified the Minister of Communications that at the end of 2005, whilst the number of ADSL broadband connections sold exceeded the target set in the 2005 agreement with Telecom by 11.6%, only 24.5%, rather than 33.3% had been sold by competitors to Telecom¹²⁶. Presuming broadband connections can be taken as a proxy for welfare¹²⁷, efficiency-based targets were exceeded, but competitive ones not met¹²⁸. The failure to meet the competition target appears to have been pivotal in the ensuing regulatory activity.

¹²³ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=24905>

¹²⁴ <http://www.stats.govt.nz/products-and-services/media-releases/internet-service-provider-survey/internet-service-provider-survey-mar07-mr.htm>

¹²⁵ <http://www.ficora.fi/attachments/englanti/5pmNkXaXg/Files/CurrentFile/MarketReview12007.pdf>

¹²⁶ <http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/telecommunicationsactcompletionofb.aspx>

¹²⁷ The efficacy of such a proxy is the subject of much dispute. For discussion, see Howell (2006) and Crandall & Sidak (2007).

¹²⁸ It is noted that in March 2007, despite New Zealand having one of the highest growth rates in DSL connections per capita in the OECD in the 2006 year, the percentage of connections sold by Telecom remains approximately 25%. That this has occurred despite aggressive marketing by competitors of bundled products, including broadband, long distance, mobile and pay television, the Telecom/Xtra branding still enjoys considerable consumer support.

<http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/MonitoringandReporting/ContentFiles/Documents/Telco%20Key%20Stats%20-%20Quarterly%20Monitoring%20Report%20-%2031%20March%202007.pdf>

3.1 The 'Stocktake'

On May 1 2006, on the basis of the MED 'Stocktake' recommendations, the Cabinet voted to proceed with legislating mandatory full local loop unbundling (including 'naked' DSL) and operational separation of Telecom into network, wholesale and retail companies. It was intended that the decision would be announced by the Minister of Finance as the centerpiece of the May 18 Budget. Given that the Minister of Finance was also the Deputy Prime Minister, and that regulation is not a budgetary matter, the decision to use the budget platform for a regulatory announcement strongly signaled the extent to which telecommunications regulation in New Zealand had become a political, as opposed to an administrative, issue¹²⁹.

On May 2, an employee of the Department of the Prime Minister and Cabinet acquired a copy of the cabinet paper, copied it and gave the copy to a Telecom employee. On May 3, the Telecom employee forwarded the copy to his employer. Telecom management, aware of their continuous disclosure obligations to the NZX as a consequence of being in possession of potentially material information that if genuine would affect the company's share price, sought confirmation from the Minister on the legitimacy of the information received. At 5.15pm, the Minister announced the policy and publicly released the Stocktake document, pre-empting the disclosure of both by Telecom¹³⁰. In the aftermath of the announcement¹³¹, by the end of May the Telecom share price had fallen to \$4.39, representing a 23% decline in company value in the month and a 5% decline in the NZX capitalization¹³². Wilkinson (2006) notes "\$3-4 billion of shareholder wealth (was) destroyed" by the policy.

The 'Stocktake' report (MED, 2006) is notable for the limited nature of the economic analysis undertaken, and the rudimentary and unscientific methods used to substantiate the proposals made (Howell, 2006). This is in sharp contrast to the rigorous nature of the investigations undertaken by the Commission, where detailed cost-benefit analyses and extensive literature reviews were used to identify relevant issues, assess evidence presented and make recommendations. That the Ministry, rather than the Commission undertook the 'Stocktake' analysis is surprising, given the amount of theoretical and industry-specific knowledge resident in the Commission relative to the Ministry. However, given the requirement in the Telecommunications Act that efficiency be considered under a Commission-led process

¹²⁹ It cannot be discounted that given the small majority held by the Labour-led government, the politicisation of telecommunications regulation is driven by wider electoral concerns. The facilities existed for the same process to be undertaken within the Telecommunications Commission and Commerce Commission framework without the need to make the issue political.

¹³⁰ <http://www.seccom.govt.nz/publications/documents/telecommunications/print.shtml>

¹³¹ Including statements by the Minister to a media outlet on May 16 regarding Telecom's dividend policy that could have constituted 'tipping' under the Securities Act

<http://www.seccom.govt.nz/publications/documents/telecommunications/print.shtml>

¹³² http://www.nzx.com/market/market_announcements/by_company?id=134522

(Section 18(2)), even if not prioritized (second mobile termination inquiry), it cannot be discounted that the Ministry was required to take the lead specifically because of the absence of a binding statutory requirement under Ministry processes that consideration be given to efficiency considerations. Without any statutory requirement to either conceptualize or quantify the efficiency consequences (i.e. a cost-benefit analysis), competition considerations would, by default, be given uncontested priority.

The absence of probing inquiry in the Stocktake presages the standard of analysis and debate that can be expected when participants anticipate that efficiency considerations will be subordinated to the pursuit of competition. It is also not inconsistent with a process of seeking to find justification for a policy that it has already been announced will be pursued. The failure to subject the 'Stocktake' assumptions to reasonable tests of their credibility in a contestable process overseen by individuals with specialist skills and industry knowledge reinforces the weakness of a politically-managed process compared to the more independent, transparent, accountable and expert regulatory process.

Specifically, the Regulatory Impact Statement attached to the May 1 Cabinet paper states that a new cost-benefit analysis is unnecessary. There is no systematic identification, quantification or analysis of the factors contributing towards the likely costs and benefits of the proposals. It is presented as a matter of faith that the benefits of the policy will outweigh its costs. The faith is based solely upon the presumption that as a consequence of the measures proposed, competition will increase. The certainty that net benefits will accrue appears to hinge solely upon the opinions of OECD and EU policy analysts that unbundling unconditionally stimulates increases in both broadband uptake and sector investment, and the statements of Telecom's competitors' intentions to invest under different policy scenarios. No attempts were made to assess the impact of the additional regulatory costs imposed and likely benefits using New Zealand-specific data. New Zealand's lack of scale increasing the threshold of benefits required per account or per capita relative to other jurisdictions in order to outweigh the (likely similar) fixed costs was not addressed¹³³. Instead, faith in the presumption that the proposals represented international regulatory best practice, and that failure to enact them would be detrimental to New Zealand's economy, prevailed.

¹³³ For example, supporting documentation to the Government's separation plans (Network Strategies, 2007) indicates that the capital cost of separating Openreach from BT was in the vicinity of £70 million, which is in the same order of magnitude as Telecom's estimated cost of \$300 million. On a per-account basis, given that the United Kingdom has 25 million telephony households compared to New Zealand's 1.5 million (Mueller, 2007:3), the benefits per household from separation would have to be nearly 17 times higher in New Zealand than in the United Kingdom to justify the fixed costs of separation.

3.1.1 The Stocktake Analysis: Broadband Uptake

The overriding justification given for the Stocktake policies was the pursuit of a higher OECD ranking for New Zealand in the broadband connections per capita metric. The Stocktake finds ‘competition problems’ to be responsible for New Zealand’s low position (22nd of 30 in December 2006) on the basis of an ordinal ranking of New Zealand against the top 8 OECD countries on each of the metrics well-established in the literature as statistically significantly correlated with high broadband penetration - GDP per capita, land area, population density, degree of urbanization and the price of services – plus the degree of competition, as measured by the share of broadband accounts sold by new entrants, the effect of which on broadband uptake is at best equivocal. As New Zealand ranks at the extreme (i.e. 1 or 9) in only one of these measures (the percentage of connections sold by new entrants) (Network Strategies, 2006), the Stocktake finds a competition problem is responsible for New Zealand’s poor performance and recommends unbundling and operational separation of Telecom as the solution.

3.1.1.1 Absence of Empirical Analysis

No endeavour is made in the Stocktake to quantify the effects of the recommended policies on the chosen benchmark indicator on the basis of the evidence produced¹³⁴. Neither is any attempt made to explain why, for example, Finland, with only a marginally higher percentage of connections sold by new entrants than New Zealand (28% versus 25%), and higher prices for equivalent services, ranked 6th compared to New Zealand’s 22nd.

The Stocktake is further characterised by its lack of any independent analysis of the New Zealand telecommunications infrastructure across time. The report focuses solely upon those infrastructures and services provided by Telecom New Zealand at the time of the stocktake. No analysis is undertaken of the relative effects of different forms of regulation on broadband uptake in New Zealand in the past, as in the foregoing discussion in this paper. Indeed, had such an investigation been undertaken, contrary evidence such as that contained in Figure 7 indicating increased broadband uptake concomitant with reduction in the market share of Telecom’s competitors would have been revealed, and the role of past regulatory intervention as an underlying factor could have been added to analysis. Instead, existing regulatory

¹³⁴ Howell (2006) shows that, based upon the OECD data, the univariate effect of the percentage of customers served by new entrants increasing from 25% to 50% would result in a move from 22nd to 18th in the OECD rankings. Using Wallsten’s (2006) multivariate model, only a very small rise in the penetration rate per capita, insufficient to see New Zealand pass the next-highest country in the rankings, would occur. This latter result reconfirms the very limited effect of unbundling compared to inter-platform competition from Distaso, Lupi & Manenti (2005). Howell’s result includes both intra- and inter-platform effects, so would exceed the likely effect of unbundling in New Zealand, given the limited extent of inter-platform competition following TelstraClear’s 2002 decision to cease the rollout of its fibre-optic cable network.

interventions were presumed to be unequivocally positive in respect of increasing competition and therefore excluded from consideration.

3.1.1.2 Absence of Literature Review

It is also notable that, in contrast to the extensive literature review undertaken in the Commission's 2003 issues paper and draft and final reports, and which was a feature of the 1995 Ministry of Commerce and Treasury report, the Stocktake is silent on the extent of debate in the academic literature regarding the efficacy of the proposed policies. The absence of a detailed discussion of the relative merits of inter-platform as opposed to intra-platform competition on broadband uptake¹³⁵ is especially puzzling, given the extent to which this issue dominated proceedings at the 2003 LLU conference. Indeed, the solitary academic paper cited on broadband uptake and unbundling (Distasio, Lupi & Manenti, 2005) is misused. The Stocktake authors claim the paper provides "tentative" support for unbundling because of an observation made in general discussion that unbundling is less problematic to implement than inter-platform competition¹³⁶. The main finding of this paper, not mentioned in the Stocktake, is that unbundling had no statistically significant effect upon broadband uptake, and was numerically very much smaller in its effect than the statistically significant inter-platform competition factor¹³⁷.

Had a fuller literature review and more detailed analysis of the New Zealand market been undertaken, the Stocktake authors would have become aware of the effect of many factors other than competitive entry on broadband uptake. Those of especial interest in the New Zealand environment, such as the very low price of dial-up internet access arising from the Kiwi Share 'free local calling obligation', low dial-up ISP prices arising from the 'ISP Wars'¹³⁸, and small margins available in DSL markets given already-low Telecom prices favouring competitor marketing of dial-up have a constraining effect on broadband uptake. These factors may be substantially more plausible explanators of both New Zealand's relative position in broadband uptake and degree of competitor market share than the absence of full LLU access. The effect of New Zealand's dial-up pricing has subsequently been attributed as a significant factor in OECD-published cross-national research seeking to explain relative

¹³⁵ For a summary of this literature, see Wallsten (2006).

¹³⁶ MED (2006a) states "Distasio et al suggest tentatively that inter-modal competition more effectively creates competition, while noting that stimulating entry into the DSL segment of the market is less problematic than enticing entry into alternative platforms" MED 'Promoting Competition' para 4.

¹³⁷ "the econometric evidence confirms ... that while inter-platform competition drives broadband adoption, competition in the market for DSL services does not play a significant role"; and "the level of competition within each technological platform ... is positive but insignificant ... the coefficient is numerically much smaller than the one related to the inter-platform competition index, and very close to zero ... although competition between DSL firms can potentially play an important role in promoting broadband diffusion, this effect seems to be completely overwhelmed by the negative 'indirect' effect of increased inter-platform competition induced by promoting entry into the DSL segment of the market"

¹³⁸ "The price of narrow band internet access constrains the diffusion (through the price) of broadband access, suggesting that, at least to a certain extent, narrow band and broadband access services are in the same relevant market"

differences in individual countries' broadband uptake rates (de Ridder, 2007)¹³⁹. The effects had been previously identified in Howell (2003) and Howell and Obren (2003), which were cited in the Commission's 2003 LLU issues paper.

3.1.1.3 Reliance on OECD Officials' Opinions

Instead of undertaking its own empirical and theoretical analysis, the Stocktake relied instead unquestioningly upon OECD and EU opinions (unsupported by empirical evidence) that since 2003, the relationship between unbundling and broadband uptake had strengthened. Consequently, the authors failed to identify that the majority of the growing body of empirical literature since 2003 on the nexus between broadband uptake and access regulation fails to reveal any consistent statistically significant connection¹⁴⁰. They also failed to identify significant inconsistencies between the OECD and EU officials' statements and these advocates' own data. For example, a few very simple univariate analyses (Howell, 2006; de Ridder, 2007)¹⁴¹ reveal no statistically significant evidence of a positive relationship between their proposed policies and higher broadband uptake. Such credibility checks would have been very easy to undertake, and would have raised some extremely relevant questions about the reliance that could be placed upon the OECD and EU officials' opinions had they been prepared. Whilst the univariate regression evidence in Howell (2006) was presented to the Select Committee, it does not appear to have affected the final decision. This is in contrast to the 2003 LLU inquiry, where empirical evidence presented on the equivocal effects of LLU on broadband uptake (Hausman, 2003) appears to have been a significant factor underpinning the assessments of risks and benefits identified in the final recommendation.

3.1.2 The Stocktake Analysis: Investment

The Stocktake is also notable for the unscientific manner in which it analyses sector investment. New Zealand's lower-than-average investment per capita by OECD measures and slippage from Telecom's own targets for investment in the NGN presented at the 2003 unbundling inquiry are the principal evidence offered of an investment problem. However,

¹³⁹ De Ridder identifies that New Zealand's extraordinarily low dial-up prices relative to ADSL prices (which he finds to also be below the OECD average) are a key factor in low broadband uptake. In de Ridder's model, if New Zealand exhibited the OECD average ratio of dial-up to broadband prices (i.e. dial-up was dearer, as it is difficult to envisage even cheaper broadband), New Zealand's broadband penetration rate would have been between 25% and 50% higher than the 8.1 per 100 recorded in 2005 (p 30, footnote 18).

¹⁴⁰ See Wallsten (2006) and Crandall & Sidak (2007) for recent reviews. Whilst de Ridder (2007) finds in his model that 'years since LLU introduced' is a statistically significant factor, the positive correlation between this variable and 'years since LLU introduced' (not included by de Ridder) means that it cannot be discounted that the analysis is picking up the time element of the diffusion curve that would be expected to be significant in explaining differences in countries' uptake rates. As de Ridder includes no other variables to proxy for regulation or the time the technology has been available, it cannot be concluded that the analysis provides robust support for the contention that LLU is a significant factor in broadband uptake rates.

¹⁴¹ Indeed, Howell's univariate analysis shows that the relationship between the market share of new entrants and broadband uptake in the EU in 2005 was only very weakly positive and not statistically significant. The relationship between new entrant share and DSL uptake was actually negative, but again not statistically significant. These findings are consistent with the findings in the majority of the empirical literature, where the effect of entry on networks other than the incumbent's has a greater effect upon broadband uptake.

as fixed line telephony statistics are dominated by household connections, a larger average number of individuals per household in New Zealand leads to a naturally smaller number of access lines per capita, making investment per-capita comparisons across nations unreliable measures of relative investment performance (Ford, Koutsky & Spiwak (2007a) and Wallsten (2007) make the same point when comparing per-capita fixed broadband metrics in the United States and other OECD countries).

3.1.2.1 Relevant Metrics and Time Period Examined

Investment per access line and investment as a percentage of revenue provide more directly comparable data, as they eliminate potentially distorting location-specific demographic characteristics. Investment also needs to be considered in relation to the size of the market and the types of infrastructure deployed. Using OECD data from 1997 to 2003, Howell (2006) illustrates that when comparing similar-sized countries with similar equipment at similar timing in the investment cycle, there is no evidence of systematic underinvestment in the New Zealand telecommunications sector in respect of investment as a percentage of revenue across the period (Figure 10), although there were troughs in occasional years (notably, 2001 when TelstraClear ceased its rollout). A similar conclusion was arrived at by the 2000 Inquiry, using earlier OECD data. The evidence of reductions in investment by Telecom post-2003 should therefore be viewed in light of the effects of more stringent access regulation upon Telecom's investment behaviour.

However, no consideration is given in the Stocktake as to how regulatory intervention might have contributed to the observed investment patterns. As the historic investment patterns of other market participants are not analysed, the impact upon reduction in spending by other firms is not considered as a possible factor in the OECD investment observations. The only investment by Telecom's competitors that is considered relevant to the Stocktake is possible, but uncommitted, future expenditure conditional upon a range of different policy options being implemented. The possible effect of Telecom's obligations to invest in bitstream services requiring diversion of investment away from the NGN as a plausible factor in slippage from the NGN investment plan is not discussed. Neither is the likelihood of Telecom's investment response being influenced by regulatory risk and the higher cost of capital under a more stringent regulatory regime, or the costs of delivering the bitstream products, raised as possible explanations for the observations.

3.1.2.2 Reliance on OECD Officials' Unsubstantiated Opinions

In the absence of any other theoretical or empirical evidence in the Stocktake, the assurances of OECD officials that "increased competition at the wholesale level leads to increased

investment by incumbents, not less” (para 11) prevails. This evidence is accepted despite the warnings of Ministry of Foreign Affairs and Trade officials that the approach of the OECD officials on this point was “somewhat cavalier” and “warranted further testing”¹⁴². A search of the contemporaneous literature reveals empirical evidence posing substantial questions about the credibility of the OECD officials’ claims in the European context at least (e.g. London Economics, 2006; Gruber, 2007; Crandall & Sidak, 2007).

Moreover, even the OECD evidence presented by Network Strategies in the Stocktake supporting documents, when critically examined, confirms the fallacy of the OECD officials’ claims. Figure 10 shows investment as a percentage of revenue for New Zealand, the aggregate OECD, and a group of other small countries with similar types and vintages of infrastructure as in New Zealand over the period 1997-2003. Not only is New Zealand’s investment remarkably similar to the comparable countries, but it is relatively constant, indicating that, even though revenues may have fluctuated across time, for example as the size of markets have grown with the introduction of new products and services, investment has continued at a stable level relative to the revenues that have been collected. By contrast, in the post-2000 period, when wholesale competition was becoming prevalent across the OECD, investment as a percentage of revenue in the aggregate OECD has fallen sharply, to only half its original level.

3.1.2.3 Competition and Investment in the OECD Post-1997

Figure 10 suggests that, as competition has intensified across the OECD, investment as a percentage of revenues has actually fallen. In respect of incumbents, whose revenues would have fallen as monopoly rents were eroded and customers switched to entrants, to produce the negative slope, investment must have fallen even more than revenues have fallen. In respect of entrants, the negative slope confirms that even if they are investing more than incumbents, when considered in aggregate there is less investment occurring per dollar of revenue under more intense competition than previously. Whilst this pattern may be partially reflecting historic under-utilization of existing incumbent investments and offsetting the costs of competitive entry, it is also plausible that in part it is reflecting a reduction in investment as new entrants extract revenues off the back of incumbent investments, but refrain from investing themselves. Whilst growing markets from the availability of new products and services are leading to more revenues in total being collected, Figures 11 and 12 confirm that less is being invested on average across the OECD whilst the higher revenues are being accrued.

¹⁴² ‘If there is one area where we think the OECD’s thinking needs further testing, it is over the investment incentives associated with regulated network access. We felt the ICCP’s attitude was somewhat cavalier on this point’ (MFAT, 2006 para 19) .

Figures 11 and 12 index investment, revenue and investment as a percentage of revenue at 1997 levels for New Zealand and the rest of the OECD countries from 1997 to 2005. Indexing to 1997 captures relative changes that occurred following the commercialization of the internet, the ensuing dot.com bubble in the late 1990s and the dot.com burst in 2001, and the post-2000 increase in competition, largely driven by the increase in access regulation following mandating of local loop unbundling in most OECD countries. Figure 11 shows that New Zealand's investment as a percentage of revenue stayed relatively constant in nominal terms compared to 1997 levels until 2002, when it fell substantially. This compares to the OECD average, which rose relative to 1997 levels as the dot-com bubble expanded, but then fell dramatically following the dot.com burst, but in 2005 lay above that of New Zealand. However, Figure 12 shows that whilst both OECD revenues and investment rose together during the dot.com bubble of the late 1990s, OECD revenues continued to increase steadily, but OECD investment fell sharply following the burst and the intensification of competition, and had only just returned to 1997 nominal levels (less in real terms) in 2005.

3.1.2.3 Regulation and Revenue Accrual Affecting Investment Levels and Timing

By contrast, New Zealand revenues and investments were stable across the 1990s, and the decline in investment as a percentage of revenues illustrated in Figure 11 is due not to a decrease in investment, as has occurred in the rest of the OECD following the dot.com burst and increased competition, but because of increases in revenues as chargeable broadband services started to become a significant factor in the market. Indeed, New Zealand investments are higher relative to 1997 levels (both nominal and real) than the OECD average throughout the entire post-dot.com crash period when increased competition came to dominate most other markets. Examining the nexus between revenues and investment reveals that more recent increases in New Zealand investment levels (2002-2005) are occurring most likely as a consequence of increased revenues coming available, in a manner reminiscent of the beginnings of the dot.com bubble in the rest of the OECD, when investment and revenues also rose in concert. Thus, the 'free local calling' Kiwi Share obligation has had a significant structural effect upon New Zealand's investment timing.

Indeed, Figures 11 and 12 appear to confirm that neither incumbent nor entrant infrastructure investment is keeping pace with revenue growth across the OECD. The majority of revenue growth appears to be coming from service differentiation that is independent of infrastructure investment. It is thus difficult to find support for the OECD officials' view that infrastructure investment increases as markets become more competitive. Instead, Figures 11 and 12 (using nominal investments and revenues) combined with Figure 3 showing the OECD

telecommunications price index over the same period, appear to confirm that, even allowing for reductions in capital costs, increased revenues are being distributed amongst competitors who, in real terms, are investing less than they were in 1997. Consumer benefits from product variation that underpin the increased revenues recorded are therefore most likely based predominantly upon service rather than infrastructure differentiation.

Rather than supporting the OECD officials' claims, Figures 10-12 appear to confirm Bourreau & Dogan's (2005) hypothesis that wholesale access arrangements impede incumbent investment, Dixit's (2004) hypothesis that wholesale access chills incentives for both incumbent and entrant investment, and Gruber's (2007) hypothesis that wholesale access is a substitute for investment in competing networks, and will lead to lower levels non-incumbent investment and decreased inter-platform competition as entrants opt for lower-risk access to incumbents' infrastructures rather than investing in their own networks. The EU data in London Economics (2006) and discussed in Gruber (2007) supports the contention indicated herewith that both incumbent and entrant investment have fallen as access-based competition has increased.

3.1.3 The Stocktake Analysis: Separation

A further key theme of the Stocktake recommendations was the harmonization of New Zealand's regulatory regime with international best practice, as advocated by the OECD. Whilst LLU has received conditional support from the OECD where there is no infrastructure-based competition, structural separation has never received endorsement from the OECD as regulatory best practice¹⁴³. Indeed, the OECD's position on structural separation is that it simply one of two different strategic views that telecommunications firms have on future industry direction. In one view, telecommunication firms offer a "wide array of value-added services over their last-mile networks"; in the other, they structure their business assets in a way that allows "one side to focus on revenues derived simply from offering data connectivity over fixed-line or wireless infrastructure" (OECD, 2007:19). Importantly, the OECD states "these different views on the future of the telecommunications market will lead firms down very different investment and managerial paths. It is too early to say which of the two visions will prove dominant in the industry" (*ibid*).

3.1.3.1 Separation Reduces Investment Incentives in NZ Economic Environment

Once again, the separation sections of the Stocktake are conspicuous by their lack of consideration given to the literature in the field, and any consideration of the significant

¹⁴³ Personal communication with Taylor Reynolds, Economist, Information, Computer and Communications Policy Division, Directorate for Science, Technology and Industry, OECD, May 29, 2007.

economies of scale and scope lost by separation or the alteration in investment incentives faced by separated firms¹⁴⁴. The absence of a literature review results in the failure of the Stocktake to provide a clear justification for the use of the tool. Separation is proposed in the literature as a counter to one specific form of dominance – incumbent favoritism of its own downstream firms in the provision of services on its upstream network in order to foreclose competitor entry. However, there is no evidence provided to support the contention that such activity is either occurring or is a real risk in the New Zealand context.

Rather, it is quite paradoxical that one of the purposes specified for separation in the ensuing legislation is “to facilitate efficient investment in telecommunications infrastructure and services” (S69A(c)). The growing body of literature on separation is characterised by the consistent finding of a negative effect on incumbent investment efficiency because the instrument prevents the incumbent from internalising the gains from co-ordinated action and efficiency-improving price discrimination between applications and network connection, and between legacy and frontier technology platforms. The result is delays in, and higher costs of, incumbent investment. This is a significant concern in the New Zealand context, given the substantial reliance upon Telecom as the major source of investment funds to upgrade existing networks and make future services available. De Bijl (2005) suggests separation is a last resort, to be applied only when all other regulatory tools have been tried and failed to curb proven favouritism by a network operator of its downstream activities, and then only if a cost-benefit analysis satisfactorily demonstrates that the welfare foregone by separation is certain to be recouped from proven undesirable behaviour avoided. By specifically avoiding a cost-benefit analysis, the need to justify New Zealand’s separation proposal on efficiency criteria has been sidestepped.

Had such an analysis been undertaken, it might have proved difficult to justify the intervention. The ability to co-ordinate decision-making that vertical integration offers, a benefit that will be compulsorily forfeited under separation, may be a substantial cost in a small market lacking the ability to lever substantial economies of scale and scope from other aspects of the business¹⁴⁵. Even literature cited subsequently by MED in support of the separation process warns of long term infrastructure investment disincentives under prohibition of discrimination and cost-based access when the regulatory regime chosen has chilled investment in competing loops (Cave, 2006:92). Arguably, these are precisely the circumstances prevailing in New Zealand given TelstraClear’s decision to abandon its cable

¹⁴⁴ See de Bijl (2005) for a discussion of these issues.

¹⁴⁵ Telecom’s two largest network competitors, Vodafone and TelstraClear have fully-owned downstream ISP affiliates (iHug; ClearNet and Paradise; respectively).

rollout and focus upon gaining regulated access to Telecom's infrastructure. Yet, separation is strongly recommended.

3.1.3.2 Other Motivations for Separation

The absence of a principled analysis of the costs and benefits means that separation is being applied 'blindly' in New Zealand. It is difficult to rationalise this action as consistent with the adoption of best-practice regulation. Rather, separation in the New Zealand context appears to draw its motivation from the criminal justice practise of preventive detention. Despite the costs incurred by society, the 'criminal' will be restrained in order to prevent the possibility of any future offending occurring. The distinction is, however, that Telecom has never been found beyond the balance of probabilities to have exerted its dominance, and since 2002 has been subject to strict regulatory constraint on the price and non-price terms of practically all its contracts with competitors that has made it difficult for the firm to have engaged undetected in the type of offending which separation guards against.

It summary, therefore, operational separation in the New Zealand market is being driven by a government seeking to impose its predetermined vision of the future industry strategy upon the market, by dint of exercise of its legislative and regulatory powers, thereby overruling the strategic view of the market future held by the largest investor. That the strategy imposed is far from universally accepted or endorsed by other regulatory or policy agencies, and carries substantial commercial and regulatory risk in that it is by no means certain which business model will ultimately prove most successful in a rapidly-changing industry, marks this aspect of the recent reforms as remarkably radical by OECD standards. Whereas in many OECD countries, governments are leaving such industry-changing strategic decisions to the market participants, the New Zealand government's intervention in unilaterally imposing such a view is uncharacteristically activist. That such a decision has been made by legislators without recourse to any of the strategic analysis that would have been undertaken and presented to the board by the management of a firm seeking to voluntarily separate reinforces the political, as opposed to economic or strategic, motives underpinning separation.

The incongruity of the government's own strategic activism must also be considered in light of its involvement in the sector as the 100% owner of one of Telecom's principal competitors. Government-owned infrastructure operator Kordia recently became a vertically-integrated entity when it purchased ISP Orcon. Kordia-Orcon's prominence in the market is underlined by it being the company servicing New Zealand's first fully unbundled access line¹⁴⁶, and that

¹⁴⁶ <http://www.kordia.co.nz/node/1139>

(to date) it is the only competitor to Telecom to announce an intention to install its equipment in every unbundled exchange¹⁴⁷. This investment is, presumably, being underwritten by the firm's government owner.

3.1.4 The Telecommunications Amendment Act 2006 Process

The 2006 Stocktake process was managed by the Minister, the Ministry of Economic Development and the Finance and Expenditure Select Committee under parliamentary processes. Whilst submissions were heard by the committee, unlike the Commission processes, there was no obligation upon the committee to account for its decisions or explain how it came to its conclusions. Neither was the process subject to any appeal or review on either process or substance.

The statutory changes to the Telecommunications Act were passed into law on December 18, 2006. Also included in the revised Act were the requirement for the Commission to take account of any economic policies of the government that are communicated by the Minister in writing (Section 19A), the provision of additional sector monitoring reports (Section 9A), and the ability for the Commissioner to make standard terms determinations covering multiple parties seeking access to Telecom's facilities (Part 2 Subpart 2A). Whilst the introduction of standard terms determinations goes some way to reducing the workload of the Commission and thereby likely increases efficiency in the regulatory process, the requirement to take account of government economic policies appears grounded in a political, rather than efficiency-raising motivation. As well as breaching regulatory best practice advocated by the OECD and the ITU that regulation be as independent of political processes as possible, the requirement further reinforces the politicisation of the New Zealand telecommunications regulation agenda.

Specifically, the Act gives the Minister the power to direct the Commission in a manner that is constitutionally at variance with the separation of powers between the government, as represented by the Minister, and the State, as represented by the Governor-General. In a similar manner to that underpinning the independence of the judiciary, the Commissioner is a quasi-judicial authority appointed by and accountable to the Governor-General (albeit on a recommendation from the Minister)¹⁴⁸. Yet the requirement that the Commission must take

¹⁴⁷ <http://www.stuff.co.nz/4196742a28.html>

¹⁴⁸ Under the Crown Entities Act, the Commerce Commission (in which the Telecommunications Commissioner is based) is an Independent Crown Entity, alongside entities including (inter alia) the Law Commission, the Office of the Privacy Commissioner, the Privacy Commissioner, the Police Complaints Authority and the Securities Commission. The independence of such bodies is to specifically distance them from day-to-day political policies – hence the accountability of the commissioners to the Governor General and not the Minister. The Telecommunications Act S19A is an explicit violation of the presumption of independence.

account of government economic policies when instructed by the Minister is equivalent to the judiciary being required to take notice of written instructions from politicians in relation to specific policy positions when making judgements in court cases. The provision is an overt constraint upon the independence of the Commissioner, begging the question of whether the current administration perceives the role of the Commission to be as an agent of the State, as per the judiciary, or as an agent of the government, as per a Ministry such as MED.

3.2 Operational Separation: 2007

On April 5, 2007, the Minister of Communications released detailed proposals for operational separation. The proposals required Telecom to be separated into an access network, a wholesale business and a retail business, owned by one entity and accountable to one CEO and board, but obligated not to communicate with each other. The activities of the three entities would be overseen by an Industry Oversight Group, appointed by and accountable to the Telecom Board, but acceptable to the Commissioner, “to ensure the letter and intent of the Undertakings are faithfully implemented”¹⁴⁹.

Telecom responded on April 27, claiming that the government’s proposal was unworkable and unlikely to deliver the government’s objectives articulated in the Digital Strategy. The rigidity of the government’s unbundling and separation requirements, as theoretically predicted, would be very costly to implement. If pursued, the additional financial risks invoked by the separation would mean Telecom could justify making investments of only \$500 million of the \$1,500 million needed to deliver the network envisaged by the government. The company put up its own proposal to separate the company into two, with a sustainable network infrastructure company (Netco) being established to manage bottleneck assets, with contractual obligations to the government on services provided and prices received, giving certainty to both Netco and access-seekers upon which to base future investments. The proposals were made as part of a package to both guarantee its own investment and remove the regulatory bottlenecks and obstacles to investment by other parties that had been building since 2002. The company acknowledged that it had consulted the industry in forming its proposal¹⁵⁰.

3.2.1 A Missing Market for Sector Investment?

Telecom provided a credible signal of its intention to reduce investment if the government’s separation proposal went ahead when it announced in its third quarter 2006 performance

¹⁴⁹ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=28928>

¹⁵⁰ <http://www.med.govt.nz/upload/45925/11.pdf>

report on May 3 2007 its intention to return to shareholders \$1.1 billion of the proceeds from the \$2.16 billion sale on April 30 of its Yellow Pages directory business: “after considering the relevant interests of all stakeholders, Telecom’s earnings outlook, potential investments and appropriate balance sheet structure, the Telecom Board has proposed the return of \$1.1b to shareholders”¹⁵¹. In the same report, it was reiterated that Telecom’s separation proposal contained three key elements: separate ownership of the network company; a simpler form of operational separation than the government’s proposals; and tighter co-ordination of future regulatory activities. Significantly, “without all three elements, the proposed regulatory settings do not create an environment conducive to investments of the scale required”¹⁵².

However, on October 26, the Telecom chief executive announced that the company would invest \$1,400 million in its network over the next five years, with a view to all towns with more than 500 lines being able to receive next-generation IP-based network services and ADSL services of up to 20Mbps¹⁵³. The plans as announced appear to reinstate the level and nature of planned investment to around that indicated as Telecom’s future plan at the LLU inquiry conference in November 2003, where a fully IP-based NGN was proposed to be operational by 2012. The market response to the investment announcement was an 11c (2.5%) reduction in the company’s share price, which fell to \$4.31¹⁵⁴. The share price at the end of October 2007 was even lower than that at the end of May 2006, following the government’s announcement of its intentions to unbundle the network and separate Telecom (\$4.39). Shareholder sentiment does not appear to support Telecom management’s confidence that the proposed investment is positive for the company.

The long-term consequences of declining shareholder value are significant. Inevitably, the cost of capital for Telecom’s investments will now be much higher than in April 2006. The effective opportunity cost for shareholders of the latest investment is not just the \$1,400 million outlaid, but the \$3 to \$4 billion of shareholder value written off as a consequence of the regulatory changes. Investment is riskier than under the previous regulations, so shareholders will expect higher returns from any additional capital they might provide. Shareholder equity to underwrite the risks of debt financing has fallen substantially, meaning higher risk premiums will be charged if the investment is financed predominantly by debt (a likely scenario given the repayment of the Yellow Pages money to shareholders). It begs the question of who, in the long-run, will be prepared to finance future large-scale core network investments. If shareholders and debt-holders can receive a fair return that compensates them

¹⁵¹ http://www.telecom.co.nz/binaries/q3_07_presentation.pdf, p 3

¹⁵² *Ibid*, p 4.

¹⁵³ http://www.telecom-media.co.nz/releases_detail.asp?id=3497&page=1&pagesize=10

¹⁵⁴ <http://www.stuff.co.nz/4251650a13.html>

for the levels of risk borne, then the market will finance such investments. But if the regulated prices set for access to network services do not adequately compensate these costs, including the higher costs of capital that are now faced, and the additional administrative costs imposed as a consequence of the regulations (in particular, separation, which Telecom) in particular, separation, the outcome will be a missing market for sector investment.

It might be argued that competitors would use the higher costs of access to Telecom infrastructures to accelerate the rate at which they invest in their own technologies. However, this must be juxtaposed against the fact that their shareholders and debt-holders too must make a fair return on the capital invested. Moreover, if any other single firm invests substantially, then it may match or even supersede Telecom as the dominant market participant, at least in some geographic areas, thereby becoming subject to the same regulatory pressures as Telecom (as evidenced by the threat of regulation of both Vodafone's and Telecom's mobile network infrastructures). If multiple firms invest, then the co-ordination costs of managing the investment would be substantially larger than if one single company undertook the project. The cost of such an investment would thus likely be higher than if undertaken by Telecom – that is, it would lead to a less-efficient network that would result in higher-priced services to consumers, even if sold to them at cost.

Indeed, the high costs of co-ordinating the investment interests of a large number of unbundled-access competitors using incumbents' networks is a significant issue that is already delaying the implementation of, and raising the costs of, fibre investment in jurisdictions where unbundling is entrenched. Structural separation of BT's network into separate firm Openreach with limited access to its own capital, and extensive entry via unbundling limiting entrants' willingness to invest in successor technologies, are already being invoked as explanations for the United Kingdom's apparent reluctance to proceed with large-scale investment in fibre-based networks relative to its European comparators such as the Netherlands and France (Mueller, 2007).

After only a very short period of time has elapsed, politicization of the regulatory process and pursuit of competition to the exclusion of efficiency considerations appear to have resulted in substantial threats to future network investment. Even if investment is undertaken, the services are provided will almost certainly cost more than under the post-2003 counterfactual. It is very difficult to see how these actions have been in the long-term interests of consumers. A principled, efficiency-based regulator-led analysis of the 2006 proposals would have required some quantification of these effects ex ante. Overriding of the regulatory principle of efficiency prevailing from 1987 to 2005 by the political imperative of pursuit of

competition post-2005 is therefore directly responsible for the additional risk of a ‘missing market’. Whereas the typical justification for governments to intervene is when a missing market is present, in this instance it appears as though government intervention has been instrumental in creating a potential missing market, when it was not at all clear that the benefits of intervention were large compared to the additional risks invoked.

In the event of a missing market for investment emerging, it is likely that government investment will be required to address a failure induced by government actions. Such investment might be undertaken either via the government’s proprietary Kordia-Orcon or by subsidising infrastructure building by other firms (as has occurred in Australia¹⁵⁵). However, the additional costs to taxpayers and telecommunications consumers are likely to be substantial, both in higher prices to consumers and opportunities foregone in alternative uses of tax revenues.

3.2.2 Ministerial Control of Separation

At a speech given on 31 May to the Telecommunications Users Association of New Zealand, the Minister affirmed that despite the greater powers given to the Commission in the Telecommunications Amendment Act 2006, the Minister and not the Commission would lead the separation process. This action was seen by Cabinet to reflect “the urgency attached by the government to the need to secure a clear outcome on this matter in the shortest possible timeframe. Because this is a major structural issue and not a matter of micro regulation, this was felt and is still felt to be the appropriate way forward”¹⁵⁶.

The Minister’s statement was interpreted by some commentators as an indication that the Government’s separation proposals, rather than the revised Telecom offer, would prevail¹⁵⁷. It could also be interpreted as political endorsement of a mechanism allowing the Government to exercise detailed decision-making control of Telecom’s investments without incurring any of the financial risks normally associated with the ownership of such control rights¹⁵⁸. The announcement that politicians, and not the Commission, are now overseeing key sector strategy confirms a near 360 degree swing of the regulatory pendulum back to the pre-1987 arrangements, where politicians and government controlled sector structure, investment and

¹⁵⁵ <http://www.abc.net.au/news/newsitems/200706/s1953976.htm>

¹⁵⁶ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=29595>

¹⁵⁷ <http://www.stuff.co.nz/4079448a13.html>

¹⁵⁸ Gregory Sidak, in his presentation to the Research Chair on Innovation and Regulation in the Digital Economy Workshop on Network Neutrality in Paris on May 29 described structural separation as effective renationalisation of telecommunications assets as the private sector got to make the investments and the government, via the regulator, got to decide how the investment was applied. The New Zealand case appears to bear this out. The New Zealand scenario is even more contentious as a politicised renationalisation argument given that it is not the arm’s-length regulator, but the politicians themselves, that makes the control decisions, via a political process that is neither transparent nor contestable compared to the regulatory processes .via which such management might otherwise be exercised.

interaction. The only difference is that prior to 1987, taxpayers rather than shareholders provided the funds and could be compelled to invest even if the political decisions were not based upon sound investment strategies. In 2007, the investment funds are provided by shareholders, who have the discretion not to invest if the proposal is deemed unsound and better returns are available in other sectors.

Politicians are unable to compel private sector investors to underwrite government-controlled firms. Decision-making control of investors' funds is ceded to managers only if the return compensates for the additional risks incurred by the separation of ownership and control. The additional risks imposed by government assumption of the decision-making control ordinarily exerted by the firm's managers increases the risks to shareholders, thereby increasing the return expected for the use of their funds. Whilst the risks are increased by regulator control, the additional safeguards provided by the legislative safeguards, transparency of process, accountability and rights of appeal compared to the less transparent, less accountable and less-appealable actions of a Minister mean that the Minister's actions in assuming control of the separation process have further raised both the costs of capital in the sector and the risks of a missing market for investment occurring than if the Commission had overseen the separation process. Whilst ministerial leadership might result in a decision being reached faster, it increases the likelihood of welfare-reducing actions occurring uncontested, especially where political objectives are at variance with the objective of increasing total welfare. This is an especial concern, given the government's overt articulation of the supremacy of the pursuit of competition over the pursuit of efficiency.

3.3 *Inconsistencies? The Mobile Termination Response: 2007*

The Government's intention to take over direct control of mobile, as well as fixed-line sector governance for the foreseeable future was signalled on February 28 2007, when the Economic Development Minister announced that "a decision on the possible regulation of fixed-to-mobile phone fees for carriers has been deferred for a short period, while the Crown engages with Vodafone and Telecom on commercial offers they have made as alternatives to regulation"¹⁵⁹. The decision pertained to the Commission's revised recommendation in April 2006 that fixed-to-mobile termination charges become designated services. On April 30, the same Minister announced that the service would not be regulated: "My decision to reject the Commerce Commission's recommendation in favour of an industry solution has followed a process of consultation, review and analysis. I have studied submissions from interested parties and briefings from officials. I have also sought advice on Vodafone's and Telecom's

¹⁵⁹ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=28525>

offers, so that I could make an informed decision under the Telecommunications Act 2001”¹⁶⁰. The deeds of agreement announced revealed very similar prices and conditions to those recommended by the Commissioner in April 2006.

The decision to settle in the mobile market using a ministerially-brokered contractual process is apparently contrary given the history of increasingly stringent regulatory intervention in the fixed line market under the current government’s jurisdiction. It is also surprising given the similarity of the outcome to that envisaged by the Commissioner’s April 2006 recommendations. It begs the questions of what priority could have been given to the accrual of consumer benefits if the Commission’s recommendation had been implemented when it was recommended in April 2006. It also begs the question why, given the extensive investigations into the matter that had already been held, it took a further twelve months for the Minister to broker an approximately identical agreement. Whilst lack of transparency precludes finding an answer to these questions¹⁶¹, it is noted that the use of a Ministerial, as opposed to a Commission, processes appears to confirm that politicians, and not the Commission, now control the regulatory process and key sector decision-making as a matter of course, rather than as a specific exception.

3.3.1 Cabinet-Level Control

The process used to arrive at the mobile termination decision is also notable for the fact that, although the Commission reports to the Communications Minister, the Economic Development Minister appears to have led the mobile termination contractual negotiations. Keown (2007) reports that the Telecommunications Minister “ruled himself out because of claims he had a conflict of interest”, as a consequence of a dispute with Vodafone on a matter of process. The consequence is that the degree of government involvement in determining the direction of the telecommunications sector goes far wider than the Communications portfolio, to include other members of Cabinet. It is noted that the Minister of Economic Development was, at the time, one of the front-bench (highest-ranked) ministers in the Cabinet.

Combined with the intended strategic use of the 2006 Budget by the Deputy Prime Minister for the announcement of unbundling and separation decision, the involvement of the Minister of Economic Development in mobile termination signifies an unprecedented degree of high-

¹⁶⁰ <http://www.beehive.govt.nz/ViewDocument.aspx?DocumentID=29126>

¹⁶¹ Although subsequent requests under the Official Information Act have revealed that the Minister ignored the advice of officials to regulate, and in the form and process of the negotiations undertaken with Vodafone and Telecom. Keown (2007) interprets the papers provided under the request to reveal “Mallard was strongly advised to stay out of commercial negotiations to avoid ‘regulatory gaming’ by Vodafone and Telecom and harm to the integrity of the Commission’s review”. papers provided,

level political attention given to an industry where nearly one hundred percent of investment comes from the private sector. The desires of the 1984 reformers, subsequently endorsed by the OECD¹⁶², the ITU¹⁶³ and the majority of academic observers of the sector, to remove key infrastructure investment decisions from the purview of politicians in order to enable sound long-term decisions to be made unaffected by short-term political considerations, appear to no longer apply in New Zealand. Such processes stand in sharp contrast yet again to the claims made by the 2006 Stocktake to be implementing international best-practice regulatory standards.

3.3.2 Credibility and Independence of the Commission and the Commissioner

The May 31 announcement by the Communications Minister that he would assume the lead in structural separation was accompanied by the announcement of the appointment of a new Commissioner. The previous Commissioner announced his intention not to seek reappointment in July 2006¹⁶⁴, not long after the release of the final mobile termination recommendation, where the Commission's position regarding the superiority of competition over efficiency was enunciated.

Repeated ministerial intervention in the sector draws into question both the independence of the Commission and the credibility of its decisions. The mobile termination process reveals that even when a matter has been discussed and the Commission has made a recommendation not once but twice, the matter is still up for renegotiation at the Ministerial level, with ministers other than the Minister of Communications mandated to take an interest in sector activities. The separation case indicates that for the foreseeable future, the Commissioner's role has effectively been subordinated to that of politicians. This reinforces the view in section 3.1.4 above that under the current administration, regulation is seen to be an extension of core government activities in that its role is the development and delivery of government policies¹⁶⁵, rather than in the quasi-judicial sense operating as an arbitrator independent of the political process.

The signal sent to market participants is that the Commission is part of core government activity, and that any party dissatisfied with a Commission decision or recommendation can now seek redress at the political level, where any one of a number of Cabinet Ministers can

¹⁶² Ref OECD

¹⁶³ Ref Kelly ITU

¹⁶⁴ <http://www.comcom.govt.nz/MediaCentre/MediaReleases/200607/telecommunicationscommissionernott.aspx>

¹⁶⁵ The Minister, when announcing his role in the separation process, identified that "by conferring upon the commission a proactive, monitoring and strategic (*sic.*) role, Cabinet has indicated its desire to see the commission play a greater role in telecommunications policy going forward."

have influence. Recourse to political appeal severely restricts the Commission from making a decision that may be at variance with the political objectives of the governing political alliance, no matter how literally the relevant legislation is interpreted, or how the decision affects either consumer welfare or total efficiency. However, the political decision-making process is neither transparent nor accountable, in the manner of the Commission's decisions. It is particularly unclear what rights of review or appeal exist for parties dissatisfied with Affected parties may have no knowledge of proceedings unless informed by the relevant political or public servant actors, and no legitimate right of response or comment unless they are invited to offer one. Such a process, as Ministry of Economic Development officials cautioned their Minister during the mobile termination process, severely compromises the Commission's integrity and increases uncertainty in the sector (Keown, 2007).

The politicization of the regulatory process also raises the question of what procedures must be followed by parties disaffected with Ministerial decisions or Ministerially-brokered agreements, or when economic circumstances change, warranting a reconsideration of the terms and conditions. Under the Ministerial agreement on mobile termination, it appears that variations will require political approval. Political involvement in the sector would therefore appear to be not simply a short-term measure to address the immediate issue of investment in fixed broadband access networks with eventual devolution of responsibility back to the Commissioner as suggested by the Minister of Communications' May 31 speech, but a five-year plan, as determined by the length of the mobile termination agreement brokered by the Minister of Economic Development.

In 2007, therefore, the return to political control of the telecommunications sector appears complete.

4. Implications

Some twenty years after the passing of the Telecommunications Act 1987, the pendulum of regulatory control of the New Zealand telecommunications sector has returned almost to the point where it started in 1984, with politicians firmly in control of sector regulatory decision-making and substantial operational strategizing. Following the sharp 180 degree pull away from government ownership and control to private ownership and court-based arbitration of competition law principles in 1987, the pendulum has swung back through successively more stringent forms of industry-specific regulation mediated by a quasi-judicial regulatory authority to the point where, in 2007, whilst private ownership remains, political control of sector structure and market interaction prevails.

4.1 Increasing Regulatory Intensity: Reducing Efficiency, Competitiveness

Each step in the progression from the 'light-handed' regime of the 1987 to the politically-controlled regime of 2007 has occurred despite a lack of convincing evidence that the outcomes under more stringent regulation would result in substantial long-term increases in either total or consumer welfare relative to the counterfactual. Each successive tightening of the regulatory ratchet has singularly failed to result in substantially improved performance in the metrics which triggered tightening of the wrench, whilst proving detrimental to other metrics. Specifically, failure to improve in competition metrics (principally the number of and increased market share of participants other than Telecom), even when there has been little evidence of inferior efficiency-related performance relative to other regimes, has led to even more stringent regulation, and increasing deterioration in sector performance, in a perversely reinforcing downward spiral.

As confirmed in the foregoing analysis and the 2000 Inquiry, whilst not delivering a perfectly statically competitive market across all dimensions of telecommunications products and services, there was clear evidence of substantial benefits being conferred on consumers in terms of both static (low prices) and dynamic (timely availability of new products and services widely and at low prices) efficiencies under the 'light-handed' regime. The introduction of designated services and the Commission-based processes in 2002 unequivocally impaired progress towards dynamic efficiency gains relative to the 'light-handed regime'. Prices regulated at cost chilled entrant incentives to invest in competing platforms. Delays were introduced in the time taken to bring competitor products and services to market. The regulatory processes adopted added to the costs of delays through the increase in regulatory workload and the removal of incentives for parties to come to agreements outside of the Commission's ambit. Uncertainty was increased by the time taken to allocate TSO costs, and the costs to firms of engaging in the process likely exceed those under the preceding regime. Gains passed on to consumers in the form of lower prices ceased. The transaction costs of regulation increased, but there was little evidence of either dynamic or static efficiency gains.

Whilst the Commission-led regime initially resulted in more consumers being served by providers other than Telecom via wholesaling, there was no significant new entry into the fixed-line and broadband marketplace. Instead, a decrease in competing platform investment ensued as existing participants expanded their market shares principally by selling new services (e.g. broadband) provided by Telecom at the expense of investment in their own

platforms. Consolidation amongst competitors dominated in this period, as would be expected when intense price-based competition dominates sector interaction. Static efficiency was also impacted, as the flow of benefits (lower prices) through to consumers ceased.

The introduction of bitstream unbundling was promulgated as a means of increasing broadband uptake by making the broadband market more competitive. However, the market share of Telecom's competitors fell as broadband uptake burgeoned. A combination of already-low Telecom prices in both the dial-up and broadband markets and strategic behaviour by competitors fuelled by perverse regulatory incentives reinforced Telecom's already dominant position. In respect of the percentage of customers served by Telecom's rivals, the market became less competitive.

Whilst there were clear gains in static and dynamic efficiency initially following the bitstream decision, (higher broadband penetration and certainty in Telecom's commitment to invest in the NGN), the failure to achieve a defined competition metric resulted in even more stringent regulation in 2006 the form of full unbundling and structural separation. Whilst the effect of this regulation on competitive entry is still unclear, the unequivocal consequence is the reduction in dynamic efficiency with inevitably higher costs of investment, and uncertainty about the future prospects for private sector investment in core infrastructures. Whilst in the short-term, agreement has been secured for Telecom to invest in a next-generation IP network, the core infrastructure is still copper-based. Significant questions remain about the incentives for any party to invest in New Zealand in the fibre-based networks which are starting to supplant copper-based ADSL networks in many other OECD countries¹⁶⁶. The experiences of Telecom and Vodafone paint a cogent lesson for any network owner whose investment, due to economies of scale, could become dominant in its local geographic market. The New Zealand approach in fixed and mobile telephony suggests that even when such assets are fully privately owned, and may even have been developed in an unregulated market, the acquisition of dominance, or even the effects of a merger that substantially reduces competition, will result in exposure to regulatory provisions mandating uncompensated ceding at least some of the rights of control normally associated with ownership to the government, even though there may be no evidence that beyond the balance of probabilities that dominance has been exerted.

¹⁶⁶ See Mueller (2007) for a discussion of fibre-optic network deployment in Asia and the European Union.

4.2 Pursuit of Competition Replaces Pursuit of Efficiency

For eighteen of the twenty years since the passing of the Telecommunications Act 1987, sector decision-making has ostensibly been governed by the pursuit of efficiency. The 1995 review, the 2000 Inquiry, the 2003 LLU Inquiry and the two Commission-led mobile termination inquiries were characterised by the priority given in principle to efficiency considerations. However, despite being given primacy in principle, in practice since 1999, whenever there has been a tension between them, political pragmatism has resulted in the pursuit of efficiency becoming increasingly subjugated to promotion of competition.

As a largely politically-motivated exercise, the 2000 Inquiry compromised upon efficiency-based principles in its final recommendation in moving away from a regime predicated upon ex post enforcement of competition law principles to an ex ante regulatory regime. This decision was made despite the Inquiry's finding that New Zealand's light-handed regime had not performed poorly in respect of any of allocative, productive or dynamic efficiency compared to other regimes, and despite its apparent endorsement of efficiency-based motive. Nonetheless, the LLU Inquiry and the two mobile termination inquiries were steadfast in the use of efficiency criteria in the process of their assessments. Both were notable in the attention given to dynamic efficiency, with specific emphasis upon the particular challenges of the New Zealand economy in encouraging the necessary investment in new technologies.

4.2.1 Political Motivation for Primacy of Competition

However, neither the LLU recommendation nor the first mobile termination decision was greeted with unanimous political support. The clear prioritisation of competition over efficiency in the presence of conflict, as articulated in the second mobile termination decision, almost certainly echoes a change in political priorities following the 2005 election, and presages the apparent abandonment of efficiency considerations in telecommunications regulatory matters in the post-2005 era.

The politically-led processes post 2005 appear to have paid little heed to the inherent tension between competition-predicated static efficiency, measured as the market share of entrants in a market based upon selling existing technologies at cost-based prices, and dynamic efficiency measured as successive investment in new technologies, based upon the ability for private investors to garner a fair economic return for the risks associated with their investments. Despite the Stocktake and its ensuing legislation articulating an objective of encouraging investment, the effect of the regulatory changes and political intervention has been unequivocally to compromise investment incentives for the dominant participants

providing the bulk of sector investment (Telecom and Vodafone) in favour of enabling fringe investment by their competitors. Whilst the theory of encouraging fringe investment in existing infrastructures is appealing from a static competitive perspective, the lack of detailed analyses empirically trading off the respective costs and benefits appears to have enabled short-term fringe-competitor welfare considerations to prevail over long-term investment, dynamic efficiency and consumer welfare considerations. The reliance upon foreign assessments of the efficacy of chosen policies predominantly because of their effects upon competition, to the exclusion of the assessment of their potential effects upon efficiency in the context of the New Zealand economy (in particular, its scale) has become possible principally because of the exclusivity given to the pursuit of competition in existing markets (scale is not an explicit consideration in competition assessments).

4.2.2 Commission Processes as Compensation for Competition Law Weakness

When the tension between pursuit of competition and pursuit of efficiency was first addressed in 1995, Blanchard noted the inability of competition law as enforced by the courts to make allowances for actions that increased efficiency but violated established competition principles. His proposal was for an additional arbitration process to address these issues. Despite the failure of its structures and regulatory determination processes to generate efficiency-raising outcomes, the Commission established by the 2000 Inquiry appears to have genuinely attempted to give voice and priority to efficiency issues when given discretion in its sector analyses. This is evidenced in the repeated use of cost-benefit analyses in making its recommendations.

The failure of the Telecommunications Commission to deliver improvements in efficiency cannot be held to be a direct consequence of discretion exercised. Rather, its failure to deliver greater efficiency derives principally from the areas where as a consequence of legislative restraint it had no discretion to address the tension between competition and efficiency, such as the range of services originally designated, and the requirement to deliver pricing determinations based upon cost-based TSLRIC pricing methodology, even though it has been demonstrated both theoretically and empirically that under certain circumstances this leads to reductions in efficiency (Guthrie, 2006). Indeed, by recommending against LLU in 2003, the Commission clearly adjudicated in favour of efficiency gains in the long run over increased short-term increases in competitive intensity, as mandated by the 2000 in its identification of the principles to be used when determining which services should be subject to designation.

4.2.3 Return to Dominance of Competition Law Principles Post-2005

It is in the second mobile termination decision that the role of the Commission as an instrument to balance the tensions between efficiency and competition is (by interpretation) subjugated to the role of the Commission as an instrument to promote competition over efficiency consequences. In light of the policy deliberations in the 1980s and 1990s, and the exercise of the Commission's discretion in the 2000s, this change in approach is puzzling. If strict legalistic interpretation of the Commerce and Telecommunications Acts supports the precedence of competition over efficiency, it begs the question of why in the New Zealand context competition should always prevail, and why it should be given legal force to prevail. Such prevalence is inconsistent competition as a process, with its end objective being to increase total welfare (efficiency). It also fails to recognise that different forms of competition have different efficiency outcomes, some of which, given the underlying circumstances, may lead to lower, rather than higher, long-run total welfare.

If the means is merely a route to the end, then why put at risk achievement of the desired end by strict adherence to the pursuit of only one of a range of alternative means? The crucial risk that the narrow political pursuit of 'competition' in its current New Zealand manifestation invokes is that selection and enshrinement in legislation of the 'wrong' competitive process may result in pursuit of a faulty proxy ('perfect competition') at the expense of the desired end (increased welfare).

4.2.4 Which Form of the Competition Process Will Prevail?

It is far from clear that 'perfect competition', predicated upon many participants engaging in least-cost production of a homogeneous product for which demand is reasonably certain is optimal in small markets characterised by a small number of participants, large sunk costs and where substantial investment in new technologies is essential in the medium term to meet consumers' demands for widely-differentiated higher-quality products in the future, and for which the extent and timing of that future demand is also uncertain. It is also unclear that, in embryonic or rapidly developing technological markets, open access to legacy investments, even if they provide initial advantages to the firms owning them, is necessarily the most efficient course of action. Such rules presume that perfect competition is optimal in the downstream market, and that opening access to the upstream input will facilitate its development. However, if this assumption is inappropriate, the consequences of legislating as if it is so may be costly.

Open access, LLU, structural separation and TSLRIC pricing are all manifestations of the pursuit of perfect competition. The 'ladder of investment' model of inducing entrants to

move to infrastructure-based competition is unproven, and the costs of co-ordinating investment by many players to enable completely new technological platforms to be built are vast. The presence of a small number of alternative technological platforms competing with differentiated products in monopolistically competitive markets is a current reality in most telecommunications markets. The question of the current New Zealand regulatory regime is whether it is flexible enough to adapt the form of competition pursued to match that which will deliver the best outcome for New Zealand's specific underlying economic, geographic and demographic circumstances.

The key determinant of the appropriate form of competitive interaction to maximise efficiency is the underlying economic circumstances. The benefit offered by an entity with discretion to prioritise efficiency over legislatively-enforced competition is the ability to respond flexibly to changes in underlying economic circumstances that render the legislated or political policy priority of a specified form of the competitive process inappropriate. The removal of that discretion from the Commission and its replacement with a set of strictly enforceable legislative obligations enables a potentially wrong means to become the driving force of strategy, leaving the only recourse to apply the brakes or change direction in political intervention. But when political processes both set the legislative framework prioritising the chosen competitive form and control the agenda for review and reassessment, with no explicit mandate to consider the efficiency consequences, there is no place for consideration of any factors other than those underpinning the legislated, political view of the competition model to be imposed.

The effect of the post-2005 arrangements is to return the New Zealand telecommunications market to the same position it was pre-1987, when efficiency considerations played no part in setting sector objectives, strategy or operation. The position is demonstrably inferior to both the efficiency-mandated Commission and the court-based processes prevailing from 1989 to 2001. Whilst the court-based process was also subject to the possibility that presumptions of competitive form could overrule efficiency concerns, to the detriment of long-term welfare, the difference post 2005 is it is Cabinet, rather than the Courts deciding what constitutes acceptable competitive behaviour in the sector. Whereas the court-based and Commission-based processes required clearly-defined standards of transparency and accountability to be adhered to, and offered rights of appeal, the Cabinet-based processes offer no such assurances. From the perspective of institutional integrity, the current arrangements leave the market in a greater position of uncertainty, and with a greater likelihood of an inappropriate set of competitive objectives being applied, than at any other time since 1987. Rather than

improving upon the flaws of the ‘light-handed’ regime, the most recent institutional changes appear to have exacerbated them.

4.3 Equity, Efficiency and the ‘Kiwi Share’

Whilst the last twenty years have seen substantial changes to the institutions and methods of sector regulation, it is apposite to consider the role of the only element of the regulatory regime that has not altered. Despite the clarity provided in 2001 that the ‘Kiwi Share’ costs would be an explicit charge on the whole industry and not just Telecom customers and shareholders, the ‘universal service’ and ‘free local calling’ principles remain in force. That there has been no explicit examination of these provisions until 2007 is surprising, not least because the ‘Kiwi Share’ terms have been pivotal, by their effects upon efficiency, equity and competition, to the circumstances underpinning each successive turning of the regulatory ratchet. It is apposite at this point to consider the effects of each obligation on market performance.

The ‘price cap’ obligation has clearly been complicit in the extent of welfare gains transferred to consumers in the 1990s. As a constraint against the dominant firm exerting its market power in prices to consumers, it was both extremely cheap to monitor and enforce, and apparently extremely effective in constraining residential prices charged by Telecom. Despite having the ability to raise line rental prices to residential consumers, apart from some initial rebalancing of rates in the early 1990s and responses to localised competition, Telecom’s line rentals stayed constant in nominal terms (reducing in real terms) until 2007¹⁶⁷. The ‘free-calling’ obligation enabled New Zealand consumers to accrue very early and very substantial gains from the use of dial-up internet access. The value of the ‘free local calling’ plan to New Zealand consumers is evidenced in the fact that, despite being offered the opportunity to switch to plans with two-part tariffs, the overwhelming majority of subscribers opted to continue paying a higher line rental and have ‘free local calling’. This preference can be attributed to the substantially higher volume of local calls of longer length being made in New Zealand than in other OECD countries, much of which relates to internet access.

However, the ‘free local calling’ and ‘universal service’ obligations have also had negative effects. Both of these obligations, broadly speaking, address equity concerns. ‘Free local calling’ disconnects the volume and length of calls made from the price paid, in effect removing the cost of usage as a barrier for individuals with different incomes (presuming that a connection is affordable in the first place). Likewise, the ‘universal service’ obligation

¹⁶⁷ Residential rentals were increased nationwide in 2007.

equals rural and urban line rentals. However, each creates an obligation for Telecom to subsidise from other sources the extent of connection and usage occurring that exceed their costs. Of necessity, this requires some services to be priced above cost to some consumers, with consequences for efficiency.

4.3.1 Trading Equity and Efficiency: Universal Service

With respect to line rentals, the 'universal service' obligation requires urban subscribers pay above cost, creating a margin for competitors with higher costs than Telecom to enter when it is not efficient for them to do so, lowering prices to consumers but eliminating the ability for Telecom to subsidise the rural loss-causing consumers. Such pricing also deters efficient entry in rural areas where providers with lower-cost technologies cannot make a fair return because they are competing for customers paying rentals less than cost (i.e. are subsidised).

Whilst compensating Telecom for the costs of unprofitable users under the TSO/Kiwi Share arrangements addresses Telecom's financial viability, it does not fully address the distortions in entry incentives. Whilst the TSO, if carefully calculated, can be imposed in such a manner that a greater proportion of the costs are borne by entrants in urban markets, the fact that they are levied ex post makes the entry decision highly uncertain. Inefficient entry may occur, leaving higher-cost entrants in loss-making positions when the TSO tax is levied, or otherwise-profitable entry may be foregone due to the uncertainty about the size of the tax and uncertainty about other participants' actions.

In a monopolistically competitive market, one party's entry decisions will affect the market share available to others, and therefore the allocation of the TSO obligations amongst all parties. As it is difficult to determine ex ante what the market's response to entry will be, additional risk is created not just from the ex post levying of the TSO based upon uncertain customer switching behaviour, but also the concomitant uncertainty about the entry plans of other entrants. The uncertainty thus relates not just to substitution of customers between providers based upon price, but also substitution based on heterogeneous quality differences amongst the new providers. TSO uncertainty adds to the already-manifest uncertainties about competitor actions in monopolistically competitive markets, increasing the likelihood of inefficient entry and pricing decisions being made. The typical reaction to uncertainty is to wait for more information (Dixit & Pindyck, 1994). However, if otherwise-efficient entry does not occur because of the delay, welfare is lost through insufficient product variety. If entry occurs when the costs and effects on other participants have been underestimated, competition will increase, but welfare will decrease as a consequence of too much product variety. In either case, the effects of the TSO in its current form jeopardise efficiency gains.

Moreover, under the TSO and universal service obligations, rural entry will be highly unlikely to occur, unless subsidised explicitly. The government has underwritten Project Probe and Broadband Challenge funds in order to stimulate rural entry in competition to Telecom. However, this creates further distortions in the other markets which must be taxed in order to fund the explicit taxation-based subsidies.

4.3.2 Trading Equity and Efficiency: Tying and Two-Part Tariffs

The 'free local calling' obligation imposes a restriction upon tariff structure. The tariff is a two-part one, with a fixed component for connection to the network, and a zero usage charge. Typical two-part telephony tariffs are predicated upon linked consumer valuations for each of access to and utilisation of the network. If connection and utilisation are charged separately, the demand elasticity (customer valuation) for each can be evaluated separately, and optimal price structures determined accordingly. As call purchase is 'tied' to connection purchase (a connection must be first purchased in order to make calls), it is possible to utilise individual differences in consumer valuations of each of connection, calls and the bundle of calls and connection to increase the number of individuals purchasing connections.

'Tied' pricing is a method of price discrimination where consumer demands for the tied products are interrelated. The price charged for the first good is set first, and a price above cost charged for the second good. As both goods must be used together, such charging can be used to increase firm profitability by extracting consumer surplus, but without reducing efficiency. The second good must be purchased above cost in order to obtain any benefits from the first good, but both goods are valued sufficiently highly to justify the purchase of the second at a price above cost. Those valuing the second good higher (e.g. multiple purchases of it are made) thus pay a higher effective price for the first good (Carlton and Perloff, 2000:302-319).

Tied sales can also be used as a form of 'progressive tax' whereby the additional revenues from charging above cost for the second good can be used to offset (subsidise) the cost of providing the first good. Where connections are the first good and calls the second, a portion of each charged call minute becomes a contribution towards connection costs: those consuming more call minutes effectively pay more for their connection than those consuming fewer call minutes (or calls where the charge is made per call). The price charged for a connection can now be reduced below cost, enabling individuals whose valuation of connection lies between the subsidised price and cost (for example those on limited incomes such as the elderly and the indigent) to purchase a connection whereas they would have

foregone purchase if they had been required to pay for it at cost. This is a welfare gain in the connection market. The 'tax' on calling thus partially addresses social equity concerns, albeit at the loss of some calls that would otherwise have been made at cost-based call pricing. Where network effects accrue from a larger number of connections being sold, such pricing also facilitates the realisation of social benefits which would not otherwise be internalised by the individuals purchasing connections - specifically, the value to other connectors of the connection being purchased).

However, as those making calls are those valuing them most (i.e. their demand is more inelastic), the welfare lost as a consequence of calls not made will be minimised because the calls not made are forfeited by those whose demand is most elastic (value them least). As long as the welfare gained from more connections being sold (including the uninternalised social benefits of additional connections) exceeds the loss of welfare from fewer calls made, the result is a net gain.

Two-part tariffs, where calling revenues subsidise connections, have been used extensively across the OECD to increase the diffusion of both fixed and mobile telephony connections (Laffont & Tirole, 2002: chapters 3 and 6). As a consequence of the network effects of connection, the 'tied' two-part tariff can also be considered as a 'two-sided market' (Rochet & Tirole, 2004; 2005; Evans & Schmalensee, 2005; Wright, 2004), where calling can be considered the 'money side' and connections the 'subsidy side' (Parker & Van Alstyne, 2005; Eisenmann, Parker & Van Alstyne, 2006). Prepaid mobile connections are an extreme case, where no charge is made for connections, but calls are charged substantially above cost. Such pricing plans have been extremely successful in encouraging the diffusion of mobile telephony amongst lower-valuing users in countries as diverse as New Zealand (Howell & Obren, 2003) and India (Sridhar, 2007).

4.3.3 Trading Equity and Efficiency: Perverse Effects of 'Free Local Calling'

The mandatory 'free local calling' tariff in the New Zealand regulatory regime, however, reverses the effect of the subsidy. As identified in section 1.3.1, its adoption was motivated not by equity or consumer welfare concerns, but by bureaucratic convenience. Calling is subsidised from connections. As consumer valuation of connections and calling is largely positively correlated, those placing a lower value on the call and connection bundle effectively subsidise those with higher valuations. Unlike the tax from calling to consumptions, the effect of the 'tax' from connections to consumption is regressive. Those valuing calling and connection least subsidise increased usage by those who value calls most.

The subsidy to those valuing calls most has a profound effect on the volume of calls made. Whilst all local callers purchasing a subscription at the higher price face no marginal price for calling, so will make more calls than if charged the marginal cost, the effect is greatest for those valuing calls the most. Far more and longer calls will be made than under marginal cost call pricing, increasing the size of the subsidy that has to be recouped from the connection charge. The connection charge must rise far above what it would have been under marginal cost pricing of both connection and calling, thereby depriving those individuals valuing the bundle between marginal cost and the price including the subsidy required to underpin the higher volume of call minutes of the opportunity to connect. Welfare in the connection market is foregone, including the network effects that accrue from more connections, but are not perfectly internalised in the connection purchase decision.

The total number of connections under the New Zealand ‘free local calling’ tariff is therefore less than efficient, and the volume of calls more than efficient, with those valuing the bundle least subsidising those who value it most. If it is presumed that the valuations of calling and connection are distributed similarly in New Zealand and other OECD countries, the tariff substantially explains why, on a per capita and a per-household basis, New Zealand ranks lowly in OECD fixed line connection density. It also explains in large part why New Zealand ranks lowly on price comparisons between countries using the OECD baskets, as the number of calls made is substantially larger than usually used in the baskets. Using the basket approach, the high fixed component is spread over a much smaller volume of call minutes than actually is the case, biasing New Zealand’s ranking downward.

The New Zealand pricing arrangement does not appear to meet any clearly-identified equity criteria, except possibly that all callers pay the same price (zero) for making calls, albeit with fewer individuals being able to afford the connections that enable them make the equally-priced calls. The rationale for retaining it therefore appears weak, even on equity grounds. Whilst it was perhaps justifiable in the initial days of telephony services in the 1880s and 1890s, when an explicit policy prioritised commercial connections and therefore commercial calls, over residential ones (presumably because these calls were more valuable – i.e. generated higher welfare), its retention subsequently is questionable. Bureaucratic and political reasons, and an aversion to change have led to its preservation. Indeed, in 1999 the Minister’s satisfaction with Telecom’s 0867 package was conditional that consumers faced no charge for dial-up internet calls made.

4.3.3 ‘Kiwi Share’ Increases Internet Use But Delays Broadband Uptake

The emergence of the internet, however, poses some questions about optimal tariffs, given that the single connection now enables access to two distinct applications – voice telephony and internet transactions. One connection can (but does not have to) be bundled with two different uses. There are two effects to be considered – a bundling effect from one connection serving two purposes and a usage effect because connection and usage are tied. The optimality of the tariff depends now upon user valuations for each of connection and utilisation of each of voice telephony and the internet. Whereas the tying of voice connection and utilisation charges relied upon the valuations of both being positively correlated for users, it does not necessarily follow that the demand for internet connection and utilisation, whilst likely positively correlated with each other, are positively correlated with users’ valuations of voice telephony. As dial-up internet access ‘bundled’ internet connection with telephone connection, telephony tariffs have influenced the extent of welfare accrued from internet access and use, and also how that welfare has been allocated. The tariff structure will also have an influence upon substitution of internet users from the legacy dial-up technology to the frontier broadband technology.

Specifically whilst New Zealand dial-up internet use has been high due to subsidised usage, the high price of telephony connections required to subsidise the cost of use has likely disadvantaged individuals with low telephony connection and usage valuation but high internet connection and usage valuation, who have been required to pay above cost for a telephony connection not highly valued in order to access the internet. It has also meant New Zealand internet users must have higher valuations of both connection to and utilisation of the internet in order to justify substituting to broadband connections.

4.3.3.1 The ‘Bundled Connection’ Effect

The first effect is the ‘bundled connection’ effect. Dial-up internet access bundles the telephony-based element of connection to the internet with connection to voice telephony services. As the telephony component of dial-up internet telephony has in effect been ‘bundled in’ with voice telephony purchase, those who value telephony highly enough to purchase a telephony connection are ‘gifted’ the ability to connect to the internet, irrespective of how they value it. An individual who does not value a telephony connection sufficiently to purchase one must pay for one in order to connect to the internet (i.e. does not get subsidised access). If dial-up access is all that is available, the higher the price of a telephone connection, the higher the individual must value the combined internet access and utilisation bundle to justify purchase in the first place.

Connection bundling creates an inequity, as high-valuing voice telephony connectors with lower values of internet connection receive subsidised internet connection, whereas higher-valuing internet users with low values for voice connection must pay the unsubsidised price. The extent of the 'bundling inequity' is greater the higher the connection price is above cost: the threshold for internet-only connection purchase value is raised, whilst the value held by the lowest-valuing internet connector receiving the bundle subsidy is reduced. Compulsory bundling and tying under the New Zealand tariffs thus reduce both efficiency and equity in respect of dial-up internet connection purchase, at the same time as it has enabled higher levels of utilisation by connectors who value voice telephony high enough to pay the usage-subsidising price.

The 'bundled connection' effect also affects the value of internet connection at which an internet user will substitute from dial-up internet access to broadband access. The greater the telephony connection fee paid, the greater the 'connection gift' offered to those with a positive valuation of internet connection and use. Where an alternative internet connection is available (e.g. broadband), in order to justify substitution from the subsidised dial-up connection to the alternative technology, a subsidised dial-up user must receive sufficient additional benefit from the alternative technology to warrant foregoing the subsidy from the dial-up bundle and paying a positive price for the alternative connection, relative to the benefit required when dial-up connection is charged at cost. All other things being equal, the higher the extent of the connection bundling subsidy, the higher the user must value the internet connection to justify substituting. As the New Zealand voice tariff sets the price of subsidised internet connection substantially above cost, the marginal value of internet connection for a New Zealand internet user substituting to broadband will be higher than the marginal substituter in an equivalent regime where telephony-based internet access is priced at cost.

It is also noted that, under the 'bundled connection' effect, the value of internet connection at which the marginal internet user will substitute to broadband will be less than the cost-based value where under typical 'tied' price discrimination usage subsidises connection. Thus, irrespective of the level or valuation of usage, the value of internet connection at which internet users will substitute to broadband will be substantially lower in countries where typical two-part tariffs for telephony services have prevailed than where either cost-based pricing or New Zealand-type tariffs prevail, simply because the size of the subsidy from the 'bundled connection' is less.

Moreover, the New Zealand ‘universal service’ obligation places the locus of internet connection subsidy obligation on urban customers. This raises the threshold, relative to cost, at which an urban consumer will substitute to broadband compared to a rural consumer. Thus, substitution to broadband requires a higher benefit threshold to be reached before urban consumers substitute when universal service-based prices prevail, than when cost-based prices prevail. As urban populations are larger than rural ones, and broadband availability tends to be greater in urban areas, geographic de-averaging may partially explain the greater levels of substitution to broadband in Canada, one of the four OECD countries with ‘free local calling’, than in Australia and New Zealand, where retail dial-up connection charges are still largely geographically averaged.

4.3.3.2 The ‘Tied Usage’ Effect

The second effect relates to the value of internet usage. Just as with voice calling, ‘free local calling’ results in internet usage being subsidised by the bundled voice and internet connection charge. For those individuals valuing connection to either the internet or voice or both sufficiently to pay for a connection, usage is subsidised. All internet users will consume up to their maximum value, as usage is unpriced, with those valuing internet usage most (i.e. most inelastic demands) consuming most. Those valuing internet usage least (i.e. have the most elastic demands) receive least from the connection subsidy. The average price paid per internet minute consumed is least for the highest users/valuers. Low internet usage valuers and all voice connection valuers thus subsidise high internet use valuers, with the subsidy being greatest to those valuing internet use most. As minutes of local voice traffic trebled between 1997 and 2003 because of increased internet usage (Figure 1), the extent of this subsidy has been substantial. The consequence of the subsidy has likely been the forfeiting of benefits that might otherwise have been delivered to voice telephony users (e.g. lower connection prices, better service quality, routine maintenance on lines and switches) in order to cover the additional costs of the increased usage.

Moreover, ‘tied usage’ has also raised the marginal value of usage at which a subsidised dial-up internet user will substitute to broadband. Those who value internet usage most will use most minutes of dial-up internet access. Assuming a fixed price is charged for broadband, holding all other factors equal, the minutes of usage at which a subsidised user will substitute to broadband will be higher than for a user paying for usage at cost. Thus, the valuation of internet usage at which substitution to broadband will occur is higher under New Zealand’s tariff structure than under a neutral pricing arrangement. The greater the extent of the usage subsidy provided, the greater the difference in internet usage valuation at which substitution occurs. New Zealand’s ‘free’ usage creates the maximum possible difference. The marginal

value of usage at which a New Zealand dial-up internet user will substitute to broadband is thus higher than when even a partial contribution to usage costs is paid, and substantially higher than if usage is priced at cost.

It is noted that under typical two-part tariffs where usage subsidises connection, the volume of usage at which a dial-up internet user will substitute to broadband will be less than if cost-based pricing applies. Thus, substitution to broadband occurs at lower values of internet usage under connection-subsidised tariffs than either cost-based tariffs, or usage-subsidised prices such as those in New Zealand.

4.3.3.3 *Dial-Up Pricing and New Zealand Broadband Substitution*

Assuming that the distributions of user valuations for internet connection and utilisation are similar across the OECD countries, New Zealand's tariff structure for voice telephony has thus had a profound effect upon the rate of substitution from dial-up to broadband technologies. Indeed, the extent of the usage subsidies suggests that, all other things being equal, New Zealand dial-up internet users must have the highest values of both connection and usage in the OECD to substitute from dial-up to broadband. The 'Kiwi Share' 'universal service' and 'free local calling' obligations have thus unequivocally contributed to New Zealand's lower-than-expected broadband uptake relative to other countries.

The New Zealand broadband uptake data illustrate the role of connection and usage subsidy in substitution effects. As identified above, Telecom has offered its DSL products at low prices in order to induce early substitution. Indeed, in order to counter the effects of 'bundled connection', DSL has been offered at a range of two-part tariffs, enabling users to self-select the bundle of connection and usage that renders them most surplus. In effect, this lowers the threshold at which substitution would have occurred in the analysis above, as it allows for cross-subsidy from those valuing broadband connection and usage most to those who have lower valuations, as in the standard voice telephony two-part tariffs. Entry level packages have been priced low, in order to encourage even modest users to substitute. Yet uptake has been slow. High-valuing users appear to have preferred to remain using subsidised dial-up, rather than substitute to pay-per-use DSL. This suggests that the demand for internet usage in New Zealand is very elastic (confirmed by empirical analyses such as Rappoport, 2003; Varian, 2002; and Horrigan, 2005 in the United States). It appears to be only at very high levels of usage valuation (proxied by hours of dial-up use) that individuals are prepared to forgo the bundled connection and usage subsidies and substitute to DSL. Thus, it appears that, at the current point in time, the volume of usage by consumers with on average quite elastic demands is responsible for a time lag relative to other countries in substitution to

broadband in New Zealand. If valuation of internet connection is positively correlated to valuation of usage, this suggests that overall, demand for broadband connections is also quite elastic.

Figures 8, 9 and 13 clearly illustrate New Zealand substitution patterns. Whilst it is acknowledged that individuals will vary in their valuations of both internet connection and usage, Figure 8 indicates that at the prevailing prices and price structures, the 'average' New Zealand internet user substitutes to broadband when dial-up usage reaches 35 hours per month. As more applications are used and usage intensity of specific applications increases, average usage increases, but substitution to DSL does not appear to be significant until average usage reaches this level. Figure 9 shows that once this level has been reached, substitution becomes marked. Higher-using consumers substitute, leaving lower-using ones on dial-up. Over 99% of the increase in DSL accounts is explained by the decrease in dial-up accounts (Figure 9), with 85% of the decrease in dial-up accounts being explained by the reduction in average usage per account (Figure 13). This suggests that usage volume is the dominant effect explaining substitution to DSL in New Zealand (although it is likely that high usage valuation is linked to connection valuation, usage is the dominant effect).

4.3.4.4 Bundling, Tariff Levels, Tariff Form and Competition in New Zealand

De Ridder (2007:28) finds New Zealand has one of the highest relative prices of DSL to dial-up in the OECD for a standard basket of services, even though the New Zealand DSL price is less than the OECD average. The low dial-up price in part reflects the extent of the subsidy provided for both connection and utilisation in New Zealand. Low levels of substitution to DSL despite low prices would appear to confirm that, overall, either New Zealand internet connection and usage valuation is not especially high, or the benefits of broadband are not considered substantial for the vast majority of New Zealand internet users.

By offering a range of two-part tariffs, New Zealand broadband pricing structures have enabled individuals to pick the internet tariff (dial-up or one of a range of broadband tariffs) that offers them the highest surplus for their level of usage. If connection has been priced low (or even below cost) to induce substitution, but the vast majority of broadband users consume little bandwidth (less than 3GB/month, according to iHug), then a low valuation of internet usage appears confirmed. As the large amounts of dial-up internet usage recorded in Figure 8 have been accrued by low-valuing individuals who are reluctant to pay positive usage prices (even if these are cost-based), then competition for broadband customers is unlikely to yield substantial profits for Telecom's competitors, given the competition is against an existing internet usage pattern that includes both subsidised connection and subsidised usage.

However, use of two-part tariffs has denied high-valuing users comparable subsidies provided from low-valuing users that have occurred in regimes where flat-rate broadband tariffs have been offered. If usage tariffs are cost-based, then the arrangement has reduced the amount of inefficient over-consumption by a very small percentage of high valuers. If usage has been priced higher than cost, then the current broadband uptake levels are actually higher than could have been expected had flat-rate broadband tariffs prevailed, as the higher costs of subsidised usage would have had to be recovered from higher connection charges, raising the substitution thresholds even further.

The New Zealand tariff patterns thus cast some light upon strategic interaction occurring between Telecom and its competitors in the market for DSL customers. Telecom has had to price DSL connections low in order to induce substitution. However, it has also been able to internalise savings from reductions in dial-up usage occurring as dial-up internet consumers switch to broadband, as long as the customers continue to purchase dial-up services at the same price. Substituting DSL customers revert to becoming voice-only telephony customers, paying a higher effective price per minute for calls than when they used dial-up internet, but thereby effectively making a contribution (subsidy) towards their own DSL connection cost. As long as Telecom receives both voice calling and ADSL revenue, it becomes feasible to drop the ADSL connection price below cost. Such an action is not necessarily anti-competitive. If the costs of delivery on ADSL are lower than on the dial-up network, or if there are other social benefits (e.g. network effects associated with applications that cannot be used on dial-up) which are not captured by consumers, welfare is increased by such pricing (and is lost under structural separation or other regulatory instruments that might prevent such cross-subsidy from occurring). However, competing providers selling only DSL services cannot offer DSL at prices to match Telecom's. In order to at least break even at the prices charged by Telecom, they must be able to access the margins paid above cost by voice telephony customers.

Hence competition in the New Zealand telecommunications market is focused not upon capturing new broadband customers for the value of the broadband custom that they bring, but upon capturing the voice telephony margins above cost that broadband substituters are paying. Service providers can encourage these consumers to identify themselves by using low prices for DSL services to attract those who have already substituted or are intending to do so. The higher margins for voice services are captured by both Telecom and its competitors tying discounted DSL to mandatory purchase of fixed line voice services. This avoids the 'problem' of selling a customer only low-margin DSL services whilst the higher margins from voice connection go to another provider. Both Telecom and its competitors are

offering tied packages where DSL is discounted by \$10 per month when the bundle is purchased. DSL is thus the product on the ‘subsidy side’ of the two-sided platform, with dial-up voice connection being the ‘money side’ (as per Parker & Van Alstyne, 2006).

Making ‘naked DSL’ – a DSL connection sold without the concomitant requirement to purchase a voice connection – eliminates all transfer of margins from voice to DSL services. The price set for this service must adequately compensate not only the price of providing the service, but also the opportunity cost of the lost option to utilise such subsidies to advance investment in and uptake of new technologies. If the price for this service is set too low, it jeopardises not only Telecom’s investment plans and business case, but also the business cases of Telecom’s competitors who are relying upon voice margins alone to underwrite their market entry.

The New Zealand tariff structures imposed by the Kiwi Share have thus resulted in a pattern of broadband bundling that is underpinned by different economics to that in other countries, where low or negative margins on voice telephony services and even the broadband connection itself are likely subsidised by revenues collected on highly-valued services delivered using broadband and sold at prices above cost (e.g. anti-spam filter services; pay-per-use proprietary movies and music purchased; premiums paid for copyright material (e.g. sports channels) distributed by television service providers via ‘triple play’ bundles). It is notable that none of the New Zealand service providers is offering metered local calling in its voice and DSL bundles.

4.4 ‘Kiwi Share’ Consequences

It is now possible to interpret local loop unbundling in New Zealand as having a very different set of motivations than in other jurisdictions. The scarce resource is not simply the copper loop for the provision of cost-priced or mildly-differentiated DSL services¹⁶⁸, but the ability to ‘capture’ voice telephony customers inured to paying prices substantially above cost. The voice telephony connection margins are the ‘profits on the table’ in the New Zealand market. This contrasts with other jurisdictions, where margins from arbitrage on differences between the incumbent’s DSL retail and unbundled loop prices have underpinned competition. The New Zealand voice telephony margins would not have been available in other jurisdictions where two-part tariffs subsidising connections rather than usage have

¹⁶⁸ Whilst potential exists from product differentiation in the DSL market, such differentiation will require substantial investment in a market where the demand for internet services is likely very elastic (as has been illustrated in other countries – e.g. Goolsbee, 2006; Goolsbee & Klenow, 2006), and made more so by the extent to which dial-up internet access has been subsidised.

prevailed, and where substantial tariff rebalancing has resulted in prices for each of voice connection and utilisation moving closer to their marginal costs.

The margins being contested in New Zealand are therefore principally an artefact of the 'Kiwi Share' requirements forcing mandatory subsidy of dial-up usage at the time that such usage became highly-valued for an additional use brought about by serendipitous 'bundling'.

4.4.1 Implications for Investment and Dynamic Efficiency

Whereas Telecom has historically been able to use margins from voice telephony services to partially underwrite DSL infrastructure investment, increased competition in fixed line services under LLU and operational separation will fragment access to these margins amongst a number of competitors. It is possible that in some cases Telecom's competitors will use the margins to invest in new services (or indeed, even to offset potentially higher costs of providing broadband services on their own proprietary networks, whereas the margins would have been more efficiently utilised if applied to Telecom's own network investment). However, the scale of these investments will likely be very much smaller than the network envisaged in the Digital Strategy or Telecom's NGN. It cannot be discounted that the margins will simply be absorbed by Telecom's competitors to offset their setup costs or to increase their own profits, with minimal additional infrastructure investment, as cannot be discounted as occurring across the OECD, on the basis of Figures 10, 11 and 12.

Where competing platforms are continually providing pressure upon each other to stimulate investment in new technologies, fragmentation of the profits and consequent investment delays in the local loop may be less problematic. Indeed, commercial purchasers of unbundled connections have strong incentives to collaborate together and with the incumbent to jointly combat the challenge of competing infrastructures, in order to avoid the stranding of investments made (albeit with some transaction cost consequences). But where there is only one network, the fragmentation is most likely to be exacerbated by the absence of competition from other networks (full facilities-based competition). The likely result in this circumstance is that new network investment will be delayed even further, as there is no compelling motivation for otherwise competing parties to collaborate in supporting the incumbent's future investments. The latter, rather than the former, scenario appears more likely in the New Zealand circumstances.

4.4.2 Separation, 'Net Neutrality' and Decreased Dynamic Efficiency

The effects of mandatory separation can now be seen as especially problematic for future network investment. Separation as prescribed for New Zealand prevents any price

discrimination from occurring in the sale of network elements. Pricing that has been demonstrated to increase dynamic efficiency by enabling production of a good with high fixed costs that would otherwise not be produced at a single price because the firm does not obtain the entire social benefit even though it pays the full social cost (Carlton & Perloff, 2000:211-2) is prevented. With no possibility of charging selected end users of legacy applications prices above cost to subsidise the building of new networks, these networks may not be built at all, or will be built at a later date than the counterfactual of discriminatory pricing. Whereas discriminatory pricing for infrastructure access was feasible when Telecom could integrate its retail and network activities, and likely contributed via the use of dial-up revenues to subsidise early DSL network development, such pricing cannot occur under separation and equalised pricing to all commercial customers.

Indeed, operational separation of the network from application service provision, with identical prices charged to each commercial customer is precisely the arrangement sought by proponents of ‘network neutrality’, who require that all applications be charged equally for internet use, regardless of the differences in value placed upon them by their users (Sidak, 2006; Hahn, Litan & Singer, 2007). Whilst such arrangements have some appeal to those favouring equity, such proposals fail to take into account the different valuations and volumes of use by end-users, and the cost structures of telecommunications networks and the concomitant effects upon incentives for investment. Whereas the use of price discrimination based upon differences in consumer valuations is routine in many other markets with similar high levels of fixed and sunk costs and low marginal costs (e.g. airlines and other transportation), and has undoubtedly led to increases in the volume of use and the number of services offered, its explicit prevention under operational separation debars consumers of information transportation from the same opportunities.

Indeed, the strong advocacy for network neutrality and structural separation tends to be led by those whose valuations of network use are highest, as under two-part tariffs it is they who are ‘taxed’ in the short run to provide the resources to generate the greater levels of total welfare in the long run. Acquiescing to their demands for equal terms and conditions for all users, irrespective of the different valuations of users will almost certainly lead to slower development of network assets, likely disadvantaging New Zealand relative to other countries where separation has not been mandated, and where inter-platform rather than intra-platform competition dictates the pace of investment.

5. Conclusion

Three significant factors have shaped the regulatory environment in New Zealand's telecommunications market over the past twenty years. The first has been the gradual retraction from the 'light-handed' regulatory regime of the 1980s back towards the imposition of centralised political control of sector direction in 2007. The second has been the movement away from the principles of a regulatory regime pursuing increased efficiency as the end and competition as a means toward that end towards one where competition is the overriding objective and where there is no apparent scope to take account of efficiency considerations. The third is the strict adherence to the 'Kiwi Share' obligations of universal pricing of voice telephony connections and free local calling.

Sector outcomes, as indicated in this paper, do not appear to have improved as a consequence of increased regulatory intervention. Rather, each intervention appears to have worsened outcomes in at least one dimension, without leading to the improvements sought. The core of most of the disputes appears to be the 'Kiwi Share'. Yet the underpinning assumptions of this element of the regulatory regime appear not to have been questioned. The question of who should bear the cost of the obligations and how Telecom's prices could (or should not) include these costs underpinned the High Court and Court of Appeal cases in 1991-4. The focus upon Telecom's prices as a measure of market power thus created the framework for the regulatory regime following the 2000 Inquiry. Low levels of broadband uptake which underpinned the 2003 LLU inquiry, the 2006 Stocktake and the subsequent imposition of LLU and operational separation were again directly a consequence of the tariff structures imposed in the Kiwi Share.

The bundle of 'light-handed' regulatory obligations has thus been both a facilitator of the transfer of substantial surplus to consumers in the 1990s, but its sole remaining element has been the origin of the obstacles to improved performance in the 2000s. The regulatory response has been to tighten controls upon Telecom in order to reduce the extent of its dominance. However, it is far from clear that exertion of dominance has been the biggest obstacle to the development of the New Zealand market. It is not the existence of dominance that is problematic, but its exertion. Indeed, in a technologically volatile industry where scale matters, dominance has advantages in respect of incentivising timely investment in new infrastructures. The unfortunate consequence of the focus upon Telecom's dominance has been the apparent overlooking of elements of the regulatory regime that have been substantially greater impediments to market development. Nowhere has this been more apparent than in the search for an explanation for New Zealand's low broadband uptake.

Despite the evidence of an absence of supply-side factors deterring uptake, the search for a problem amenable to regulatory intervention was confined to supply-side participants. The role of the regulatory regime as a potential factor was not addressed in the 2006 Stocktake. The 2007 review of the “Kiwi Share” is occurring too late and in isolation from the decisions to introduce LLU and operational separation.

5.1 The Questions

Returning to the questions posed at the outset of this paper, it is now possible to provide if not answers, then at least some insights from which other regimes can learn. Firstly, it is now evident that the ‘light-handed regime’ did appear to perform better than comparator regimes across the 1990s in terms of benefits to consumers. Part of that performance was related to the Kiwi Share obligations. However, much of it was a consequence of a combination of factors including the serendipitous emergence of the internet at the same time as an imperfect interconnection agreement intertwined with the ‘Kiwi Share’ obligations to create a near unique set of factors that led to rapid and low-priced deployment of broadband. The major shortcoming of the competition law-focused regime was not so much its inability to enable the detection and prosecution in the event of exertion of market power, but rather the inability of such a regime to give sufficient voice to the principles of economic efficiency over adherence to competitive principles. Yet the regulatory response has been to increase the strength of adherence to a predetermined set of competitive principles, even though there are many ways in which such interaction can play out, some of which will lead to increased efficiency, and some of which will not.

That the New Zealand regulatory approach has failed to improve overall outcomes is not surprising, however, when considered in light of the alternative hypothesis that the return to industry-specific regulation has failed to address the underlying problem of regulatory making. The ‘Kiwi Share’ obligations imposed mandatory cross-subsidisation in a market which was being judged upon its performance against competitive benchmarks. Yet Farrell (1996) states “competition is the enemy of cross-subsidies”. Persistence with socially-inspired subsidies embedded within telephony service prices whilst simultaneously endeavouring to introduce a competitive market cannot be anything but distortionary. That the New Zealand subsidies were not just of a geographic nature, but also applied in the reverse direction to most other regimes with respect to connection subsidising usage may have made the detection of their effects more problematic. But it does not excuse their oversight in the regulatory reforms undertaken. The rules under which competitive interaction occurs are fundamental to the systemic operation of the market. The inability to

achieve an objective may equally be a consequence of the rules themselves as a function of wilful disobedience of the rules by the players.

In the terms of Russo and Schoemaker (1989), policy-makers and legislators appear to have succumbed to the 'availability bias' (p81-7) in presuming that it was the move to a competition law approach and the eschewing of industry-specific regulation in 1987, and its difference from the regimes in other jurisdictions, that were responsible for any deviation from desired outcomes. 'Anchoring' on this 'convenient fact' led to the 'short-sighted decision' (p95) to omit the legacy factors in the 'Kiwi Share' from the analytical frames used to analyse the sources of any problems and to propose solutions. The resulting 'frame-blindness' (p16) led to the wrong questions being asked, and a lack of 'disconfirming questions' (p103-5) being posed to test the efficacy of the conclusions reached, thereby exacerbating the errors underpinning past analyses. Consequently, the 2000 Inquiry recommended changes to the regulatory regime to emulate those in other countries, even though there was no compelling evidence of superior performance in other regimes. Subsequently, international 'groupthink' (p147) expressed as faith in pursuing international best practice has precluded asking questions about what other New Zealand-specific factors might be impacting upon market performance, and has contributed to an unjustified sense of 'overconfidence' (p70-80) in the efficacy of the decisions made. Yet simultaneously, differences in the form of New Zealand's universal service and near-unique tariff obligations, applied at a time when the international practice has been to de-average both geographically and between connection and utilisation, have been maintained unquestioned.

By putting many of the past assumptions to the test, this paper has illustrated New Zealand's return to some of the most stringent regulatory actions possible at a time when most other countries are debating the merits of reduced reliance upon ex ante regulation is not because of the inability of a competition law-governed approach to facilitate improved outcomes for consumers measured as efficiency gains, but because the market that has ensued is not deemed sufficiently 'competitive' (measured as the market share of competitors to Telecom) and that 'too few' New Zealanders are purchasing broadband connections (determined by the uptake in the top 8 countries in the OECD in this statistic). In the search for an explanation for the current state of affairs, the policy-makers appear to have restricted their attention to matters of competition and dominance, to the exclusion of the efficacy of the regulatory instruments employed.

That operational separation is being pursued in the New Zealand context when consolidation prevails in other markets would appear, from the foregoing analysis to be a function of a

declared political intention to determine sector strategy as part of an objective to break Telecom's dominance irrespective of the efficiency consequences. Given that New Zealand's small market size makes pursuit of scale problematic at the best of times, the apparently perverse pursuit of fragmentation just as investment in a replacement nationwide network is imminent has little rational economic foundation. Once again, an apparent absence of consideration of the ways in which cross-subsidy has already influenced the development of the existing infrastructures and market interactions, and the pursuit of competition at the expense of efficiency, would at least partially explain the New Zealand approach.

5.2 The Lessons

The principal lesson from the New Zealand experience from which other regimes can learn is that both competition law and regulatory approaches can be problematic if the objectives are measured in terms other than improvements in efficiency. Under competition law, it is important that the institutions and processes have the capacity to consider the efficiency-related consequences of actions undertaken, and that the enforcement of competition-related outcomes takes account of the distinctions applying when pursuit of scale and scope economies may lead to reduction in competition but increases in efficiency. The legislative design of regulatory regimes must take cognisance of the role of efficiency in the powers delegated to the regulatory authority and in the setting of the regulatory objectives themselves.

A second lesson is that the economic circumstances and legislative and regulatory history prevailing when a piece of legislation or regulatory tool is introduced will affect the outcome. Simply imposing identical rules is no guarantee of achieving an identical outcome, if the underlying circumstances, actors and historical interactions are different. New Zealand's historic pricing regimes have established a set of expectations amongst all of providers, consumers and politicians that affect their responses to the legislation and regulation, and therefore the outcome. These are necessarily different to other regimes. Also, the timing of introduction matters. A set of rules applied in a mature technology environment will encompass a very different set of incentives and lead to a very different set of behaviours than if the same rules are applied just as the technology begins to be diffused, or even before it is made available.

Thirdly, and importantly for countries contemplating the removal of regulation and replacement by competition law, the New Zealand experience does not provide evidence that 'light-handed' regulation has failed. It is unfortunate, however, that its reign was so brief.

Much could have been learned about its comparative performance during the complete diffusion and deployment of broadband, and investment and deployment of next-generation fibre-based technologies, had the regime not been curtailed in 2001. As the rest of the OECD grapples with how to regulate oligopolies competing using differentiated platforms, and where a legacy of LLU has created competitors on one of those technologies who now face incentives to create cartels to compete with other infrastructures, much could have been learned from New Zealand.

5.3 The Future for New Zealand

As for the New Zealand regime, it is difficult to see how the current arrangements will support timely investment in advanced networks. Neither separation nor LLU are consistent with strong investment incentives in the medium to long term. Moreover, separation is costly, with Telecom estimating the one-off cost at around \$300 million and annual operating costs in the vicinity of \$40 million. If New Zealand achieves 1 million broadband connections (that is, a diffusion level of 25 per 100 population, sufficient to make the current top 8 of the OECD), the cost of separation at the current level of investment is a one-off social cost per broadband account equivalent to one year's connection and an annual cost of one month's connection at current retail rates. Scale means the benefits will have to be of the order of 15 times greater per account in New Zealand than in the United Kingdom to justify the regulation. "Faster, cheaper broadband" as promised by the politicians seems unlikely if the industry is to fully recover the costs of separation and other regulatory changes ultimately from consumers (which will inevitably occur in the long run, in either overt payments, or consumer welfare foregone).

New investment will require returns from chargeable applications other than those currently being sold by providers. Telecom's incentives to invest in infrastructure can now no longer be linked to proprietary applications or underwritten by discriminatory prices charged to its competitors or their retail customers. Investment by Telecom's competitors is likely to be local or fringe-based at best. Whilst the current arrangements may have created the incentives for competition in the short term, the long-term scenario for a vibrant telecommunications sector appears bleak. It is difficult to see how the investment necessary to meet the Digital Strategy objectives can be justified without substantial subsidy from either applications or explicit input (e.g. local or central government). As application-based subsidy is impossible under the separation arrangements, then explicit subsidy appears to be the only alternative. It may well come to pass that not only sector control, but also core infrastructure

investment and ownership, eventually returns to government hands in the New Zealand market.

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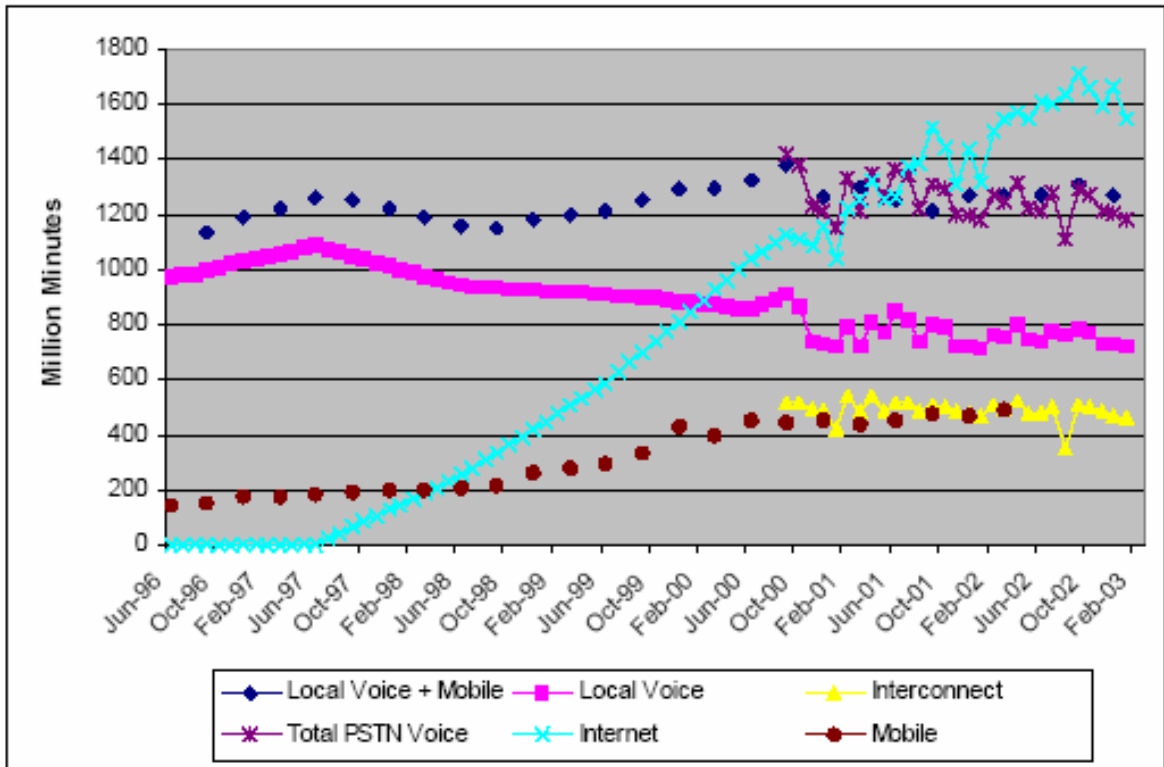
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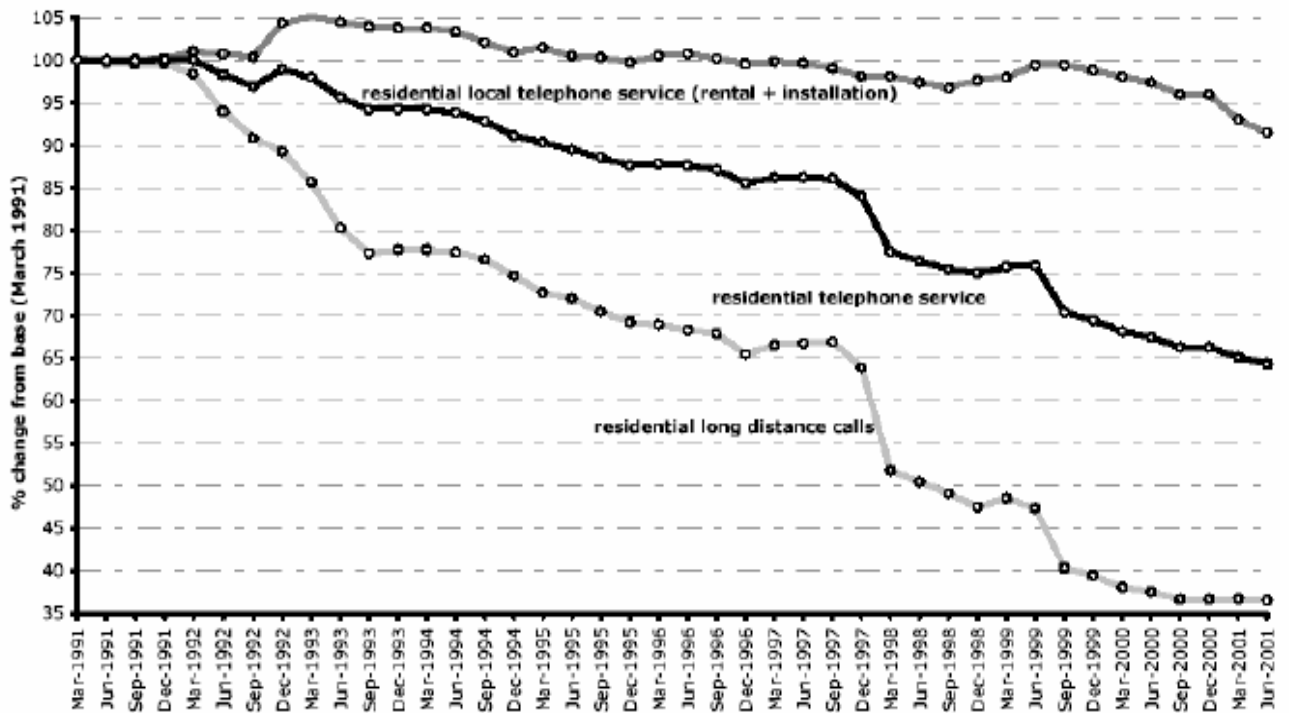
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Figure 1. New Zealand Telephony Network Traffic 1996-2003



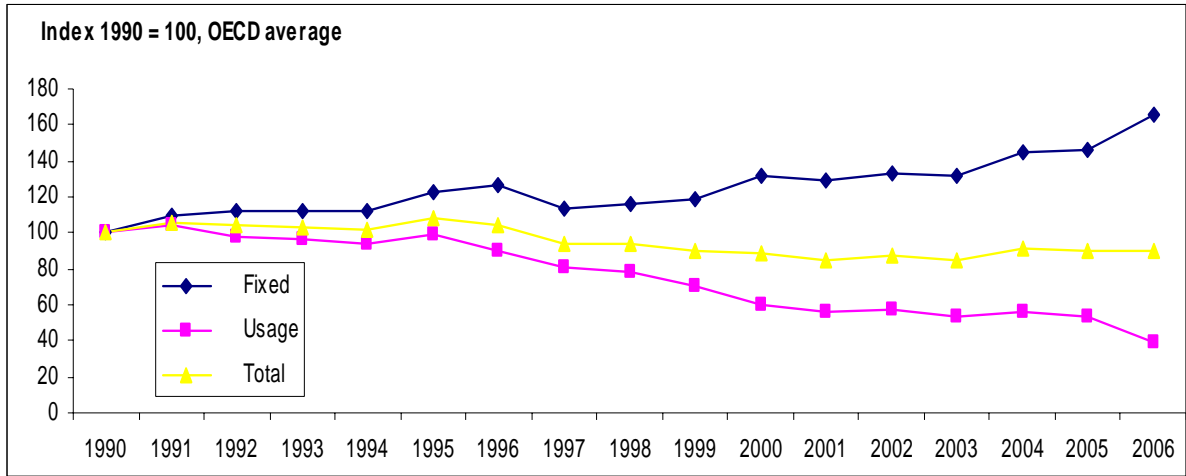
Source: Howell & Obren (2003:33)

Figure 2. NZ REAL RESIDENTIAL TELEPHONE PRICE INDEX 1991-2001



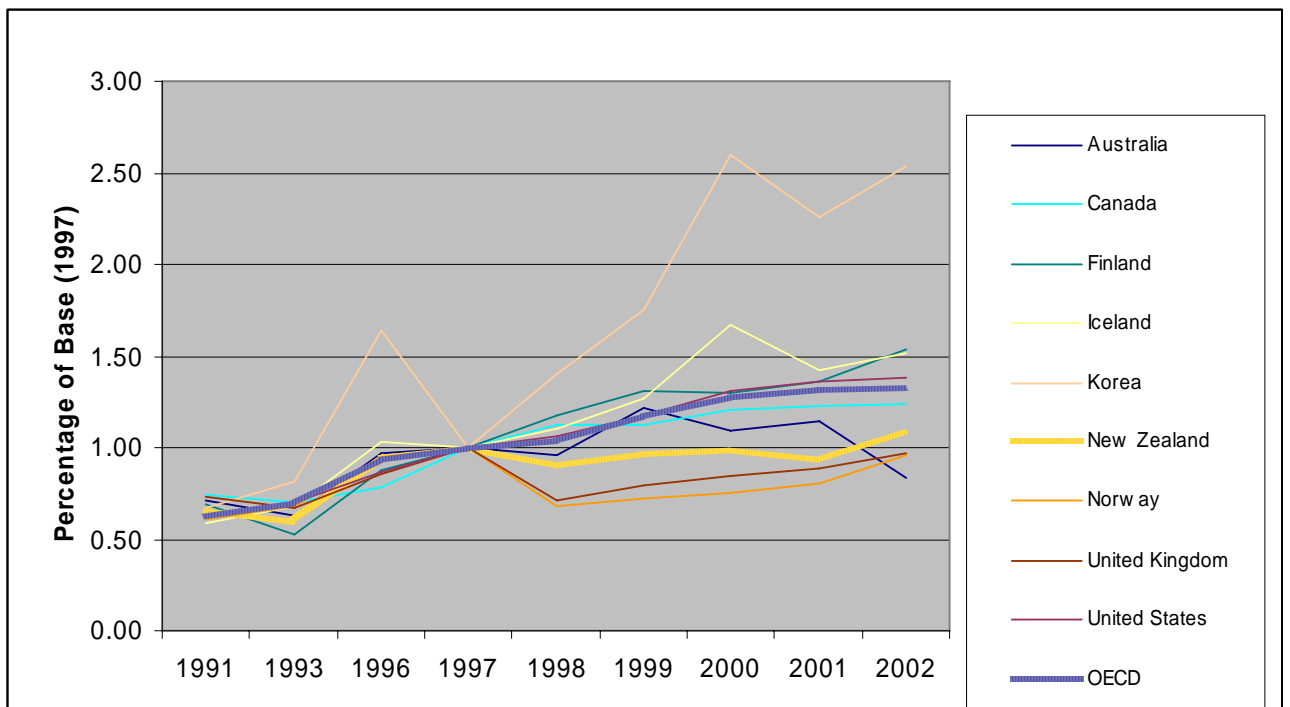
Source: Statistics New Zealand

Figure 3. OECD TELEPHONE CHARGE TIME SERIES 1990-2006



Source: OECD

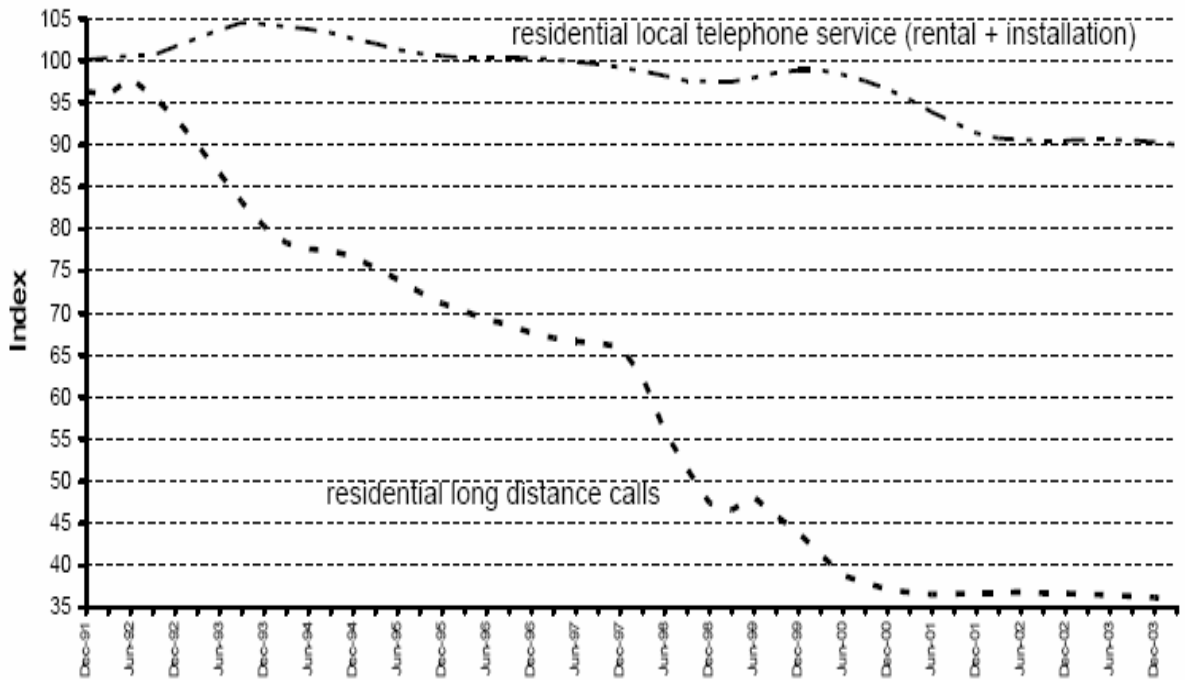
Figure 4. TELECOMMUNICATIONS REVENUES 1991-2002: OECD, NZ AND SELECTED COUNTRIES



Source data: OECD (2007: 82)

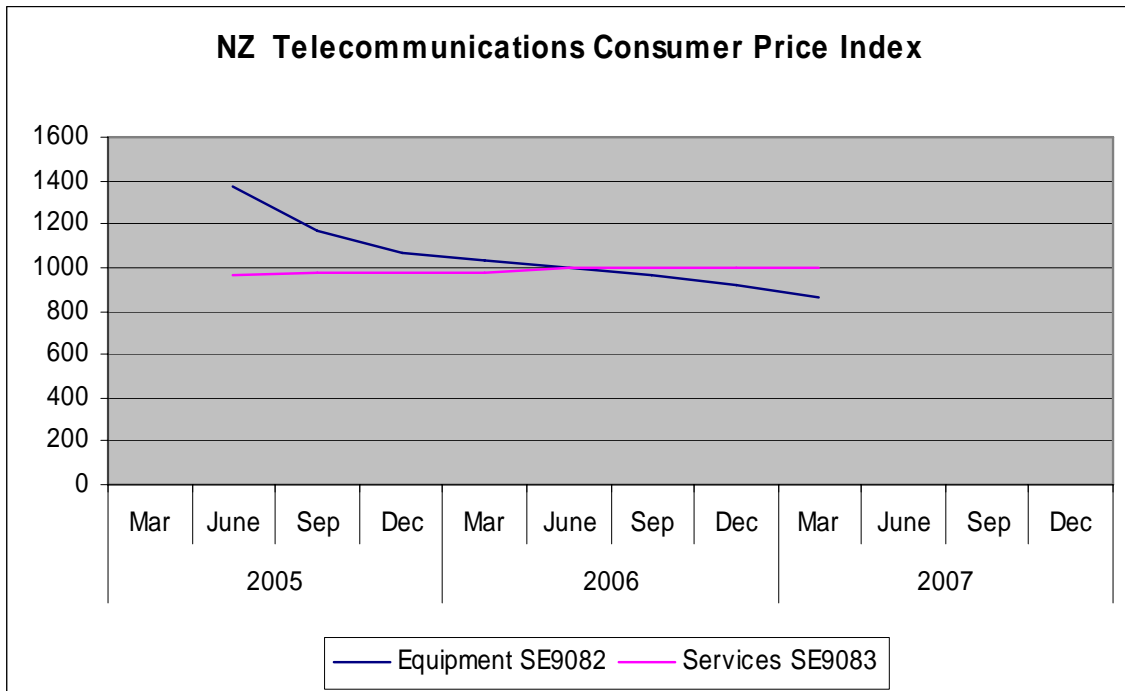
Figure 5

Statistics NZ Real Residential Telephone Service Price Index: March 1991 Base = 100



Source: Statistics New Zealand

Figure 6



Source data: Statistics New Zealand

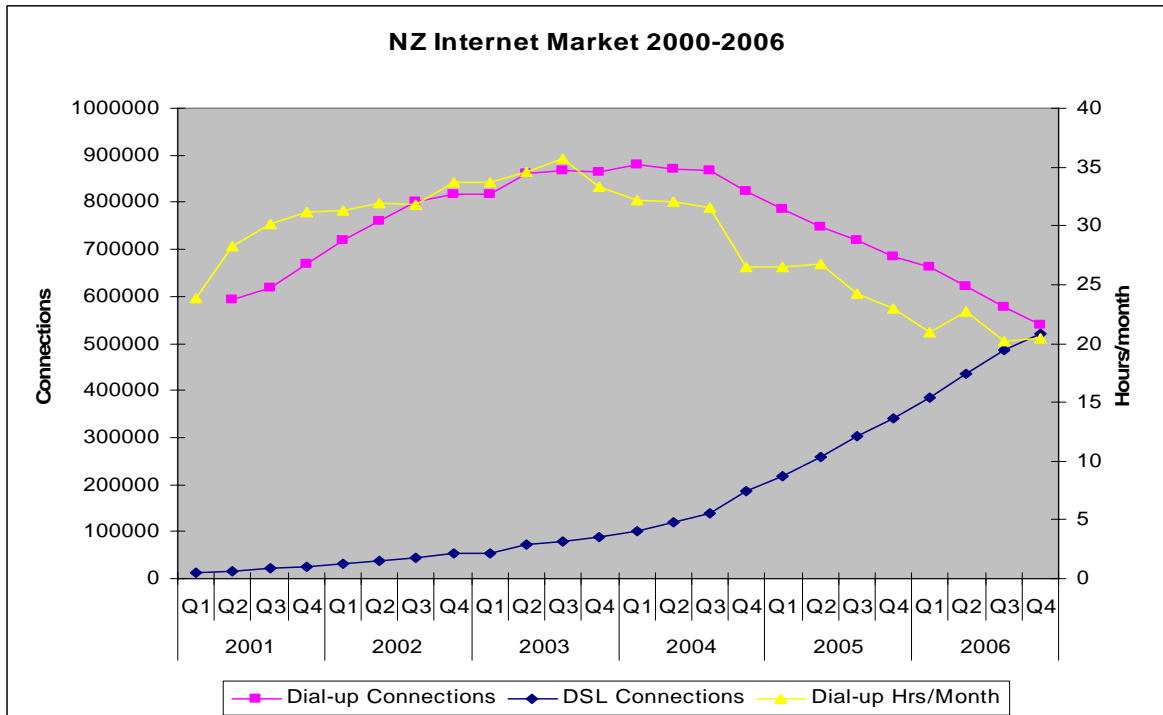
Figure 7

New Zealand ADSL Market 2003-2007



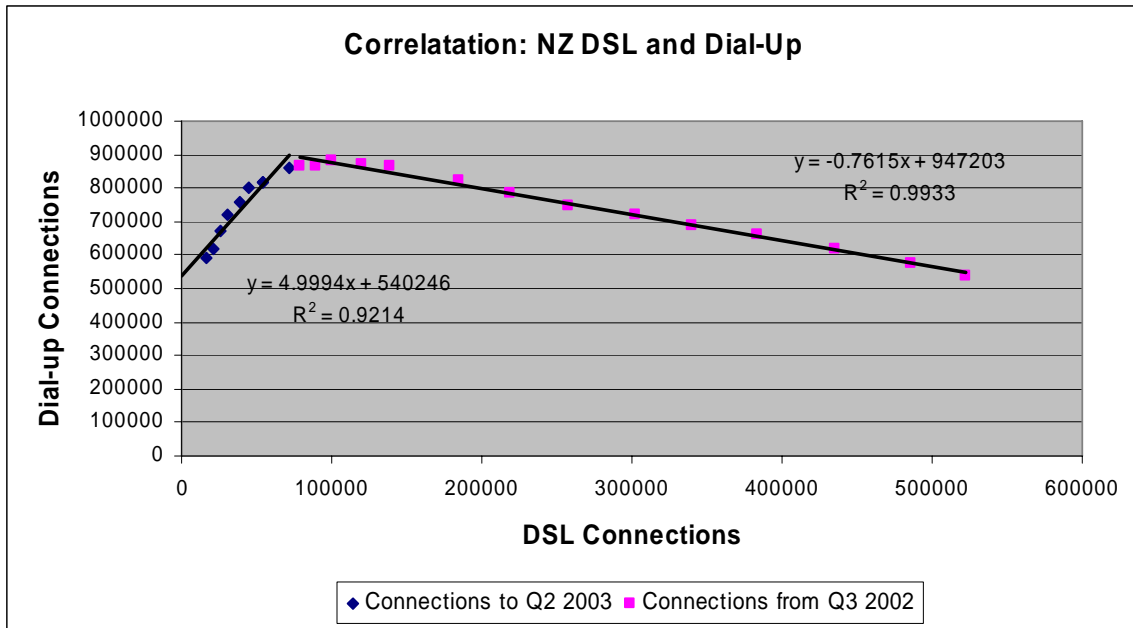
Source data: Telecom Management Commentaries

Figure 8



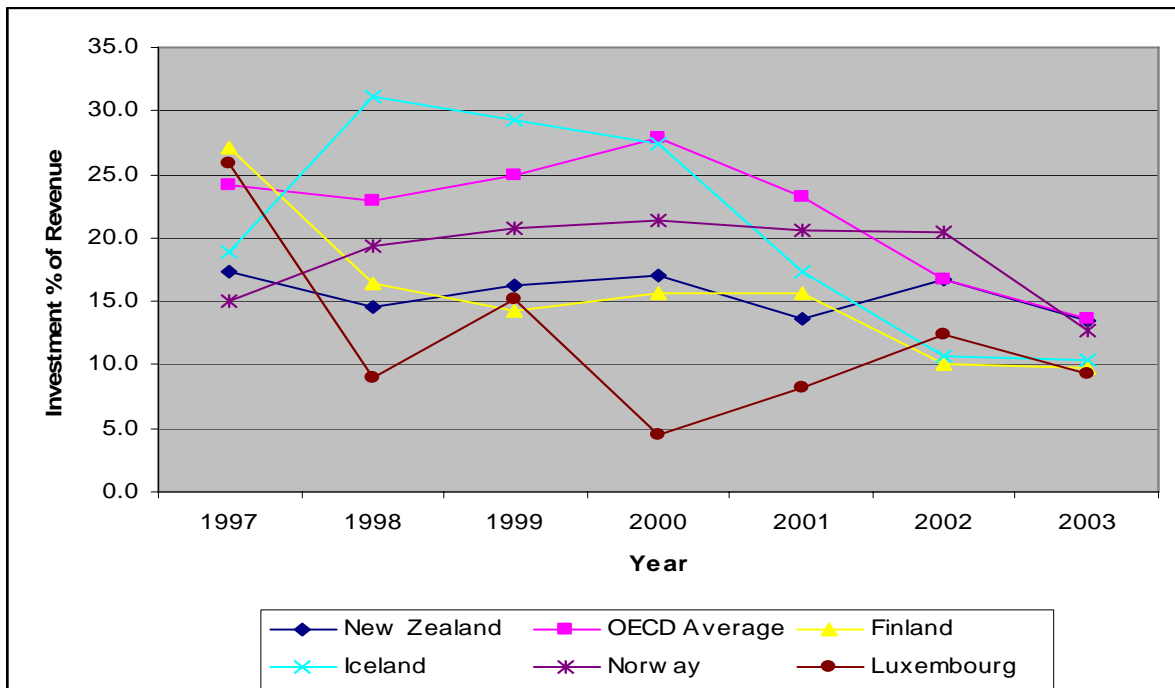
Source data: Statistics New Zealand ISP Surveys and Telecom Management Commentaries

Figure 9



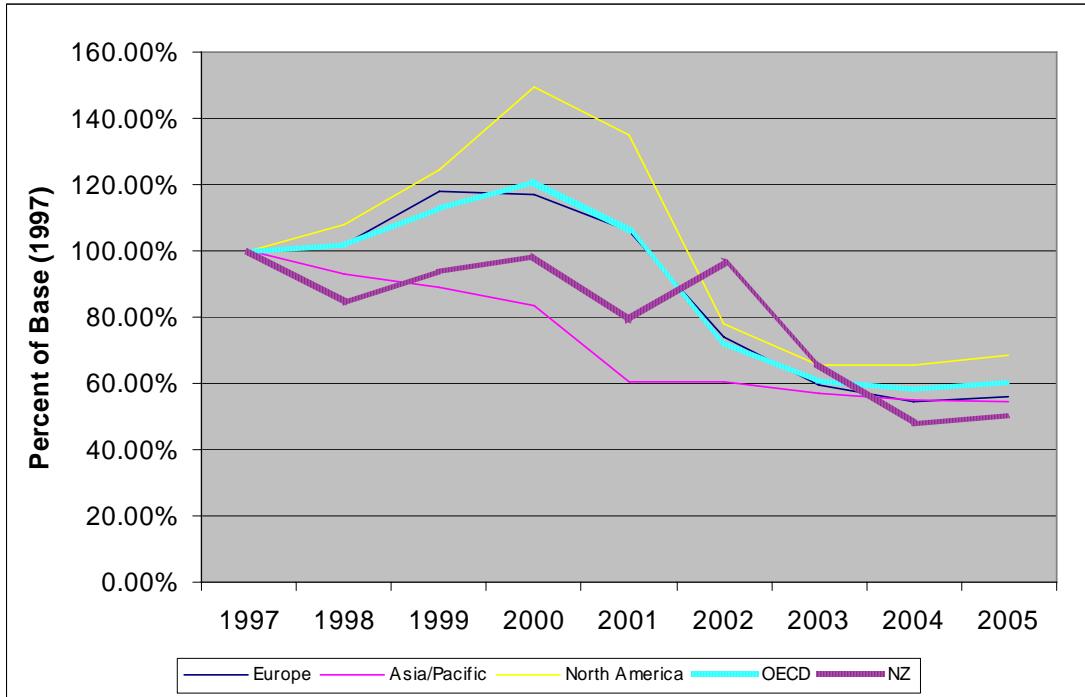
Source data: Telecom Management Commentaries

Figure 10: Investment as a Percentage of Revenues: NZ, OECD and Selected Countries



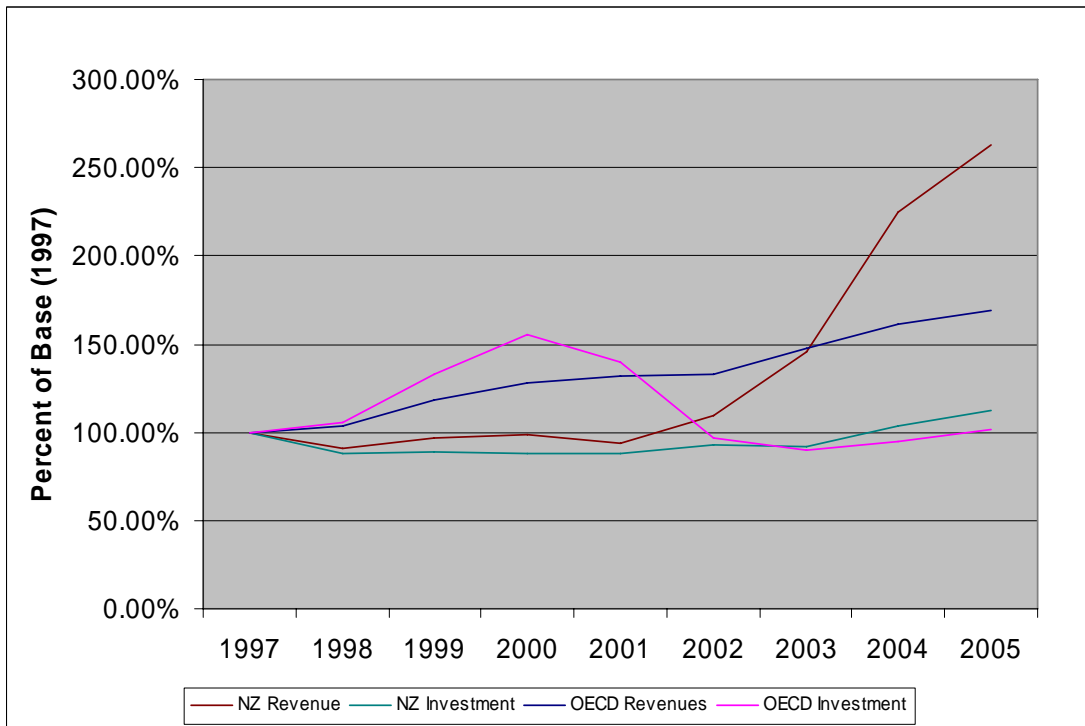
Source: Howell (2006) using OECD data.

**Figure 11: Investment as a Percentage of Revenues: NZ and OECD Regions
(Index 1997)**



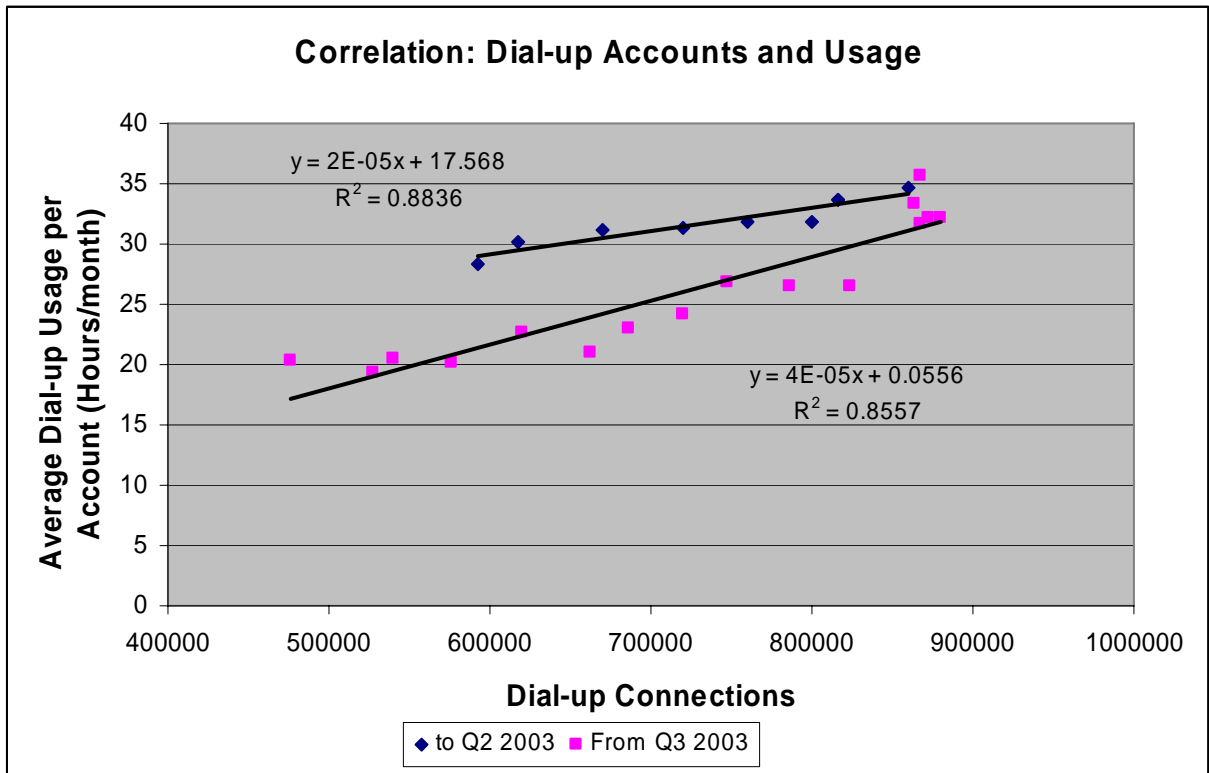
Source data: OECD

Figure 12: Investments and Revenues: NZ and OECD (Index 1997)



Source data: OECD

Figure 13



Source data: Telecom Management Commentaries