

The performance of internet service provider markets of australia essay sample

[Technology](#), [Internet](#)



Access to this document was granted through an Emerald subscription provided by UNIVERSITY OF ECONOMICS HO CHI MINH For Authors: If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service. Information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information. About Emerald www.emeraldinsight.com With over forty years' experience, Emerald Group Publishing is a leading independent publisher of global research with impact in business, society, public policy and education. In total, Emerald publishes over 275 journals and more than 130 book series, as well as an extensive range of online products and services. Emerald is both COUNTER 3 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation. *Related content and download information correct at time of download.

An avowed reason for regulating access is to reduce bypass where it inefficiently duplicates infrastructure, and to promote entry in downstream markets. However, where competition is feasible, as it now is in much of the telecommunications network, some duplication bypass is efficient to establish competition between potential and actual facilities that flows through to increased usage and lower prices. This article shows that ISP final prices are lower, internet usage is higher, and number of ISPs per head of population is lower in New Zealand relative to Australia. It goes on to argue that ISPs pose competitive threats for telecommunications companies and that New Zealand's open competition regime relative to Australia's access

regulation has predisposed it to more efficient facilities competition. The larger number of downstream entrants in Australia has not resulted in lower prices, and the number of ISPs in New Zealand is more than enough for vigorous competition in that market. The extent to which regulation can duplicate competition as well as reduce duplication is a critical issue in the optimal design of a regulatory structure is an important topic about which evidence is emerging in telecommunications.

(ISP) markets of australia and newBoles de Boer, zealand David Christina Enright and Lewis Evans

David Boles de Boer is Research Principal at the New Zealand Institute for the Study of Competition and Regulation, Victoria University of Wellington, PO Box 600, Wellington, New Zealand (Tel: +64 4 463 5560; fax: +64 4 463 5566; email:; <http://www.iscr.org.nz>). Lewis Evans is Executive Director and Professor of Economics at the New Zealand Institute for the Study of Competition and Regulation, Victoria University of Wellington, PO Box 600, Wellington, New Zealand (Tel: +64 4 463 5560; fax: +64 4 463 5566; email:; <http://www.iscr.org.nz>). Christina Enright is Associate Lecturer at the Australian Defense Force Academy.

This article compares the Australian and New Zealand internet markets. It draws heavily on Enright (2000)¹ which reports the short history of ISPs in New Zealand since the inception of the commercial internet there in 1994. It also provides a review of the prices and market shares and strategic motivations for entry to this market. The internet phenomenon is worldwide.

Thus although the New Zealand market has experienced rapid price declines and growing market penetration, its performance in delivering benefits to consumers should be judged relative to that of ISP markets elsewhere.

International comparisons are fraught with difficulties that make for very cautious interpretation of cross-country price studies. ² Nevertheless, in this case certain of these difficulties are not major when considering the Australian and New Zealand ISP markets. The purpose of this article is to build on the evidence of Enright, ³ and place it in a wider context by comparing the Australian and New Zealand ISP markets in 1999. The comparison suggests that internet service provision in New Zealand was cheaper in 1999 than in Australia and that penetration and usage in New Zealand was at least that of Australia.

Because the ISP market does not require large investment in assets that, once made, are then sunk, entry costs are low. Furthermore, telecommunications infrastructure costs and the ability to circumvent them affect the ultimate level of ISP costs. The relative ISP costs of the two countries are in accord with the argument that telecommunications infrastructure competition in Australia is weaker than in New Zealand. The weaker competition is attributed to the different regulatory regimes of the two countries. While these regimes are both widely held to be light-handed, ⁴ the Australian regime is industry-specific and relatively invasive compared to New Zealand, which to a large extent has relied upon competition law alone since 1989. ⁵ This article suggests that the lower ISP prices of New

Zealand are indicative of more efficient facilities competition resulting from that country's less invasive regulatory stance.

ISP economics

An ISP is defined as an entity that provides access to the internet as its primary function. Internet access has been available to the public since 1994 but was first available some 10 years earlier to some academic and government institutions. 1. Christina Enright, ' Strategic behaviour of internet service providers in New Zealand', MBA Research Paper, Victoria University of Wellington, March 2000, and New Zealand Institute for the Study of Competition and Regulation, research paper (<http://www.iscr.org.nz>). 2. These include conceptual ambiguity about the use of purchasing power parity or nominal exchange rates to convert prices into a common unit of account, and the fact that where pricing regimes have the form of two-part tariffs, standard price indices can be misleading in indicating how well consumers are being served, particularly where amounts used differ widely. 3. Christina Enright, op cit, Ref 1.

Since 1996, most ISPs have begun to provide additional services as a way of diversifying into higher value products. ISPs are considered members of the telecommunications service industry since they provide access to the internet via the telecommunications infrastructure (which includes telephone service, leased-line services, data communication and billing). Internet access is one of the many services provided by telecommunications companies. Most ISPs in the industry sell internet access and other related telecommunications services through bandwidth leased from data

communication networks, often owned by telecommunications network providers. They then repackage this into amounts usable by individuals and companies.

Internet access through either dial-up or high speed data connections is a repackaging of the leased bandwidth, and thus the provision of internet access has become a new market, a subfield within the telecommunications industry. The relationship between internet and telecommunication services is set out in a schematic fashion for 1999 in Figure 1. 6 F i g u r e 1: The place of internet service providers in networks. TELCO (Traditional telephony services) Household and/or workplace Local exchange Toll exchange

Until 1999 an ISP generally accepted telephone calls at the toll exchange, either through 0800 numbers or by placing points of presence (POPs) at local exchanges. In 1999 the New Zealand incumbent, Telecom New Zealand Limited (Telecom), provided direct access by means of its 0867 number. At the toll exchange the connection has normally been to leased bandwidth from the switch to the ISP server, from there to an international gateway. By far the greatest use continues to be directed towards websites in other countries. The elements of an ISP's business described in Figure 1 illustrate that essential ingredients of this business are bandwidth and servers. There are additional value-added services provided by ISPs ± eg 4. See Pablo T. Spiller and Carlo G. website applications and helpdesk service ± but bandwidth Gardilli, ' The frontier of and servers are core costs of the business. As a consequence, telecommunications deregulation: small countries leading the pack', The Journal barriers to entry are low. All that is

required to start an ISP of Economic Perspectives, Vol 11, No 4, company is an internet server (\$NZ 5000 to \$NZ 20 000) 1997, pp 127-38. and leased bandwidth.

Within New Zealand, bandwidth 5. New Zealand has had a cpi-x regime, and certain other restrictions, for services are leased from various suppliers that include: household access since 1990. Telecom , Clear, Saturn, BCL and other firms with 6. Figure 1 indicates in broad terms the structure of networks. It does not purport microwave transmitting equipment or even ISPs themselves to provide a detailed, up-to-the-minute as they develop their own infrastructure. Bandwidth services description of modern telephony or IP beyond the gateway can be leased from a competitive range networks. 7. While the differentiation between of domestic and international providers. 7 Since the leased bandwidth and telephony sections of the service can be paid for monthly, it is easy to adjust costs in network is useful, it is increasingly response to volume of use. artificial as broadband is being laid directly to all customers (eg by Saturn) Customer switching costs are low. Changing ISPs and ways of utilizing broadband requires the customer to pay a connection fee to the new capabilities of copper wire are being installed (eg xDSL). ISP, obtain a new email address and install some new software.

The differentiation of products that does exist is in response to the individual needs of the customer. The factors in determining the level of service include price, speed of access, consistency of access, and help available to the customer. For example, an experienced internet customer is most likely to want a low monthly price and high access speed, but minimal help. The

level of service required for business v residential customers is distinguished by consistency of access since a business customer requires greater dependability of access. Switching costs are also likely to be higher for some business users due to the need to change the email address, but this may be avoided by purchasing a domain name. Telecommunications companies face various threats from ISPs. They may lose traffic by customers switching to a different mode of voice exchange and may lose customer relationships that would facilitate conveying emerging valued-added services. In addition, ISPs pose competitive threats for the telephony network itself.

For example, telephony charges that are high between the local and toll exchanges stimulate entry in this segment and thereby the extension of broadband to the local exchange. This has in fact taken place. In New Zealand an ISP Ihug has bypassed toll exchanges \pm and, incidentally, the incumbent's international gateway and broadband beyond the gateway. The toll bypass is represented by the broadband marked (a) in Figure 1. In Wellington city and environs, Saturn has bypassed both the toll and local exchanges with broadband to the household. By way of summary, the key features of ISP services are: very low upfront capital cost, low customer switching costs, especially for those entities with a domain name. While there is some variation in service characteristics, they are sufficiently similar to be regarded as almost homogeneous. There have been variations over time in the quality of services that will have affected service characteristics and the relative demands for ISPs. The (potential) volume of the internet

business has posed a challenge to the pricing of lines for traditional telephony services and stimulated telecommunications companies

to recognize the competitive threat of the ISP's demands for competitive delivery of broadband services to the local exchange, if not to the household. In short, ISPs are at the core of network interconnection and concomitant bypass issues and the performance of the ISP market is a strong indicator of the performance of the regulatory regime within which network communications providers operate.

The New Zealand consumer

According to Enright, all New Zealand internet users have benefited from a significant decrease in internet access prices, 8 with different types of users enjoying price decreases at different times. Using the price schedule for each ISP (see Enright Appendix B), monthly charges for three typical users were calculated from 1996-99. For this purpose the users are defined as:

Low-end user

Each month, uses 10 hours of connection time and downloads 20Mb of international traffic, all at peak usage times. As of 1998/99, this characterises a low-end home user, although this would not have been 8. Christina Enright, op cit, Ref 1, s 4. 5. so at the beginning of 1996.

Mid-range user

Uses 20 hours per month of connection and downloads 100Mb of international traffic, 50% at peak usage. This character izes either a heavy

residential user or a small business, with a relative increase in the former during the study period.

High-end user

Uses 50 hours per month of connection time and downloads 500Mb of international traffic, 20% at peak usage. This characterizes a business user, and the calculations assume that extra email addresses are not as important as minimizing the monthly charge. Many of these users have high speed dial-up connections or upgraded data connections, although this has not been assumed for price calculations. Figure 2 below shows average prices, based on all ISPs listed by Enright for 1996 ± 99 for the three types of user. 9 F ig u re 2: Average of monthly price for all users. \$420 High-end user \$320 Monthly changes

The reported averages are simple averages calculated arithmetically.

Because consumers substitute away from the more expensive suppliers, the arithmetic average will be greater than the average obtained by weighting by usage. For all three user-types there has been a steady decline in price over the period, with the largest decline for the high-end user. The gap in prices between different ISPs and user types has closed, although there is still considerable variation between ISPs. 10 Evidently, all three types of internet access customers have benefited from the lower prices in the market. Users who use less than the 'low-user' above can take 9. All prices are before indirect taxes. advantage of the low-cost, low-service providers. It is also They have not been adjusted for inflation. Although inflation has been low through the clear that as the pricing schemes become less differentiated,

study period, these indices will understate ISPs will be forced to compete on other factors, such as somewhat the real price declines. 10. Christina Enright, op cit, Ref 1, s 4. 5. extra services or dramatic increases in transmission speed.

lhug has maintained the lowest price for the high-end user throughout the study period. Enright shows that the ISP owned by Telecom New Zealand Limited, Xtra has had prices that were below its competitors for the low cost user but that lhug maintained a lower price for the midrange and high-end users. 11

Comparison with Australia

ISPs in each country provide essentially the same services. The structure of the two markets is quite different. Australia has approximately 180 ISPs in comparison with New Zealand's 11. 12 In 1999, the ISP (Bigpond) of the Australian incumbent telecommunications company, Telstra Corporation Limited, had a market share of 26. 3% whereas Xtra held 40% of the New Zealand market. Relative prices are indicated in Table 1. It includes the 1999 data of the earlier Figure 2 together with the equivalent data for Australia. The arithmetic average reflects only prices and it is sensitive to prices no matter the extent to which customers use each ISP. 13 The weighted average is lower than the simple average because it reflects the higher weights (relatively higher usage) attached to the cheaper ISPs.

The averages disguise considerable price variation within both countries, reflecting slightly different services and the different price paths that firms

have chosen. Without adjusting for the exchange rate, the domestic currency prices suggest that ISP services are priced similarly in New Zealand and Australia. On the basis of both averages, at nominal exchange rates and the OECD purchasing power parity exchange rates, New Zealand prices are lower.

Table 1: Australia and New Zealand: monthly average prices. End user Level of use Low Mid-range High A. average W. average A. average W. average A. average W. average Australia AUS\$ PPP \$24 \$22 \$35 \$33 \$68 \$58 \$27 \$25 \$40 \$37 \$77 \$66 NZ\$ \$29 \$27 \$42 \$40 \$82 \$70 New Zealand NZ\$ \$24 \$20 \$37 \$27 \$65 \$38

(A) Arithmetic average price (W) Weighted average price (weighted by market share) Note: these monthly prices are obtained from 11 ISPs that cover 70% of the Australian market and 5 ISPs that cover 80% of the New Zealand market. PPP: OECD 1999 Exchange rate of 1\$NZ= 0.83\$Aus.

11. Christina Enright, op cit, Ref 1, s 4. 5. 12. There are many more ISPs in both countries with negligible market shares. 13. These averages utilize the price of ISPs that make up the market shares indicated in the table. The other ISPs were each very small (less than 2% market share in Australia).

Internet access and usage varies rapidly over time, and its measurement is affected by the way it is utilized. 16 The penetration rate measured as the number of ISP accounts per head of population is 13% for New Zealand and 10% for Australia. For households, the USA, Australia and New Zealand stand out by a significant margin as leaders internationally (see Nielsen/NetRatings, 20 March 2000

of internet service provider (ISP) markets of australia and new zealand

the performance 493

(<http://eratings.com/news/20000504.htm>) in internet usage. Australia and New Zealand's ranking is attributed to their relatively de-regulated status and free per-minute calling for households. The ACNeilson data suggest that on a population basis New Zealand and Australian households utilize the internet to a very similar extent. We conclude that the penetration and usage of ISP services is at least that of Australia. The relative penetration rate and usage of internet services in the two countries is in accord with the price differential between them.

Discussion

Telecommunications has long been considered a non-tradable good in that domestic services are not contestable by services supplied by sources 14. To take account of possible different external to New Zealand. In fact, broadband services are to patterns of consumption, the comparison should be made on the basis of consumer some degree contestable: they can be and are routed usage in each country. Our data do not through Australia between two points in New Zealand, and permit this and so a common bundle has been used. Using this bundle will not give to other countries from New Zealand misleading results if the consumption bundles of small, medium and large consumers are very similar in the two countries. Unlike telephony, the tariff structures are similar for ISPs, suggesting that the consumption bundles will be similar. In each country they are dominated by '

take-or-pay' blocks of usage and these are offered to consumers in similar, though not identical, sizes.

Thus the breaks or kinks in the tariff structures are similar and it is likely that usage will be similar. Similarity in consumption bundles, at least for households, is confirmed by the Nielsen//NetRatings of March 2000 (<http://eratings.com/news/20000504.htm>) which estimates of time spent surfing on the Internet per month and per session are almost identical in Australia and New Zealand. 15. To examine further indicators of price differentials we look at the charges (prices) for variable use. In this context, we note that usage in excess of the Bigpond (Xtra) take-or-pay block of 10 hours per month costs \$AUS3.60/hour (\$NZ1.25/hour) and exceeding the 80 hours per month (100 hours per month) block of Bigpond (Xtra) charges are \$AUS1.60/hour (\$NZ0.65/hour) in 1999.

Both ISPs had significant market share - Bigpond 26.3% and Xtra 40% - of their respective markets. These price differentials confirm the relative prices indicated by the averages. 16. For example, there may or may not be multiple users of the same access point. 17. Note that, at least on the basis of population density, network costs are likely to be of the order of 5% lower in Australia (see Dan Alger and Joanne Leung, Relative Telephony Costs Across Five Countries, New Zealand Institute for the Study of Competition and Regulation, February 1999 (<http://www.iscr.org.nz>)). There will be much within-country variation in costs due to density variation across locations.

Contestability in broadband services when combined with the fact that there is an international market for servers and labour suggests that ISP services are to a certain extent internationally contestable and that Australian and New Zealand ISP prices may converge to close proximity over time. 17 Nevertheless, at this stage of market development New Zealand's prices for ISP services would seem to be lower and the size of the market relative to the population at least as high as for Australia. The source of the price differential may convey information about the relative performance of the Australian and New Zealand regulatory systems.

The reported prices are ISP charges. If, as seems likely, servers and labour cost approximately the same in the two countries in exchange-rate or PPP adjusted currency, then the difference would seem to lie either in broadband costs or less (potential) bypass of the telephony service of the toll exchange: these two possibilities will almost certainly be a reflection of the same factors. 18 The Australian regulatory regime is very complex in comparison to that of New Zealand. It has three separate bodies that have responsibilities for different aspects of telecommunications. Rather than attempt a comprehensive coverage of it, we confine our attention to certain of the aspects that are relevant to the ISP market. 19 New Zealand has no network access regulation: the incumbent is constrained by the threat of bypass. Since the demise in 1997 of the duopoly-telecommunications policy, the Australian Competition and Consumer Commission (ACCC) has had a central and quite widely discretionary role in telecommunications regulation.

Among other functions, it administers the telecommunications elements under Part XIB of the Trade Practices Act with the purpose of facilitating access to networks of carriers: this includes specifying services that will be provided under regulated access, and approving access codes, and undertakings about access terms and conditions. It also arbitrates disputes between access providers and demanders. A key function of the ACCC has been to 'declare' particular functional services. A declared carrier service is a service for which any entrant has the right of access and for which a dispute over the terms and conditions of access will be resolved by the ACCC at the request of either party. 20 The ACCC has declared a wide range of services, including key services for ISPs: those of domestic transmission and local service. While the purpose of the 'declared service' regulatory tool is to facilitate competition, it may have the reverse effect in certain key aspects of service provision.

The wide use of declarations ± for example, in situations where competition is eminently feasible ± may well inhibit competition. Inter-city broadband transmission was declared despite the existence of competitors and potential entrants. 21 In such a circumstance declaring the service reduces the incentive for entry because it make the use of others' networks available to any potential entrant and raises the spectre of the service being declared on new investment. For the same reasons, declarations applied to services subject to changing technology will almost certainly delay the timing of the introduction of new technology. In short, declarations on domestic transmission and local service are likely to have limited actual and potential

competition in the provision of the infrastructure that ISPs use. The ACCC is the arbiter of terms and conditions for declared services. If competition is inhibited by declaration, then prices have to be set on an administered basis: the ACCC has used a variety of approaches including cost models.

Whatever the approaches are, pricing will not be determined by vigorous offerings of (potential) alternative infrastructure. To the extent that entry is inhibited and the market for the declared service has only one or two players, price determination will face all the issues of administered price setting that is intrinsic to price regulation whatever its form. 22 The market power conferred on the incumbents by declaration \pm and consequent reduced potential entry \pm together with a range of information and conceptual problems of an administered price renders it exceedingly difficult for the 18. This discussion assumes that there are ACCC to set prices that would mimic any feasible no differences in network installation requirements between the two countries. competition. 23 These administered prices may be higher 19. Anne Daly and Natalie Stoeckl, than without declaration, even if they squeeze incumbents. 24 Agenda, Vol 7, No 2, 2000, pp 113-24, describe the declaration procedure.

For a Thus a likely explanation of different ISP prices in the two recent detailed review of the regulation of countries is relatively higher broadband costs implied by less telecommunications in Australia, see the (potential) bypass of telephony and broadband services. report Assessment of the Telecommunications Regulatory Regime In Australia the regulatory regime promotes access to in Australia, Networks Economics infrastructure at the

expense of competition to supply Consulting Group, March 2000 (see infrastructure. It has been successful in this respect: there are, <http://www.telecom.co.nz>) hereafter termed ATRRA. on a population basis, more than three times as many ISPs 20. Daly and Stoeckl, op cit, Ref 19, argue in Australia as New Zealand, and the main incumbent's ISP, that the declaration process should be subjected to a cost-benefit test, and that Bigpond, has a much lower market share than does the New the threshold for declaration is lower for Zealand incumbent's Xtra.

However, ISP services are telecommunications than for other relatively homogeneous and in such circumstances very few industries. 21. See ATRRA, p 25. ISPs ± even fewer than New Zealand enjoys ± can be 22. The prospect of price regulation under expected to generate competitive outcomes that maximize declared services may of itself inhibit social welfare. Certainly, it appears from the evidence that entry to these services. 23. This point is made by Daly and Stoeckl, the vastly higher numbers of ISPs in Australia has not op cit, Ref 19, pp 116-17. resulted in improved outcomes for customers over that of 24. For example, if lower-cost producers do not enter. New Zealand. The lower market share of Bigpond is not at all indicative that its owner, Telstra, is suffering financially under the regulatory regime, at least in the short run. Telstra is one of few suppliers of an upstream infrastructure service for which entry is inhibited, and in such circumstances vertical integration is inessential to profitability.

Conclusions

It appears that Australia has reduced infrastructural bypass under the regulatory regime and weakened (potential) facilities competition. 26 The New Zealand case study of Enright suggests that the drive to bypass existing infrastructure has been key to the success of certain service providers – particularly, Ihug – and to price competition. Indications are that it will also be critical to the competitive threats to telephony in general. Limiting competition in upstream infrastructure to promote much entry in the downstream market does not appear to have benefited Australian consumers of ISP services over their New Zealand counterparts. An avowed reason for regulating access is to reduce bypass where it inefficiently duplicates infrastructure.

However, where competition is feasible, as it is in much of telecommunications networks, some duplication bypass is efficient to establish potential and actual facilities competition that flows through to increased usage and lower prices. 28 The extent to which regulation can duplicate competition as well as reduce duplication is one of a number of critical issues in the optimal design of a regulatory structure. Where final prices are lower, usage is higher and supplying firms are financially successful under open competition as opposed to access regulation, as appears to be the case in the Australian and New Zealand ISP markets, inefficiencies of any duplication are outweighed by the performance of competition. It is an important topic that deserves continuing research.

25. ATRRA argue that Telstra is adversely affected in certain services. For a discussion of the vertical integration issue see pp 575–77 and the references

cited therein, of Kai-Uwe Kuhn and Xavier Vives, ' Excess entry, vertical integration, and welfare', RAND Journal of Economics, Vol 30, No 4, 1999, pp 575-603, and for telecommunications, Daniel F. Spulber, Yale Journal of Regulation, Vol 12, 1995, pp 25-67. 26. See ATRRA, p 45 and p 53. 27. The Australian system has regulatory costs that the New Zealand system does not possess, and these would have to be included in any full cost-benefit comparison. 28. Also, in telecommunications the technological change in networks and huge volume growth has been such as to require additions to network capacities and there is no reason why such additions should be restricted to the incumbent or should not be installed on a competitive basis.