



Regional telecommunications: an overview

Debate over unequal access to information and communication technology services between regional and metropolitan Australia often focuses on infrastructure. However, as this Research Note explains, infrastructure is just one aspect of a wider host of problems that reinforces the 'digital divide'.

The basic economic argument

Telecommunications are the backbone of the modern economy. For regional economies, telecommunications can potentially reduce the obstacles of distance and time, contributing to economic efficiency and, through indirect effects on education, health and social services, can also increase productivity.

Regional telecommunications, however, are beset by fundamental economic problems. Effectively, there is no competitive market. Demand remains constrained by lower population densities, limits on technological diffusion, and the absence of high-intensity users. The cost of supply is high due to regulatory constraints as well as distances to be covered in infrastructure, service and repairs. In most advanced economies, universal service schemes (see below) are required to ensure regional access to basic telecommunications services is maintained.

Infrastructure

In Australia, infrastructure dominates public debate over regional telecommunications. This is due to the historical importance of infrastructure in previous debates, as well as its tangible and highly visible nature.

Infrastructure also visibly illustrates the basic problems of regional telecommunications. The cost to roll out fibre optic cable or wireless relay towers increases with distance from metropolitan centres. At the same time, returns on infrastructure investments decrease as the concentration of potential users decrease further away from regional centres. The fact that Australia has lower rural population densities than other comparable countries such as Canada and the United States intensifies these pressures.¹

Regional telecommunications in Australia shares with comparable advanced economies, such as the United States and Canada, not only the basic problem of infrastructure development, but also similar problems with regional demographics, deployment and diffusion, and local coordination.

Regional demographics

Regional demographics affect the demand for telecommunications services. Firstly, and most significantly, is the so-called 'sponge city effect'—the

trend of inhabitants moving from smaller outlying regions into larger regional centres. As an example, between 1976 and 1997, the population of Dubbo rose 53 per cent whereas the populations of all municipalities (except Mudgee) within 100kms of Dubbo stagnated or declined.² The 'sponge city effect' is repeated across numerous regions in Australia. For a telecommunications carrier, this makes the supply of services to outlying areas even less attractive, given that such markets are in steady decline. It makes greater economic sense for a telecommunications carrier to serve sponge cities that have growth potential as the concentration of users increase.

Secondly, demand is affected by age. Outlying regions have a lower ratio of population in the 15–34 age group, members of which have a tendency to seek education and employment opportunities in larger regional centres.³ The same age group is a key target demographic in the uptake of new technologies, advanced telecommunications services amongst them.

Thirdly, demand is affected by education. Outlying regions have lower numbers of people holding post-school educational qualifications, which also affects ability and desire to adapt to new technologies.⁴

Deployment and diffusion

The deployment of advanced telecommunications infrastructure without addressing limitations on the diffusion, or usage of advanced telecommunications, can lead to further problems. Examples from the United States and Canada show that after the deployment of infrastructure, the diffusion of services can remain agonizingly slow. This has led to situations where communities fail to take full advantage or even use technologies available to them.⁵

Diffusion can be slow for a variety of reasons, including regional demographics. In the United States, critics have attacked government schemes for the deployment of advanced telecommunications services to regional areas as being narrowly conceived, neglecting the unique social, economic and political forces of rural communities that are distinct from metropolitan centres.⁶ Ideally, schemes that promote the deployment of advanced infrastructure should be coupled with locally tailored solutions, such as education and vocational training, to ensure diffusion rapidly follows.

Local participation

A weakness that has been repeated in regional telecommunications policy across numerous countries is the inability to coordinate local participation in telecommunications policy planning. Telecommunications

development in one region may face totally different barriers to other regions. Different regional communities have unique existing infrastructures that may or may not support upgrades; regional demographics, which may or may not affect demand; and geography, which may affect the types of infrastructure that can be deployed.

Local participation has also proven to be an economically viable solution to the problems facing regional telecommunications development. New Zealand is currently implementing its Digital Strategy, which will include NZ\$24 million seed funding for fibre optic rollout, to be undertaken in partnership with regional businesses and community groups. The criteria for funding includes the financial commitment of partners, demonstration of community needs and benefits, ability to implement and deliver, demonstration of appropriate technology for the purpose and adherence to open access principles.

Canadian telecommunications policy has also emphasised local participation. A central aim of the 'Smart Communities' program, launched in 1999, is the enablement of local communities, particularly in the more remote far North. The program includes community toolkits to train communities in the development, monitoring and implementation of community initiatives such as broadband access. One component of the program, the Broadband Marketplace, brings together communities to share experiences, seek advice and look for tenders. The Marketplace also allows telecommunications service providers to profile their capabilities, provide advice and submit tenders. Canada, despite the disadvantage of vast distances, was ranked 5th in broadband penetration by the Organization for Economic Cooperation and Development in December 2004. Australia was ranked 21st.⁷

Local participation in regional telecommunications also generates significant non-economic benefits, including the accumulation of social capital.⁸ Social capital could be expected to be high in rural communities that face challenges of drought, fire or flood. However, the shared experiences of leadership, interaction and coordination necessary to ensure local participation in regional telecommunications can add to existing social capital.

Universal service

Universal service is a regulatory measure to ensure that access to basic telecommunications services is available across different geographic regions, at similar prices. In most cases this means ensuring that access to basic services in outer regional areas costs the same as it does in urban areas, despite the fact that the cost of supply outweighs the potential revenue.

What actually comprises 'universal service' remains controversial. The current Universal Service Obligation (USO) in Australia requires regional users to have access to a minimum set of services, including line rental, operator assistance, directory assistance and emergency services assistance. Critics argue that regulating the provision of such basic services in an advanced economy such as Australia has little meaning. Rather, universal service should focus on ensuring that more advanced telecommunications services, such as high speed broadband internet, are accessible in the regions. In

Australia, the Digital Data Service Obligations (DDSO) requires that all users be able to access services with a download speed of 64 kilobits per second (kbps). Definitions of what constitutes broadband generally range from 256kbps to 10 Megabits per second (Mbps), depending on subjectivity and purpose of the definition.⁹

In 2002 the OECD recommended that governments exercise caution in considering the inclusion of broadband in universal service obligations until a clearer picture of how technology and competition could address issues of supply in rural and regional areas.¹⁰ A subsequent report in 2004 found that in many OECD member economies market forces were generating innovative broadband services in response to growing demand; access prices in rural areas were in certain cases lower than in urban areas; and that competition in regional and rural broadband access provision was emerging. The report concluded that governments should give the rural and regional broadband access market time to develop and continue to facilitate competition.¹¹

1. Productivity Commission, 'International benchmarking of remote, rural and urban telecommunications services', *Research Report*, July 2001.
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4. *ibid*, p. 35.
5. Tom Rowley, 'Rural telecommunications: why your community isn't connected and what you can do about it', *TVA Rural Studies Staff Paper* 99, 1 January 1999.
6. Arturo Macias, 'Statement on the matter of S2281 of the VOIP Regulatory Freedom Act of 2004', United States Senate Committee on Commerce, Science and Transportation, 16 June 2004.
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