2. S.A. Mian, 'Assessing value-added contributions of university technology business incubators to tenant firms', *Research Policy 25*, 3, 1996, pp. 325–335.

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Universal Service Obligations in a Competitive Telecommunications Environment

Committee on Information, Computer and Communications Policy (ICCP) Organisation for Economic Co-operation and Development (OECD)

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As more and more countries open up their telecommunications markets to competition, the definition of universal service and how to quantify this service (that is to share the costs among competing telecommunications operators) have become increasingly significant factors in their regulatory regimes. In a competitive market place the concept of universal service is a referential framework in the debate over whether improvements in telecommunication services are best achieved through intervention by the central government or through competition. Now it is claimed, that in an era of rapidly changing technology, competition is an effective way of not only delivering universal service obligations, but that this can be done at a lower price with greater service diversity—including further network expansion. Not surprisingly given the OECD's previous publications on opening up monopoly telecommunications operators to multi-operator competition, this is the starting point of *Universal Service Obligations in a Competitive Telecommunications Environment*, report number 38 in the ICCP series.

The report was prepared by Patrick Xavier (Swinburne University of Technology, Australia) with Martin Cave (Brunel University, UK) contributing Chapter V on Costing Universal Service Obligations. Less concerned with debating the appropriateness of universal service objectives in member countries, the authors of the report had the aim of assisting member states '... in the task of developing such policies and programmes for the provision and funding of universal service'. In attempting to realise this aim the authors have provided a framework and a set of principles for (re)considering the identification, costing, funding, reporting and monitoring of universal service. The motive for doing this, it is claimed, is that OECD countries will need to forge common principles concerning universal service and related programmes in order to develop a 'more broadly consistent approach to universal service'; an important factor given the 'likelihood of increasing globalization of telecommunication markets' (p. 16).

This does not mean that OECD member states are expected to adopt a uniform position on universal service, for in a world of multifaceted variety there can be no single strategy for implementing universal service obligations. However, adopting a consistent approach to such obligations, we are told, would enable member states to accommodate changes in telecommunications technologies and at the same time recognise each other's unique characteristics in which 'specific objectives, targets, policies and pace of implementation ... might vary from country to country according to national circumstances and priorities' (p. 16).

Following a short introductory chapter extolling the virtues of competition (Chapter I) the remaining five chapters cover the concept and rationale of universal service

(Chapter II), the impact of competition on universal service obligations (Chapter III), meeting universal service obligations in a competitive environment (Chapter IV), costing universal service obligations (Chapter V), and conclusions and recommendations (Chapter VI). Specifically, Chapter II covers the need for a clear definition and conceptual view of universal service disaggregated into clear categories including: universal geographic access; universal affordable access: universal service quality; universal access for the disabled; and tariffs for universal service. This chapter also raises the hoary issue on how new telecommunication services should be treated in terms of the definition of universal service and the consequential flow-on implications for small businesses and residential subscribers.

Chapter III addresses and rebuts three main concerns about the effects of telecommunications liberalisation on universal service: 1. Competition will lead to prices which are cost-based; 2. Competition may tend to re-orientate the focus of public telecommunications operators away from meeting universal service and toward competing in other high revenue growth telecommunications markets; 3. Competition weakens the financial capability of the public operator depriving the operator of funds through which it can meet its universal service obligations. In addition, the chapter then considers how competition might impact on a number of factors which affect universal service: connection charges; rental charges; deposit requirements; quality of service; disconnection; assistance to the disabled; and efforts to address voluntary non-subscriber to telephone services factors. The chapter concludes by saying, that while in some respects competition could benefit universal service in other respects competition could accentuate telecommunication access and usage problems for rural, low income and disabled groups.

Chapter IV picks up on the factors identified in the previous chapter and suggests solutions which are compatible with both universal service obligations and competition. This is done by developing criteria for determining the merits of the different methods (e.g., transparency, equity, efficiency, cost effectiveness, flexibility, incentive compatibility with a competitive environment, predictability, accountability, and the cost of implementation and administration), then by identifying alternative methods for delivering universal service (cross-subsidisation, direct specifically-targeted subsidies, operator funding, levy on users), and lastly by promoting an example which shares the cost of providing universal service in a competitive environment.

While public discourse on the issue of who in a nation state ought to bear the responsibility and cost of providing a basic level of universal service (whatever that might mean today) is still largely a contentious matter, in Chapter V it is assumed that costs associated with universal service obligations will have to be calculated so they can be shared among the interested parties. It is argued here that costs should be assessed not through the traditional cross-subsidisation method, but through more cost-effective methods such as the 'fully distributed' or 'avoidable' approaches. These derived costs may then be passed on to suppliers and/or users for no other reason than to determine a telecommunication operators economic and commercial performance, although costing becomes even more important when they are to be shared (i.e. among competitors). Thus, it is concluded that the allocation of universal service costs is likely to have a major impact on the development of competition: in the short term this allocation to an incumbent 'may serve as a weapon for the management of competition and promotion of entry' while in the long term 'competition among established operators is likely to imply some form of cost sharing' (p. 129).

The final chapter presents the primary conclusion of the study, namely that 'competition and the achievement of universal service objectives are not mutually

exclusive nor necessarily in conflict'. It is argued here that competition rather than monopoly may still be the most appropriate mechanism 'to ensure the maintenance—or expansion—of universal objectives and targets'. Thus, while some aspects of competition may hinder the 'affordability' of the telephone service this should not be taken to indicate that competition is bad: rather the reverse. Nevertheless, it is suggested that in pursuing universal service objectives in a competitive environment it will be necessary to look for funds not from cross-subsidisation, but from 'taxation revenues, levies on telecommunications users or from operators'. This is in harmony with a theme that permeates the whole report summed up concisely in the following sentence: 'It is important that support mechanisms are carefully structured and narrowly targeted so as not to impede pro-competition policies' (p. 6). It remains for the last section of the report to provide recommendations on how this end might be achieved.

Given the OECD position already extant in previous publications on promoting competition in telecommunication services it is not surprising to find there is no deviation from the liberalisation in telecommunications theme in this report. However. it is surprising to find that while the authors have made extensive use of some prominent OECD case studies, other significant ones have been all but omitted in spite of the reader being told otherwise. For example, in Chapter I it is stated that the evidence for arguments in Chapter III includes the experiences of the US, UK, Japan, New Zealand and Australia.

It follows then that in Chapter III one could expect to see a range of illustrations from these five countries in particular. Yet, while acknowledging in the Introduction to Chapter III that only six countries have (as at 1995) implemented competitive practices in voice communications 'either through service or through both service and infrastructure' [namely New Zealand, Japan, the UK, the US (partly), Australia and Sweden (an embryonic stage of development)], evidence on the impact of competition on universal service obligations comes largely from the UK and Australia. There is no evidence from the experiences of either Japan or New Zealand in Chapter III, although Japan surfaces briefly at the end and New Zealand is mentioned in one sentence in Chapter IV.

This is a distorting omission in the case of New Zealand given the unique arrangements the New Zealand government made over what is called the Kiwi Share (i.e., recognition and continuation of the universal service obligations) when it liberalised the telecommunications and privatised Telecom New Zealand. Furthermore, one would have thought that this country's experiences arising out of what is widely recognised as the most liberalised telecommunications environment in the world would have provided other OECD countries with at least some 'food for thought'.

Of especial interest would be the way the New Zealand government dealt with regulatory issues in the absence of a regulatory body such as the US Federal Communications Commission (FCC). Its 'light-handed' (hands-off) approach to regulatory issues, and the frequent use of the law courts to settle disputes (e.g., interconnection and number portability) have implications for universal services in telecommunications. One issue that has been unresolved in the New Zealand experience so far is the contentious matter of what happens if there is a need to redefine universal service obligations when these are enshrined in a telecommunications operator's articles of sale?

While the report is generally well-structured and the information, arguments, and guidelines well presented, from a users standpoint it would have benefited from the inclusion of an index and a glossary of technical terms. In sum, however, but given the authors' selective use of case studies, and the OECD's established ideological orientation, the report is well written and will be a useful reference for those interested coming to

terms with the issues and the procedures underpinning costing universal services in a competitive telecommunications environment.

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Ecology and Empire: Environmental History of Settler Societies

Tom Griffiths & Libby Robin (Eds)

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Titles of books have to both indicate the topic and entice the reader. *Ecology and Empire* certainly enticed me and I had even hoped, but been unable, to attend the 1996 conference in London at which the papers in this volume were first presented. Tom Griffiths and Libby Robin, then at the Sir Robert Menzies Centre for Australian Studies (part of the Institute for Commonwealth Studies in the University of London), organised the conference which attracted a notable array of people working in environmental history and related fields to discuss the issues of the title in relation to settler societies generally and Australia in particular. The setting, in the very core of the old British Empire, and the topic seemed particularly appropriate given current alarms about the transformation of the global environment and the attempts to find sustainable modes for future development. The rising field of environmental history offers one of the paths towards some understanding of the complex and changing relationships between the human and non-human societies involved, an understanding which is sorely needed if the rhetoric of sustainability is to be translated into effective policies.

The topic flows from the confluence of four streams of ideas and scholarship which until comparatively recently have been considered separately. First in the title, ecology, springs from science and initially, as Robin points out in her chapter, from botany with the British Ecological Society being formed in 1913. Now it takes a systems approach being concerned with the flows of energy, water and nutrients and the interdependencies of species. Its scale has expanded from its early concerns with detailed studies of particular sites to broader studies of regions or even of the globe in Lovelock's romanticised 'Gaia hypothesis'[1] or in recent forecasts of the effects of climate change on ecosystem boundaries and species survival. Second in the title, empire, springs originally from political science and political economy over much the same period (see Brewer[2] for a masterly overview), but the cultural dimensions are receiving much greater attention in the current resurgence of interest in the imperial experience (e.g., Keay[3]; James[4]). In this, Edward Said's stimulating *Culture and Imperialism*[5] emphasises that imperialism has to be understood in terms of the 'overlapping territories, intertwined histories' of colonisers and colonised. Inexplicably, this work seems to have been missed by the authors in *Ecology and Empire*, although Said's earlier *Orientalism* is mentioned.

The two streams of the sub-title are no less difficult. Environmental history is an emerging but uneasy field which essays to study the relationships between human and non-human societies. Although a glance at the bibliography in *Ecology and Empire* shows it to be flourishing in Australia, the considerable difficulties of studying across the disciplines of life and social sciences and of history are almost always present; *Ecology and Empire* is no exception, as discussed later. The fourth stream of settler societies carries its load of literature for each such country—Australia, South Africa, the US and Mexico—