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Anatomy of a public-private partnership: Hold-up and regulatory commitment in Ultrafast Broadband

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ABSTRACT

In recent years, the preference for purely private funding and ownership of telecommunications networks has given way to a 'new wisdom' that some form of public funding is now likely necessary if faster and more capacious next generation access (NGA) networks are to be constructed in a timely fashion for the majority of the population. Policy-makers are charged with deciding how that public investment will take place. One approach is via Public-Private Partnerships (PPPs), where public and private actors collaborate in UFB (Ultrafast Fibre Broadband) investment, construction and operation. However, the body of analysis of PPPs in NGA networks to guide policy-makers is scant.

By using the concept of regulatory commitment, the paper compares the experiences gained in a hold-up situation in PPPs in other infrastructures (e.g. roading) with the UFB context. A case study of New Zealand's Ultrafast Fibre Broadband Initiative is used to draw new insights for government purchasers and regulatory agencies. In comparing the different forms of PPPs, the paper shows that UFB PPPs reverse the typical direction of financing and ownership observed in roading PPPs. Financing and asset ownership are separated in UFB PPPs, increasing the potential for misalignment of incentives and the likelihood that the public party can use its legislative powers to alter regulatory settings after the PPP contract is signed, and thereby hold up the private party once existing network assets are sunk. Whilst the government instigating the PPP may not be inclined to act opportunistically, a successive government facing different political priorities does not face the same incentives. To the extent that the private party can anticipate this risk, it should structure the initial agreement to ensure that the public party is penalised if such an event occurs (i.e. an automatic right to favourable renegotiation or payment of compensation). Such terms will discourage opportunism, so that the project benefits from time-consistent alignment of incentives and objectives.

1. Introduction and motivation

From the early 1980s to around 2010, the prevailing wisdom in telecommunications policy was that the private sector was best-placed to own and fund investment in enhanced and new networks (OECD, 2007). However, growing realisation that substantial sums would be required to build very high capacity NGA networks, uncertainties about how demand for NGA connections would

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materialise, and concerns that existing regulatory arrangements were failing to provide appropriate investment incentives have led to a renewed interest in the role of governments (national, state and municipal) as part- or full-funders[1] of new telecommunications infrastructure (Cave & Hatta, 2009; Gómez-Barroso & Feijóo, 2010; Cave & Martin, 2010; Ragoobar, Whalley & Halle, 2011; Beltrán & Van der Wee, 2014; Rendon Schneir & Xiong, 2016). Cave and Martin (2010, p505) observe: "under pressure from the credit crunch, the earlier view has virtually reversed itself. Some form of public funding is now seen as necessary and appropriate almost everywhere, not simply as an aberrant feature of Asian economies".

If governments will inevitably become investors in NGA networks, determining how that investment will take place becomes a relevant policy issue. A fundamental choice exists between returning to the pre-1980s arrangements where a government entity designs, owns, builds and operates the network (albeit procuring some elements from the private sector during construction), and adopting a more nuanced approach where public and private actors collaborate in network investment, construction and operation (Shleifer, 1998; Hodge & Greve, 2007; Gómez-Barroso & Feijóo, 2010, Nucciarelli et al., 2013).

The former approach is characterised by Australia's fully government-funded and owned NBN project[2] to deploy a fibre-to-the-home (FTTH) network to 93% of residences, supplemented by satellite and wireless connections to the remainder (Beltrán, 2013; Given, 2010; Howell, 2012). Whilst the ambitious project has been downscaled to a more modest 'Mixed Technology Model' (MTM), the government still controls project design and owns and operates the fibre network commissioned by it. By international standards this extent of government control and ownership is exceptional. For a variety of reasons, including budgetary limitations and avoiding public crowding-out of private sector investment and competition, public-private partnerships (PPPs, often referred to as public-private initiatives - PPIs) are the preferred approach in the vast majority of cases (Falch & Henten, 2008; Nucciarelli, Sadowski, & Achard, 2010; Ragoobar, Whalley & Halle, 2011; Sadowski, Nucciarelli, & de Rooij, 2009). This approach is exemplified by New Zealand's Ultra-Fast Broadband Initiative (UFBI), where the government has partnered with four firms using two distinct arrangements to fund around one third to one quarter of the cost of building an FTTH network to around 75% of the population by 2018 (Sadowski, Howell, & Nucciarelli, 2013) (subsequently extended to 85% of the population by 2024).

Despite an expressed policy preference for PPPs, so far there has been little formal analysis to guide policy-makers seeking to use the instrument to fund NGA networks. In part, this is because most projects are only in their early stages, so it is possibly too soon to identify patterns peculiar to investments in NGA networks. Furthermore, comparison is complicated by each project being characterised by the specific objectives of its government sponsors,[3] their different scopes (national, regional and local) and the wide range of institutional arrangements under which they have been undertaken. Nonetheless, the body of analysis of PPPs applied in the development of other infrastructures can be used to provide insights to guide the design, implementation and analysis of investments in NGA networks. Although "the economics of PPPs is still imperfectly understood, (as) practice has run ahead of theory" (Engel, Fischer, & Galetovic, 2013, p. 84), it provides a logical foundation for thinking about the use of the instrument for investments in NGA networks – where it is also noted that "the stampede towards public funding … has outstripped much analysis (Cave & Martin, 2010, p. 506).

Roading PPPs in particular may be instructive for policy-makers considering investments in NGA networks, for at least five reasons. First, roading projects were amongst the first PPPs to be undertaken and analysed, so consequently the body of economic analysis available to be drawn upon is both larger and more advanced than that of other infrastructures. Second, both are considered important facilitators of economic growth, but realising it is complicated by cost structures exhibiting very high levels of fixed and sunk costs.[4] Third, both form part of transport networks where third parties have considerable autonomy over how and when they manage the movement of their cargoes over them. Fourth, future demand for their capacity and other qualities is notoriously difficult to predict in advance, given their long life and the potential for technological advances in the vehicles used to transport cargoes using them during both the PPP project and infrastructure life-spans. And fifth, their use is often influenced by government regulations and distributional objectives (e.g. safety, universal service). Previous research on public investment in very high capacity NGA networks has mostly focused on different types of PPP investment models (CEU, 2014; NTIA, 2015), to lesser extent on changes in the mechanisms of control and ownership of very high capacity NGA networks during their implementation. In comparing roading PPPs with public investment driven PPPs in NGA networks, the focus of this paper is on the shift of ownership and control due to hold up problems during the development of NGA networks.

This paper addresses the comparative lack of analysis of PPPs in NGA networks by applying the learnings from classic (notably roading) PPPs to the circumstances of a particular group of UFB PPPs – the New Zealand UFBI agreements – from their instigation in 2008 through to the current point in time, by way of a case study. Particular emphasis is given to the approaches taken initially to address matters of ownership and risk allocation during contract negotiation (addressed in Sadowski et al., 2013), as these have been demonstrated to be particular issues in roading PPPs. The analysis suggests some major differences arise from a different locus of ownership of the PPP infrastructure and the effects of competition and regulation that pose very different challenges for the design of

[1] Whilst government engagement can span all or any of the roles of developer, user, rule-maker and financier (Gillett, Lehr, & Osorio, 2004), the focus of this paper is on its role as financier.

[2] Whilst initially proposed as a PPP with mixed public and private shareholding (Falch & Henten, 2010), NBN Co will be fully government-owned at least for the duration of its construction, as the Implementation Study prepared after the initial proposal was released indicated that the likely rate of return was insufficient to support private investment (Given, 2010).

[3] Cave and Martin (2010) suggest interventions occur to promote equity amongst citizens, as a matter of industrial policy to address market and regulatory failures and as an economic stimulus given global and national macroeconomic circumstances.

[4] This contrasts to, for example hospitals, where the proportion of sunk costs is lower, due to secondary markets existing for specialised equipment and the ability to repurpose buildings and other facilities (e.g. carparking) should the project face financial difficulties.