FROM FUTILITY TO UTILITY – RECENT DEVELOPMENTS IN FIXED LINE ACCESS PRICING

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Recent developments in Australia have seen the telecommunications regulator, the Australian Competition and Consumer Commission (ACCC), propose to step away from the use of hypothetical cost models to set access prices for Telstra's fixed line network, and move towards a 'utility style' framework based on the recovery of historically-incurred costs. The ACCC has been bolstered by a recent decision from the review body, the Australian Competition Tribunal, which cast doubt on the adequacy of Telstra's modelling of hypothetical costs. The implications of the shift are profound for Telstra, but could also be significant for other regulated entities including mobile operators and the new national broadband company NBN Co.

INTRODUCTION

Attention in Australian media and policy circles is very much focused on the National Broadband Network. However, quietly in the background there have been regulatory developments that are likely to have an equally meaningful – but probably more short-term – effect on Telstra, access seekers and end-users. The developments relate to the way that the ACCC sets prices for accessing Telstra's existing copper network. A combination of new legislation, giving the ACCC new powers under the (renamed) *Competition and Consumer Law Act 2010,* and a re-evaluation of the principles by which these prices have been set, is likely to result in a comprehensive overhaul of existing regulatory policies.

This paper has three aims. The first is to provide some (post 1997) historical context and narrative to access price setting for fixed line telecommunications in Australia. The second is to explore the underlying reasons that have contributed to the change in access pricing approach. The third is to consider some possible implications of the change; not just for fixed-line services, but for other services that the ACCC regulates, or may in future regulate.

1997 AMBITIONS

To understand why the ACCC is re-visiting its approach to access pricing, it is helpful to step back to 1997.[1] At this time, the ACCC released its first set of pricing principles for telecommunications services ('1997 Guide'). The 1997 Guide was issued shortly after the introduction of open entry into the telecommunications sector and the commencement of the telecommunications access regime. It laid the foundations for the ACCC's approach to pricing telecommunications access services.

At the time, there was much optimism about the prospects of 'full' facilities-based competition between fixed access networks; that is, duplication of Telstra's copper network. These expectations had been heightened by Optus's – ultimately ill-fated – investments in a

hybrid fibre-coaxial network. As will become clear, these expectations were important to the choice of pricing methodology.

THE REGULATORY CHALLENGE AND THE PROMINENT ROLE OF TSLRIC

The Part XIC access regime introduced in 1997 was to apply to 'declared' services; essentially, those services which had monopoly or bottleneck characteristics. In the first instance, prices for these services were to be negotiated between access providers and access seekers. When the ACCC was required to intervene – for example, when considering whether to approve an access undertaking by an access provider, or to issue a final determination in an access dispute – it had to take into account certain legislative criteria, including:

The long-term interests of end-users (LTIE), comprising:

- Promotion of competition in markets for relevant services
- Any-to-any connectivity
- Economically efficient use of and investment in infrastructure
- The legitimate business interests of the access provider
- The interests of access seekers
- The direct costs of providing access[2]
- The economically efficient operation of a network, service or facility.

In setting access prices to meet these criteria, the ACCC faced two difficulties.

The first is that no one access price can best meet each of the criteria and, therefore, trade-offs between them will be inevitable.[3] A regulator would want to ensure that prices are high enough to provide a return sufficient to maintain and invest in the network, but not so high as to allow returns on imprudent investments.

A second difficulty is that all regulators have imperfect information regarding the factors needed to establish access prices that best meet the objectives and criteria. That is, there will be an information asymmetry between the regulator and regulated firm. The regulated firm will always know more than regulator about its:

- costs and demand for its services; and
- actions, particularly its ability to reduce costs.[4]

A regulated firm commonly has little or no incentive to reveal this information to the regulator. Rather, the firm would like to convince the regulator that it faces high costs and low demand, so that the regulator will then set high prices for the services it provides; thereby increasing the regulated firm's profits. The conventional regulatory approach to addressing this incentive problem is to break the link between actual costs and prices, and, where possible, to provide firms with incentive to reveal accurate information about its costs (Laffont & Tirole 2000). A regulator can do this by allowing the regulated firm to retain some profits from its cost-reducing efforts: for example, by setting a cost forecast and allowing the regulated firm to keep any profit if costs are less than forecast, the regulator may gain valuable information about the true level of costs when setting prices for the next regulatory period.

In selecting an access pricing approach for fixed line services, the ACCC had to balance these various considerations. The decision it made was that for 'mature' services, access prices should be no more than the total-service long-run incremental cost (TSLRIC) of providing the relevant access services (ACCC 1997).[5]

MAKING THE ACCESS PRICING TRADE-OFFS

TSLRIC is best understood by explaining its three key components:

- The 'total service' (TS) refers to the production of an entire service, which includes both the access service supplied to access seekers and the access provider's equivalent self-supplied service. For example, the total service in the supply of the unbundled local loops supplied to access seekers also includes the local loops that Telstra, as the access provider, uses itself. This enables both parties to benefit equally from any economies of scale or scope in providing that service.
- 'Long run' (LR) means that all factors of production (capital cost, labour and materials) are able to be varied and form part of the cost increment (or 'incremental cost' as described below).
- 'Incremental cost' (IC) is the additional costs to the access provider of producing the total service compared to not producing it at all.

To calculate the unit costs (and price) of supplying the total service, the incremental cost is annualised and divided by the total annual service units that are demanded. This means that TSLRIC leads to prices that are based on the average costs of providing a total service, not marginal costs of supplying additional units of output.

The ACCC also provided some further guidance to on how it proposed to implement TSLRIC in its 1997 Guide.

The first point was that TSLRIC was to be estimated using forward-looking replacement costs.. Estimation of TSLRIC-based prices using forward-looking replacement costs assumes that a network is built 'as new' at the start of the price-setting period.[6] This meant that, unlike in other utility industries, the depreciated value of Telstra's network did not have to be estimated, and that there was no clear link between the depreciated value of actual investments and access prices, which were based on the undepreciated TSLRIC-based replacement cost valuation.

The second point was that the costs should be those incurred in providing services using best-in-use commercially available technology and production processes. In other words, some optimisation was to be applied to ensure that TSLRIC would be an estimate of the economically efficient cost of supplying the access service. The qualification is that available efficiencies have been limited to take account of the existing network design, particularly with respect to the location of exchange nodes in the fixed network (ACCC 1997, 36-38). This is referred to as a 'scorched node' approach to network optimisation, which contrasts with a 'scorched earth' approach where no such constraints on the location or number of nodes is assumed.

A key reason for adopting optimised replacement costs was that the ACCC originally thought that Telstra's historic costs of building its network may have been inflated above efficient levels, and that setting access prices using these costs could encourage inefficient bypass decisions by access seekers – building when it would be more efficient to buy access. In practice, this assumption has proved incorrect, with modelling of the copper fixed line access network now commonly indicating increasing replacement costs for the network as a whole.[7]

The ACCC has also allowed inclusion of indirect costs (such as corporate overhead costs) that would be incurred by an efficient wholesale firm. This has been designated by the addition of the term '+' to form the acronym TSLRIC+.[8]

We can therefore see how the ACCC, in choosing a TSLRIC methodology with the specific implementation details described, made the necessary trade-offs:

- the TSLRIC approach was to allow for full cost recovery (albeit of a hypothetical efficient network); not just recovery of marginal or incremental costs of a particular service.

- by allowing recovery of the optimised replacement costs of the fixed network, and not actual costs, there would be incentives for access providers to produce efficiently; but optimisation would be curtailed to reflect more commercially-feasible efficiencies.

THE INITIAL WAVE OF SUPPORT

The ACCC received support (either directly or by implication) for TSLRIC from a number of sources, including the Australian Competition Tribunal (Tribunal), international regulators and other industry sectors.

The Tribunal has reviewed a number of the ACCC's decisions where TSLRIC pricing has been as issue. In 2004, the Tribunal strongly endorsed its use, holding that:

> …in our view, it would generally not be in the LTIE to depart from TSLRIC pricing where access is regulated. Accordingly, where an access regime requires, or creates an unacceptable risk, of non-TSLRIC pricing, the Tribunal considers that such a regime is unlikely to encourage the efficient use of, and investment in, infrastructure. (Tribunal 2004a)

There was also a considerable degree of support for a long-run incremental costing approach in overseas jurisdictions, including the United States, Europe and New Zealand:

- In the United States, the Federal Communications Commission (FCC) required State utility commissions to price local access services on the basis of total element long run incremental costs (TELRIC). This involved pricing individual network elements (such as switches, transport and loops) rather than access services, so an access seeker could then aggregate them to deliver retail services. Otherwise, the application using forward-looking costs and the existing network nodes was virtually identical to TSLRIC as applied in Australia. The FCC's TELRIC methodology, first introduced in 1996, was subject to legal challenge by incumbent local exchange carriers. While initially successful at the US Court of Appeals, the challenge to TELRIC was finally rejected by the US Supreme Court in 2002 (*Verizon et. al. v FCC* 2002). A majority opinion found that the FCC was not acting unreasonably in choosing an optimised, forward looking costing approach.
- The majority of Western European incumbent telecoms operators had their interconnect prices determined on the basis of a long-run incremental cost (LRIC) methodology. This was driven in large part from the European Commission's 1997 directive on 'cost orientation' for operators with significant market power (SMP) and subsequent recommendation on the use of forward looking LRIC. The LRIC methodology with allowance for common costs was in practice close to identical to TSLRIC (European Commission 1998).
- The telecommunications specific access regime in New Zealand, under the *Telecommunications Act 2001*, specifically set TSLRIC pricing principles for a number of regulated services (Commerce Commission 2009)

TSLRIC also survived relatively unscathed through the Productivity Commission's 2001 review of Telecommunications Competition Regulation (Productivity Commission 2001). Although extensive submissions were made and an appendix was devoted to exploring the arguments for and against TSLRIC, the Productivity Commission criticised the ACCC for pricing below long-run efficient costs but did not explicitly object to the continued use of TSLRIC (Productivity Commission 2001, 398).

Arguably, the ACCC's approach in telecommunications was also consistent with its approach to the regulation of other industries like electricity and gas transmission networks. In particular, the use of optimised, replacement cost asset valuations (as used in TSLRIC) was endorsed for these industries. In a 1999 statement on the regulation of electricity transmission networks, the ACCC suggested that an optimised replacement cost asset valuation approach had significant advantages on economic efficiency grounds (ACCC 1999).

CRACKS IN THE FAÇADE?

By the middle of the last decade, TSLRIC had received endorsement from a wide range of parties. Nonetheless, some nagging doubts remained about its utility. Conceptually, these doubts included a concern about whether TSLRIC was necessary to encourage efficient 'build or buy' decisions by access seekers, and whether, because it implied ongoing optimisation of Telstra's copper network, it might prove to be a form of regulatory expropriation. [9] However, and perhaps more importantly, doubts were also being expressed because there was little success in actually agreeing a set of modelling principles, and developing a predictable and stable time path of access prices.

In part, the more practical problems were exacerbated by fundamental flaws in the access regime itself. Part XIC at the time provided no formal power for the ACCC to set prices over a defined period across access seekers, as its role was limited to conducting arbitrations and assessing undertakings. The structure of Part XIC also discouraged certainty, and various minor reforms have been ineffective in reducing disputation between Telstra and access seekers (Department of Broadband, Communications and the Digital Economy 2010). Some of these problems may be resolved with a new set of reforms introduced late in 2010, as discussed later in this paper. Having said that, many of key TSLRIC implementation issues have never been satisfactorily resolved, and this has undoubtedly contributed to its demise.

In the following section, we analyse the two purported comparative strengths of forward-looking TSLRIC methods. Then we comment (to the extent they are separable) on the practical problems with implementing it effectively.

'BUILD OR BUY' INCENTIVES

The ACCC's two primary conceptual bases for using TSLRIC to set access prices were that it would:

1. Encourage efficient 'build or buy' signals for access seekers.
2. Provide appropriate incentives for access providers to be efficient, but also allow for recovery of efficiently-incurred costs, and would therefore not deter new investment (ACCC 1997).

The 'build or buy' motive for using TSLRIC is now recognised as being significantly oversold – if not entirely discredited. The ACCC now accepts that, despite expectations that there was a greater potential for infrastructure-based competition in telecommunications than in other regulated industries, Telstra's copper customer access network was "more of the character of an enduring bottleneck" (ACCC 2009b, 16).

The original 'build or buy' rationale for TSLRIC prices was that inefficient bypass might occur if access seekers compared 'build' costs on the basis of efficient, forward-looking costs with 'buy' costs based on historic costs (ACCC 1997, 29, fn 36). So, an entrant, when faced with an access price based on historic costs that no longer reflect efficient best practice, might inefficiently bypass the incumbent's network (build) when it would in fact be more efficient to buy access. For example, if the access price when based on historic cost was 100, but only 80 when based on efficient replacement costs, then the access seeker might inefficiently enter if its costs were below 100 but above 80.

At face value, this logic seems sound. However, the argument intrinsically rests on a 'contestable market' standard in which sunk costs (those investments which have no value in an alternative use) do not exist.[10] It therefore ignores the role of cost *structure:* most of the incumbent's costs are sunk, while an entrant's costs only become sunk once the decision is actually made to enter. The entrant will need to consider what will happen if it does enter. Prices will not be determined by sunk costs, but by the incumbent's marginal costs of producing a service - because it will be more profitable to sell at this price than to let the entrant make a sale. Therefore, the entrant must be confident that it can recover its sunk capital costs even though the incumbent will price down to its marginal costs. Unless the

incumbent is tightly constrained by other regulations, this seems highly implausible. Therefore the likelihood is that prices will have to be a lot higher than 100 (in the example above) to drive entry, so TSLRIC may in fact be no better at promoting efficient build or buy decisions than historic costs.

A FAIR BET?

The second conceptual issue is whether the TSLRIC approach can allow for recovery of costs that are efficiently incurred, or, more colloquially, whether it could provide a 'fair bet' for Telstra: that when it makes investments, it can expect to recover the costs of the investments. If that is not the case, then the long-term viability of the approach must be questioned, and other access pricing or costing methods should be preferred.[11]

It is difficult to determine whether TSLRIC creates under-investment problems, and, if it does, whether these problems arise from conceptual problems with TSLRIC or just particular implementations of TSLRIC. In highly simplified settings, it is trivial to show that TSLRIC can be consistent with recovery of efficient costs. But, as one moves into the realm of the real world, the treatment of technological progress and asset optimisation creates uncertainty for the access provider about whether even efficient costs can be recovered. Four points can be made in this regard.

First, forward looking pricing concepts such as TSLRIC create uncertainty for both the access provider and access seekers, and, unless the expectations set at the commencement of the preceding regulatory period are exactly realised[12], then the access provider will be subject to windfall gains or losses.

Second, while, of itself, uncertainty is not a desirable feature of a regulatory regime, economists recognise that it can have an important role to play in encouraging efficient behaviour. Recovery of actual costs, regardless of the prudence with which they are incurred, provides minimal incentives for the access provider to be efficient. Risks introduced by the use of forward-looking costs and optimisation can be used to drive efficiency (King 1996).

Third, if TSLRIC is to promote efficient investment, the risks must be symmetric, giving probability of upside to the access provider as well as downside. Many of the risks that change allowable TSLRIC costs over time do appear to be symmetric, so long as the forecasts used are unbiased and sufficiently account for future network optimisation. For example, *foreseen* optimisation, or simply falls in new asset prices, can be accounted for by anticipating these changes in annual capital charges. The risk then borne by the access provider is that the forecast optimisation or decline in prices proves inaccurate. For example, if replacement costs of an asset are forecast to fall by 10% over the next regulatory period, but in fact fall by 20%, then the access provider will not recover the TSLRIC costs specified at the start of the first period. But equally, if replacement costs do not fall at all, then the access provider will over recover (the initially-specified TSLRIC) costs.

Fourth, recent research indicates that there are some reasons to think that forward-looking costing approaches like TSLRIC might not induce efficient investment as well as other costing approaches, as they create costs that are not inherent in other approaches.

Evans and Guthrie argue that because TSLRIC approaches shift risk onto the access provider, the access provider will need higher revenue to break even on new investment (so that net present value equals zero, the minimum condition under which a firm will invest). This extra revenue is required to cover the expected cost of asset under-utilisation in the future, as these costs will be optimised out by the regulator, and to deliver the higher returns needed to compensate for the increased risk from capital price and demand uncertainty (Evans & Guthrie 2005).

Further, Guthrie, Wright and Small find that forward-looking cost rules (like TSLRIC) are dominated by backward-looking cost rules (like historic cost) when the objective is to induce investment, regardless of whether forward-looking costs are rising or falling over time. The intuition behind this result is that where forward-looking costs are rising, allowing recovery of

either backward-looking costs or forward-looking costs induces investment, but backward-looking costs will be lower and therefore deliver lower prices. Conversely, when forward-looking costs are falling, backward-looking rules imply higher prices but do much better at encouraging a firm to invest earlier than it would under a forward-looking cost rule. The authors find the gains from encouraging earlier investment are likely to outweigh the losses from the higher prices (Guthrie et al 2006).

These conceptual concerns should make a regulator wary of the use of forward-looking costing methodologies like TSLRIC to set and re-set access prices over long periods. The potentially superior incentive properties of TSLRIC compared to a costing framework using actual or historical costs would need to be substantial to overcome the inherent disadvantages.

A DIGRESSION ON OTHER ACCESS PRICING APPROACHES

At this point, it is also worth briefly considering the conceptual criticisms of cost-based access pricing (including forms like TSLRIC) that have been raised by economists. Perhaps the best known is that developed by Baumol and Willig – the efficient component pricing rule (ECPR) – and extended by Laffont and Tirole – a global price cap, which incorporates both access and retail services (Baumol & Willig 1994a) (Laffont & Tirole 2000).

The Laffont and Tirole critique of cost-based pricing essentially rests on a basic proposition. If the access provider is a monopoly, but is forced to set cost-based prices in that (upstream) market, then it will want to try and capture some monopoly profits by acquiring market power in the market downstream from the monopoly input. Conversely, if access price regulation allows for access sales to be as profitable as retail sales, then the access provider will be happy to sell on a non-discriminatory basis because this will maximise its profits. The tighter is the upstream price regulation, the more the monopoly will lose and the more it will be worth denying access or somehow raising its rivals' costs.

These are far from theoretical concerns. The Federal Court fined Telstra over $18 million in 2010, on the basis that Telstra had blocked competitors from accessing its local exchanges by telling them that the exchanges were full when they were not (Federal Court 2010).

The ECPR and global price cap access pricing rules address such discrimination concerns by allowing the access provider to make a margin on access sales that is similar to the margins made on retail sales. This reduces or even eliminates the incentive problem inherent in cost-based regulation of access. But each rule creates new problems. The ECPR does not address concerns about excessive returns earned in the (monopoly) supply of access services. A global price cap would allow for normal economic returns overall, but would require regulating both access and retail markets. This does not seem desirable and runs counter to the Hilmer approach of deregulating competitive or potentially competitive market segments (Independent Committee of Inquiry 1993). Neither approach has been seriously contemplated as a universal access pricing solution in telecommunications.

TSLRIC'S INSCRUTABLE IMPLEMENTATION

Estimating TSLRIC requires estimation of a 'modern equivalent asset' that would be built to provide service today and into the future. It is an imaginary cost of an imaginary network, and, that being the case, it can be imagined in different ways.

Perhaps symptomatic of the general lack of agreement about how to implement a TSLRIC approach in Australia is the proliferation of models that have been used to estimate TSLRIC prices. The ACCC has commissioned two of these models (the NERA model and the Analysys model, named after the firms that were hired to construct them), while Telstra has developed three (known as PIE I, PIE II and TEA).

In this paper, I cannot hope to exhaustively analyse the disputes about how to correctly implement a TSLRIC model of the fixed network. Rather, it may be helpful to break down the major implementation problems into three sets of issues.[13]

THE APPROPRIATE MODELLING PERSPECTIVE

It is common ground that TSLRIC attempts to measure the efficient forward-looking costs of supply. But whose supply, and what constraints are assumed to apply to it? As we have seen, the ACCC has preferred models of the incumbent's existing network architecture, rather than that of a new entrant, unconstrained by the incumbent's past decisions. But how far does this extend? In a recent Tribunal decision (Tribunal 2010), the Tribunal rejected the use of Telstra's TEA model on the basis that the 'new entrant' approach to modelling costs that was implied by the model was undermined by the model's use of much of Telstra's existing network architecture.

The Tribunal did not directly address whether this was a difficulty with the scorched node approach itself, or just Telstra's implementation of it, but is hard to see how it is not an attack on the former:

> 231. The TSLRIC+ approach seeks to estimate Telstra's ongoing costs of providing the ULLS. But on the face of it Telstra's ongoing costs have nothing to do with those of a hypothetical new entrant to the market providing the declared service, especially as the TEA Model is premised on a scorched node approach.[14] (Tribunal 2010)

The Tribunal's position here points to the inconsistency between arguing, on the one hand, that the cost of a new network should be modelled to ensure that an access seeker faces the right build or buy decision, and, on the other, arguing that the incumbent's network design decisions should be taken into account because that would be fairer to the incumbent. No single approach can achieve both objectives.

As already noted, the ACCC's position is that what should be modelled is the efficient costs of the incumbent (ACCC 2009c). The trade off made undermines the build/buy incentive for access seekers. If an incumbent does have certain cost advantages deriving from a legacy network, and these are incorporated into the TSLRIC model, then an entrant that is equally-efficient in all other respects will rationally choose to buy access rather than build.

MODEL INPUTS

Disputes about appropriate inputs for costing purposes are, of course, common to all costing approaches. Any approach must make decisions about the way in which capital costs are recovered (asset lives and path of depreciation) and a reasonable rate of return (ordinarily, based on an estimate of an efficient firm's weighted average cost of capital). Needless to say, these have been areas of great controversy between the ACCC and Telstra.[15]

When compared with simpler regulatory approaches based on depreciation of actual costs incurred, the additional burden that TSLRIC modelling imposes is the greater degree of foresight required. Such models require long term forecasts of future asset price changes and assumptions about obsolescence of assets. Although this may be easier for civil works, as labour costs are relatively predictable, for other assets these forecasts and assumptions are highly speculative in an era of rapid technological change.

HOW TO UPDATE THE MODELS

Although setting TSLRIC-based prices for the first time has proved contentious, arguably the greater challenge is how to update the costs and prices.

This has been a particular source of concern for Telstra, and for regular Telstra adviser, Henry Ergas. Ergas has repeatedly criticised the ACCC for introducing 'time inconsistency' by setting a path for (rising) prices at the outset of the regulatory period (2000/2001) that have turned out to be inconsistent with those actually set in subsequent regulatory periods – because prices have not risen in accordance with the price path set in the first TSLRIC model (Ergas 2008a; 2008b; 2009). The ACCC denies these claims, noting that earlier costing

models were less sophisticated, and by arguing that costs have fallen because earlier models simply estimated costs that were too high (ACCC 2007b, para 423).

The Commerce Commission in New Zealand has encountered a similar problem with TSLRIC. It uses a TSLRIC model to estimate the net costs of the telecommunications service obligations (TSO) imposed on Telecom New Zealand. The Commerce Commission found that continuing to optimise Telecom's network over time in annual TSO determinations would be inconsistent with the assumptions made about recovery of depreciation in earlier periods and would likely result in cost under-recovery. It elected to solve this problem by essentially 'locking in' the TSLRIC values and committed to no longer optimising Telecom New Zealand's network by assuming an efficient operator would use new technologies (Commerce Commission 2008).

To summarise, the implementation of TSLRIC is far from straightforward, and has led to considerable argument over the past 10 or so years. Key implementation decisions are still not agreed between the ACCC and Telstra, and even the Tribunal has expressed frustration with the current state of affairs. Indeed, the Tribunal, after being such a strong advocate for TSLRIC, has now expressed serious reservations over the TSLRIC approach (Tribunal 2010):

> Quite separately, the Tribunal notes that the ACCC proposes to examine TSLRIC+ as part of its review of pricing principles. The Tribunal encourages that review and the consideration by the ACCC of alternative pricing regimes, for example whether pricing on the basis of depreciated optimised replacement cost [DORC] might be appropriate.[16]
>
> Alternatively, if TSLRIC+ continues to be preferred, more guidance needs to be given on how it should be implemented[17].

THE NATIONAL BROADBAND NETWORK – A TURNING POINT?

By 2009, the ACCC had developed its own cost model capable of setting TSLRIC-based prices (Analysys model), and proposed in a draft report to use the outputs from this model (ACCC 2009b). However, the model was never actually used to set indicative or arbitrated prices.

Quite when the ACCC started to turn away from TSLRIC is unclear. Its Analysys model was commissioned in February 2007, but it seems plausible that, by then, developments surrounding the national broadband network had crystallised reservations that the ACCC had been having about the use of forward-looking cost models to set prices. Later in 2007, a group of nine access seekers (known as the G9) submitted an access undertaking for a fibre-to-the-node (FTTN) network. In a draft decision on the G9's undertaking (which was withdrawn before a final decision), the ACCC noted that it was not bound to a TSLRIC approach, and that access providers could propose alternative methodologies, perhaps reflecting changing conditions in markets or for pricing new, as opposed to legacy, networks (ACCC 2007b).

The NBN tender process likely provided a further point of reflection for the ACCC. The cost of the new investments needed to build an NBN would need to be recovered. An access provider would want some certainty that its actual costs would be recovered – and not subject to the vagaries of an optimised replacement cost approach. Interestingly, Telstra's fear did not seem to be that the newly sunk investments would be later found to be imprudent. Rather, its concern seemed to be that the TSLRIC models themselves were already producing cost estimates that incorporated network upgrades (particularly the use of fibre) that would in practice require significant new investments by Telstra. Telstra's Regulatory Affairs Manager was quoted in 2006 (around the time when negotiations were underway around the building of a FTTN network) as saying:

> "…the TSLRIC models [are] actually already optimised, so the cost pool out of which access prices are determined is already in place and in fact is already almost a [FTTN] network. What that means is that we could spend multiple billions of dollars doing a [FTTN] roll-out – multiple billions – and the total cost pool we are allowed to recover from wholesale and retail prices would not go up a jot." (ACCC 2009a)

So as prices determined by the TSLRIC models would not rise when the substantial new investment was made, there was little incentive for Telstra to actually undertake the upgrade.[18]

Although administratively messy, it would have been possible to value new assets required for an FTTN at their actual costs, and maintain the valuation of existing sunk assets that were not to be displaced by FTTN at their optimised replacement cost. However, in its advice to the Government during the first NBN tender process in early 2009 (ACCC 2009a), the ACCC said that in relation to the sunk network, the approach that was now typically used in the electricity and gas sectors, with a 'locked in' regulatory asset base, may have some merit because it would remove uncertainty created by continued re-optimisation of the asset base, and would link prices to cost recovery and therefore prevent opportunities for investment cost over-recovery.

By the end of 2009, the ACCC (ACCC 2009b) noted:

> For some time the ACCC has recognised that its long held approach to pricing fixed line telecommunications services, a forward looking TSLRIC+ approach with revaluation at every regulatory reset may not be appropriate given the enduring bottleneck nature of fixed services.

A BUILDING BLOCK METHOD

Through the course of 2010, the ACCC consulted publicly on new pricing principles. It proposed, in a draft decision, to switch to a building-block model (BBM) that is more in line with models used in the gas and electricity sectors. In these models, a depreciated regulatory asset base (RAB) is set once, and not re-valued.[19] New investments are then rolled into this RAB at their expected cost, which removes the uncertainty caused by re-optimisation and re-valuing of the network assets. An annual revenue requirement is then derived, incorporating operating expenditure, depreciation and a return on capital. This revenue requirement is then allocated to particular services – making it essentially a form of fully distributed cost pricing.

Compared to the TSLRIC approach, a BBM framework involves different trade-offs. Like TSLRIC, it allows for recovery of the efficiently-incurred costs of supplying services. However, the ongoing actual costs of operating the network, rather than hypothetical costs, are estimated. This provides greater certainty of cost recovery for the access provider, but gives the access provider weaker incentives to produce efficiently. Arguably, it might also increase information asymmetry problems, because there is a greater reliance on measuring or forecasting the costs that are (or will be) actually incurred – information that must come from the access provider.

Although the ACCC had made considerable progress in its review of pricing principles by the end of 2010, it was suspended due to important changes to the telecommunications access regime under Part XIC of the *Competition and Consumer Act 2010,* which became effective on 1 January 2011. The ACCC no longer has the power to make pricing principles. Instead, it has a new power to make 'Access Determinations' which can specify price and non-price terms for access seekers not currently subject to an existing commercial agreement with Telstra. The new Access Determinations are expected to formalise the new pricing approach, with prices set for a number of years.

A NEW APPROACH, AND NEW PROBLEMS

The ACCC's switch of access pricing methodologies raises a number of interesting problems. Some are only transitional in nature; for example, establishing accurate forecasts of operating expenditure. Others seem more elementary: two that are worthy of further consideration are the effect on the NBN, and the potential flow-on effects to other services that the ACCC regulates.

REGULATION OF THE NBN

As we have seen, a TSLRIC pricing approach does not provide strong incentives to upgrade existing network infrastructure, because part of the cost of the upgrade may well be factored into current TSLRIC access prices (if, for example, it was considered an optimised network would use more fibre than the existing network). In contrast, the ACCC's new preferred approach explicitly accounts for depreciation of existing assets, and allows for actual costs to be rolled into the regulatory asset base on which a return is earned. At face value, this should make the transition to the NBN much more straightforward. Costs incurred now are much more likely to be considered efficient (subject to yet-to-be-determined prudence measures), so that the risk associated with questions of optimisation of the asset base over time should be of less concern.

A problem that may arise from the new methodology is due to the 'lumpiness' of investment required for the NBN: much of total capital investment will be required in the early years of the project. It is well known that actual cost approaches can lead to problems with a conventional building-block approach when large, lumpy investments are made because of the rapid increase in the regulatory asset base and, therefore, in prices.

How significant a problem this will turn out to be depends on two factors: how low Telstra's existing regulatory asset base is valued, and how much flexibility the ACCC is willing to allow NBN Co in recovering its costs. Assigning a low value to Telstra's regulatory asset base (based on the copper network being heavily depreciated) will cause transitional issues for NBN Co. This will manifest in either end-user unhappiness, as customers will effectively be forced to migrate to NBN Co products that offer inferior value, or in damage to the NBN Co business case. Depending on the views of the ACCC, NBN Co may have some flexibility to address this problem by deferring its recovery of the capital costs of the NBN. That is, by setting prices initially to stimulate demand, but increasing contributions to recovery of sunk network costs over time as the customer base (and, hopefully, consumer willingness-to-pay for new and innovative services) increases. Although not a common regulatory problem, as most regulated firms tend to have much more stable costs and revenues than will NBN Co, there is theoretical support for this kind of pricing in the economic literature (Laffont & Tirole 2000, 68).

REGULATION OF OTHER SERVICES

The ACCC also regulates the price of two other services: domestic transmission capacity, and the mobile termination access service (known as 'MTAS'). Both services have previously been found to be suitable for the adoption of TSLRIC-based pricing.

There have long been concerns about how to apply the TSLRIC principle to transmission networks, but (perhaps fortunately) the ACCC has never been required to arbitrate or to assess an access undertaking for transmission services. The ACCC has now flagged a move away from TSLRIC-based pricing, but, rather than move towards a BBM as for access network services, it has elected to rely on a combination of benchmarking of competitive routes and other information from service providers (ACCC 2010).

Fixed and mobile network operators must acquire MTAS in order to complete calls to other operators' mobile networks. The ACCC has regulated this service since 1997, and, since 2007 it has used a TSLRIC model to estimate the forward-looking efficient costs of supplying this

service to inform its price setting. It therefore seems apposite to ask whether the justification for the use of TSLRIC remain as valid now that the ACCC has stepped away from this approach for fixed lines.

Interestingly, and contrarily to its prominence in relation to fixed line pricing, the ACCC has not used the 'build or buy' justification for the use of TSLRIC pricing of MTAS. Rather, the ACCC concluded that TSLRIC was the appropriate price because it:

- reflects the direct cost of supplying the service;
- ensures equally-efficient access seekers in related markets are able to compete on an equal footing with integrated access providers as both will face similar input costs for the declared service;
- takes account of the interests of both access providers and access seekers; and
- encourages the economically efficient use of, and economically efficient investment in, the infrastructure used to provide telecommunications services (ACCC 2004).

Given that build/buy decisions are not an issue, is there a reason to think that the conceptual and practical issues with TSLRIC would be any less for MTAS that for fixed line services? It is difficult to see why, as, if anything, mobile technology evolves even more rapidly than does fixed line technology, and there must be significant uncertainty as to how accurate future asset price trends will turn out to be.

Might the ACCC similarly consider a move to historic costs and a fixed RAB as a basis for setting MTAS prices? As has been recognised by the Tribunal, the costs incurred by mobile operators were relatively recent (compared to fixed line networks) and subject to competitive market pressures due to the presence of between three and four competing network operators (Tribunal 2006). One would therefore expect that the prospects of costs being inefficiently incurred are much less. Of course, adoption of an actual cost approach may also raise some difficult issues. For example, there are three suppliers of MTAS services: Telstra, Optus and Vodafone (having absorbed '3' in 2009). If historic cost is to be used, will each operator be allowed a different MTAS charge? And does comparable historic cost information even exist for the three suppliers? These difficult questions will be subject to review by the ACCC in 2011 as part of a periodic review of the mobile sector.

CONCLUSION

It has been a long road, but the ACCC is now close to replacing the (futile) TSLRIC approach with a utility model in setting prices for access to fixed line access networks. This will be positive if it can reduce disputes and encourage investment, and ensure a smooth transition to the NBN, without compromising on end-user interests in low prices. Whether the pricing approach can or will be extended to other services is an issue on which there is sure to be further conjecture.

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ENDNOTES

1. The history with access pricing for telecommunications in Australia does go back further than this. From 1991, under the duopoly model, prices for accessing Telstra's network were set by the Minister (with advice from Austel) at 'directly attributable incremental cost' (Lindsay and Williams 1995).

2. This criterion appears to be the only one specifically directed at restraining access prices. The explanatory memorandum to the legislation introducing the new access regime indicated that the reference to 'direct' costs of providing access was "intended to preclude arguments that the provider should be reimbursed by the third party seeking access for consequential costs which the provider may incur as a result of increased competition in an upstream or downstream market." (Trade Practices Amendment (Telecommunications) Bill 1996 Explanatory Memorandum, 44). This could have potentially prevented the use of an access pricing methodology such as the 'efficient component pricing rule' associated with economists Baumol and Willig.

3. As the Tribunal has noted (Tribunal 2006, para 19), these criteria are not particularly limiting in nature, and that there will rarely be one correct or appropriate figure in determining reasonable costs or a reasonable charge.

4. In economics, these are respectively known as problems of 'hidden information' and 'hidden action' (Armstrong et al1994).

5. This was not applied in all circumstances, even for mature services provided on the fixed network. For wholesale local calls (local carriage service or LCS) for example, the ACCC was concerned that the use of TSLRIC based-pricing with the presence of a retail price cap of 20 cents (excluding GST) could have meant that, the access price plus allowance for efficient retail costs would have exceeded the retail price cap. This would have meant that access seekers would not have been able to compete in with Telstra in the sale of local call to retail customers. To meet the legislative criteria, and particularly the promotion of competition objective, the ACCC therefore set LCS prices using a 'retail-minus' methodology which subtracted from the retail-capped price, an estimate of per call efficient retailing costs.

6. Further discussion of this background was provided in ACCC (2009a)

7. See, for example, *Application by Telstra Corporation Limited* [2010] ACompT 1 (10 May 2010)

8. Hereafter, references to TSLRIC are implicitly references to TSLRIC+.

9. Telstra challenged the access regime in the High Court of Australia on the basis that it was an acquisition of property on unjust terms; in particular, that it did not allow recovery of "the company's actual costs" (Telstra 2007). The High Court rejected the claim on the basis that there was no acquisition of property because the access regime existed prior to Telstra's privatisation, and so did not look at the question of particular access terms set by the ACCC.

10. In contestable markets, prices for a multi-product firm are bounded by stand-alone costs and incremental costs of a product (Baumol & Sidak 1994b).

11. An important qualification is that Telstra's retail share of lines remains around 80% (Telstra 2010), so it is not obvious that under-recovery of costs on access prices would necessarily cause significant under-investment. This will depend on the profitability of serving the remaining 80% of customers and their distribution.

12. An example may help here. Suppose that replacement costs are forecast to decline by 5% over the next two years, but when the model is actually updated two years later, they have actually declined by 25%. It is possible to account for the falling asset prices (through the use of a tilted annuity), meaning that the 5% loss of value is factored into prices. But the remaining 20% is not. When the cost base is reset, the

loss of value will not be accounted for and the access provider will make a windfall loss.

13. Ergas identifies a more extensive list of nine key modelling issues (Ergas 1998), although he does not discuss how the models should be updated, which is the focus of his later work that is discussed below.

14. It is not clear how the Tribunal would reconcile this opinion with its view in *East Australian Pipe Line* (Tribunal 2004b) in which it did not object to the potential new entrant approach to estimating optimised replacement costs:
"51. If, as defined and described by the ACCC, DORC is the price at which a potential new entrant making `a buy or build' decision would value an existing asset, it is difficult to see why the ORC used to calculate the DORC of an existing pipeline (such as the MSP) should not include a contingency factor to cover omissions. Clearly, a prudent potential new entrant would allow for contingencies and include them in its calculation of its ORC to arrive at its `buy or build' DORC value."

15. See, for example, the discussion of asset lives in ACCC (2009) or of the cost of capital in the Tribunal (2007).

16. The Tribunal does not further elaborate on how the use of DORC, which would still require estimates of optimised replacement costs to be made, would help matters.

17. With that in mind, the dissenting judgement of Justice Breyer looks prescient (*Verizon et. al. v FCC* 2002,16):
"The hypothetical nature of the Commission's [US Federal Communications Commission's] system means that experts must estimate how imaginary firms would rebuild their systems from scratch—whether, for example, they (hypothetically) would receive permission to dig up streets, to maintain unsightly telephone poles, or to share their pole costs with other users, say, cable operators—and they must then estimate what would turn out to be most "efficient" in such (hypothetical) future circumstances. The speculative nature of this enterprise, the critics say, will lead to a battle of experts, each asking a commission to favour what can amount to little more than a guess."

18. This might not hold if the upgrades substantially reduced costs. However, the fibre upgrades did not substantially decrease cost but increased the service potential of the remaining parts of the copper network.

19. It is not always the case that building block models use a fixed regulatory asset base. (ACCC 1999).

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