
When are regulated access prices competitively neutral? The case of telecommunications in Australia

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The concept of “competitive neutrality” is often invoked by regulated infrastructure providers (particularly in telecommunications) to argue for above marginal cost access pricing. To do otherwise, it is argued, is to give a vertically integrated provider’s competitors an advantage. In this article, we argue that this association is false. As a matter of economics, competitive neutrality requires marginal cost unit pricing. If a contribution to investment is to be made in a competitively neutral manner it would have to involve a fixed charge unrelated to an access seeker’s usage of the access services.

1. INTRODUCTION

Competitive neutrality has been employed time and again to justify regulatory pricing directions.

The term competitive neutrality (aka “level playing field”, “competition on equal terms”, etc) has been increasingly bantered [sic] around in regulatory and antitrust proceedings. In these debates, the term is usually used (but not always) to characterize one’s preferred regime and to disparage the opposition’s proposals. Yet these exchanges often fail to define exactly what is meant by the term. Definitions of the term are at best implicit, used inconsistently, and certainly not agreed upon.¹

In February 2003, Telstra employed competitive neutrality as a justification for its PSTN price undertakings, stating that:

[c]harges set on the basis of Efficient Costs ought to be determined in such a way as to ensure that the hypothetical access provider would be no worse off constructing and operating the hypothetical new build PSTN than it would be merely seeking access to it as an access seeker. This is the principle of competitive neutrality. If this principle is not respected, an otherwise efficient provider of the service being modelled would choose not to provide it, and no retail PSTN Services would be provided to the community.²

Telstra appeared to argue that the prices proposed in its undertakings satisfied this definition of competitive neutrality.

Telstra also referred to the concept of competitive neutrality in its paper “The need for an Access Deficit Contribution for PSTN Access Service Pricing: Telstra’s submission on the ACCC discussion paper”, 2003 (hereafter referred to as Telstra-ADC). Telstra stated that “[t]he principle of competitive neutrality ensures that any regulatory arrangements should not confer an unfair advantage or disadvantage towards any of the firms competing in a market”.³

In its Discussion Paper on Telstra’s Undertaking (March 2003), the Australian Competition and Consumer Commission (ACCC) noted (at p 30) that:

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¹ Tye W, “Competitive neutrality: regulating interconnection disputes in the transition to competition” (Paper presented to the ACCC Regulation and Competition Conference, Manly Beach, Australia, 25-26 July 2002) p 1.

² Telstra, Submission, 9 January 2003, p 5.

³ Telstra-ADC, p 72.

Telstra argues that the principle of competitive neutrality implies that charges set on the basis of efficient costs should be determined such that an access seeker would be no worse off building a new PSTN network than it would be purchasing the service from Telstra. In effect, Telstra appears to define competitive neutrality in terms of a build-buy decision. The Commission is interested in the industry view on this interpretation of competitive neutrality, or any alternative interpretations.

In this article we review the concept of competitive neutrality as it has been used in the context of the Australian debate on telecommunications access pricing. We consider the concept of competitive neutrality from the perspective of symmetry between the competitive conduct of an integrated and a non-integrated access seeker. In other words, what access arrangements confer neither a competitive advantage nor disadvantage on an integrated carrier relative to otherwise identical non-integrated carriers in the relevant retail market?

In answering this question we rely on the formal model of Gans and King.⁴ That model demonstrates that achieving competitive neutrality imposes two key requirements for PSTN originating and terminating access pricing:

1. All non-integrated downstream firms face the same marginal price for interconnection; and
2. The interconnection price for all non-integrated downstream firms is set equal to the true marginal cost of the access services.

Thus, to uphold the principle of competitive neutrality requires the regulator to set a marginal access price equal to the short-run marginal cost of the access provider. As has been noted extensively elsewhere, such an access price is not inconsistent with full cost recovery of the provider so long as non-linear pricing (eg a two part tariff) is employed.

In terms of the regulatory debate regarding the appropriate level of the marginal access price for PSTN interconnection our results show that it is not possible to simultaneously argue for competitive neutrality to be maintained while at the same time proposing a marginal access charge that is above the short-run marginal costs of the PSTN provider. The only circumstance under which a competitively neutral access price could be above marginal cost is if the access provider is vertically separated from the downstream markets. If this is not possible, then competitive neutrality necessitates a PSTN interconnection charge equal to short-run marginal cost. In this respect, recovery of so-called access deficit contributions (or fixed CAN costs) through PSTN interconnection charges violates competitive neutrality.

2. THE CONCEPT OF COMPETITIVE NEUTRALITY

The approach to competitive neutrality presented in Telstra's Submission in Support of its Undertakings appears to be closely aligned with Tye's notion of weak competitive neutrality. Tye notes that "[a]n interconnection regime achieves weak competitive neutrality if ownership of the accessed facility confers neither an advantage nor a disadvantage with respect to prospective competition on the basis of incremental costs".⁵ This said, Telstra appear to only consider "one side" of Tye's test. In other words, Telstra appears only to consider if the access regime will make Telstra, as an integrated carrier, worse off than a separated access seeker. However, any sensible definition of competitive neutrality must be symmetric, involving the principle that the integrated carrier is neither better off nor worse off than an otherwise identical non-integrated carrier. After all, an interconnection regime that provides significant asymmetric benefits to the integrated carrier relative to its non-integrated competitors can hardly be called competitively neutral.

While Telstra's approach to competitive neutrality appears closely related to the underlying principle of weak neutrality, as presented by Tye, this concept as developed by Tye has some important caveats. Tye's notion of weak competitive neutrality evolved out of the debate surrounding the Efficient Component Pricing Rule (ECPR) and assumes a particular form of "winner takes all" competition. This limits its applicability. In particular, the type of retail competition envisaged by Tye (Bertrand price competition) only has a well defined outcome if all downstream firms sell

⁴ Gans JS and King SP, "Competitive Neutrality in Access Pricing" (Working Paper, Melbourne Business School, 2004).

⁵ Tye, n 1, p 16.

homogeneous products and have constant marginal costs.⁶ Thus, as Ergas notes, “it is not apparent that the concept [Tye] has set out is at all well defined when you go from Bertrand competition, and the other assumptions underpinning ECPR, to other characterisations of the competitive process”.⁷

Equating the concept of competitive neutrality with interconnection prices that systematically discriminate neither in favour of or against the integrated access provider, seems both reasonable and consistent with the general debate in Australian telecommunications. But the concept will only be useful if (a) “systematic discrimination” is formally defined and (b) the concept is not tightly linked to particular assumptions about the nature of the retail telecommunications products and the nature of retail competition.

To see this, consider Tye’s concept of weak competitive neutrality. The concept of competition used by Tye is “winner takes all” Bertrand competition. Under the strict confines of this form of homogeneous goods competition, Tye defines “systematic discrimination” in terms of the more efficient firm. In particular, an access regime will only be defined as weakly competitively neutral if a firm with a lower (constant) marginal cost for the relevant retail services is able to win all retail customers in Bertrand competition.

In practice, what this means is that the interconnection regime should always permit the most efficient firm to compete successfully via price competition – there should always be a price available to the lowest-cost carrier that will permit it to succeed in a “winner take all” competition and that price should be profitable.⁸

While Tye’s approach provides a useful starting point, as Tye himself points out, the concept of weak competitive neutrality that he develops has little analytical power. “[W]eak competitive neutrality is a rather permissive standard for judging interconnection regimes, as it is satisfied by a wide variety of interconnection prices in a regime of price competition.”⁹ In fact, it could be argued that Tye’s approach is not simply permissive but is not particularly useful as it is satisfied for any interconnection prices between zero and those associated with a monopoly retail price!

The problem with Tye’s approach is that it starts from a particular narrow notion of competition and tries to infer a definition of systematic discrimination from this notion of competition. In our opinion, this approach provides little insight. Rather, the concept of what it means for firms to be “treated equally” needs to be defined first and then a notion of competition can be used to link equal treatment and access pricing.

To consider the concept of equal treatment, consider two retail telecommunications carriers. Assume that these carriers are alike in every possible way except for the fact that one of the carriers is vertically integrated with the upstream provider of access services. In other words, both retail carriers have access to the same technology, have the same initial commercial opportunities and have the same competitive strategies available to them in the marketplace. From the perspective of these two otherwise identical carriers, equal treatment would mean that competitive behaviour of these carriers was not influenced solely by the fact that one of the carriers is vertically integrated. In other words, there would not be systematic discrimination in favour of or against the integrated carrier if the retail operations of that carrier behaved in exactly the same way as an otherwise identical retail carrier that was not integrated.

This approach to systematic discrimination and competitive neutrality can be seen from a slightly different approach. Suppose that a number of identical retail carriers compete with each other and that none of these carriers is vertically integrated. The carriers all operate under an access regime and each receives the exact same prices under this access regime so that there is no asymmetric treatment of these carriers. They are identical and this is reflected in their behaviour in the retail market. Note that

⁶ More formally, unless all firms sell homogeneous goods, have constant marginal costs and face no capacity constraints, a well-defined pure strategy equilibrium will generally fail to exist for Bertrand competition.

⁷ Ergas H, “Discussant remarks on ‘Competitive neutrality: regulating interconnection disputes in the transition to competition’” (Paper presented to the ACCC Regulation and Competition Conference, Manly Beach, Australia, 25-26 July 2002) p 3.

⁸ Tye, n 1, p 16.

⁹ Tye, n 1, p 16.

this does not mean that the carriers engage in perfect competition. They may engage in imperfect competition with homogeneous products as exemplified by the Cournot model of competition. Or they may engage in imperfect retail competition with differentiated products (for example, as under the so-called “circular city” model). The only constraint is that the firms face identical strategic opportunities and choices in the retail market.

Now suppose that one of these identical retail carriers merges with the upstream access provider to create an integrated carrier but that nothing else changes. In particular, integration results in no changes to the technology used by the integrated carrier in the retail market and there is no change in the access regime faced by any of the remaining non-integrated carriers. Then if the interconnection regime is designed so that it neither systematically discriminates in favour of the integrated carrier nor systematically discriminates against the integrated carrier, then the fact of integration should have no effect on the retail behaviour of the integrated carrier.

Technically, this notion of equal treatment means that the first order conditions for profit maximising behaviour for each of the downstream firms will be identical if those firms only differ by their integration. Thus, competitive neutrality will only be satisfied if the optimising behaviour of otherwise identical downstream carriers does not depend on the presence or absence of integration.

In general, analysing the behaviour of both vertically integrated and vertically separated retail carriers requires a particular model of competition. But an approach to competitive neutrality that depends on a particular model of competition will have little use if it fails to remain valid for other forms of competition. Retail telecommunications carriers can compete in a wide variety of ways – through price, range of product offerings, quality of service, advertising and image, to mention just a few. A general approach to competitive neutrality should be able to encompass all these alternative forms of competition.

In Gans and King,¹⁰ we derive an approach to competitive neutrality that (1) respects the concept of neutrality as meaning that there is no systematic bias either for or against an integrated carrier and (2) applies to a wide variety of forms of competitive interaction. That formal model leads to two simple, practical criteria that must be satisfied for competitively neutral access pricing.

Access pricing can only be competitively neutral if:

1. All non-integrated downstream firms face the same marginal price for interconnection; and
2. The interconnection price for all non-integrated downstream firms is set equal to the true marginal cost of the access services.

The concept of competitive neutrality developed by Gans and King encompasses and generalises Tye’s notion of weak competitive neutrality.

It needs to be stressed that our main results do not depend on any assumptions about the nature of competition. Rather, the analysis presented by Gans and King looks at the strategic incentives facing both integrated and separated retail carriers and considers when these incentives will be aligned regardless of integration.

Because that approach is highly general, the two key criteria for competitively neutral access prices are widely applicable. In particular, if access prices satisfy the two practical criteria presented above then access prices will satisfy competitive neutrality regardless of the nature of retail competition.¹¹ Note that, as in the case of Tye’s “weak competitive neutrality”, less restrictive conditions may be appropriate under particular competitive circumstances. However, these same criteria will fail under other competitive scenarios. In contrast, the practical criteria developed in this paper are widely applicable and hold for any competitive scenario. In this sense, they do not require the regulator to attempt to “guess” the exact nature of retail competition when trying to assess whether or not access prices are competitively neutral.

¹⁰ Gans and King, n 4.

¹¹ There is a slight caveat to this result presented in Gans and King (2004): the strategic opportunities of a retail carrier must not alter simply as a result of integration. If, in contrast, integration allows a retail carrier to exploit strategic opportunities that are simply unavailable to its non-integrated competitors, then competitive neutrality may fail even if our two practical criteria are met.

3. CRITERIA FOR A COMPETITIVELY NEUTRAL ACCESS PRICE

In this section, we present the intuition that underlies our practical criteria for competitively neutral access prices. In particular, we explain why access prices that satisfy these criteria will be competitively neutral and why prices that fail to satisfy these criteria will not be competitively neutral.

The requirement for equal access prices

The requirement for equal access prices is both intuitive and simple. Consider two access seekers who are identical in all aspects except for the (marginal) access prices that they face. In particular, suppose that one carrier tends to face higher access prices at the margin than the other carrier. The carrier facing the higher marginal access prices will clearly face a competitive disadvantage when competing for customers. The high-access-price carrier will not have as great an incentive to gain customers as the low-access-price carrier because it will not make as great a level of profit from those customers. More of its profits will be taken up by the purchase of access, muting competitive incentives for the carrier facing the high access prices.

To see this, consider a simple example. Suppose that there is a new customer seeking a particular telecommunications service. The customer is willing to pay up to \$100 per month for this service. There are two vertically separated carriers who can provide the service to the customer. For simplicity denote these carriers by *A* and *B*. The fixed cost to either vertically separated carrier of supplying the customer is the equivalent of \$20 per month with additional retail costs of \$30 per month. But the carriers face differential access charges. Carrier *A* has a lower price of access than carrier *B*. Thus, while carrier *A* will only pay an access charge of \$20 per month to provide the relevant retail service to the customer, carrier *B* will have to pay \$25 per month. This means that the lowest price at which carrier *B* would be willing to sell the service to the new customer is \$75. Such a price only just covers the carrier's costs, including the cost of access. In contrast, carrier *A* could price the new service down to \$70 while making a profit from the new customer. Clearly, in any competition between the two carriers for the new customer, carrier *A* will tend to be more aggressive than carrier *B* and is more likely to win the customer's business. But this competitive advantage does not reflect any innate efficiencies relating to carrier *A*. Rather, carrier *A* has a competitive advantage solely because it receives a lower access price.

If otherwise identical vertically separated carriers do not receive identical access prices, this can lead to inefficiencies. Suppose that in the above example carrier *A* was actually less efficient than carrier *B* in the sense that its retail costs of serving the new customer were \$33 per month compared to only \$30 for carrier *B*. Given carrier *A*'s \$5 per month access price advantage we would still expect carrier *A* to bid more aggressively for the new customer. Carrier *B* can only set a profitable price down to \$75 while carrier *A* remains profitable as long as the retail price does not fall below \$73. So even though carrier *A* is less efficient and has higher costs than carrier *B*, we would expect carrier *A* to win the business of the new retail customer due to the asymmetry in access prices.

The requirement that marginal access prices must equal marginal cost

The requirement that all non-integrated carriers face a marginal access price equal to the marginal cost of access is less obvious. To understand this requirement, it must be remembered that competitive behaviour is always carried out for marginal customers. If a carrier has a customer that has strong loyalty to that particular carrier for some reason, and who is unlikely to switch carriers even if their favourite carrier significantly increases its price, then there will be little competition for that customer. It is sometimes stated in antitrust issues that such a customer is "captive". Gaining captive customers is rarely the realm of active competition. Rather active competition focuses on those customers who are marginal to any particular carrier and who would be willing to switch carriers given a small but significant economic reason.

Because competition occurs "at the margin", the strength of competition associated with an individual carrier will depend on that carrier's marginal costs, including the marginal access price. As noted above, if one non-integrated carrier faces a higher marginal access price than other non-integrated carriers, the high-cost carrier will be less competitive.

One carrier, however, does not face a regulated access price. The integrated carrier simply produces “its own” access services. This carrier will always operate on the basis of the true marginal cost of this access and will compete accordingly. Unless all other carriers explicitly face an access price equal to the true marginal cost of access, they will not compete on “equal terms” with the integrated carrier.

This result raises a number of questions. The first relates to the claim that an integrated carrier will not distort retail competition even if marginal access prices exceed marginal cost, because access profits are an opportunity cost for the integrated carrier. The second relates to the use of transfer prices. The third deals with the desirability of “aggressive” behaviour by the integrated carrier. We deal with each of these in turn.

Access prices and opportunity cost

If the integrated carrier takes account of the profits that it makes from access sales to non-integrated carriers as an “opportunity cost” of its own competitive retail behaviour, then won’t this mean that competitive neutrality is maintained even at access prices that exceed true marginal cost?

This is essentially the claim made by Tye¹² when he is considering weak competitive neutrality. Tye shows this claim to be true in “winner takes all” competition when customers only ever demand a constant amount of the retail product. Unfortunately, it does not generally hold true for other forms of competition and other assumptions on consumer demand.¹³ To see the reason for this, consider a slight modification on the example presented above.

As before suppose that there is a single new customer interested in a specific retail telecommunications service. This customer has a very simple demand curve that involves the customer buying more of the relevant retail product as the price of that product falls. If the price exceeds \$100, then the customer buys none of the product. If the price is between \$65 and \$100 then the customer buys one unit of the product per month. If the price is \$65 or less then the customer buys two units of the product per month. Again assume that the retail costs associated with serving this customer are equal to \$50 per unit of retail product per month. But now, assume that the true marginal cost of supplying upstream access to produce the retail service for the customer is equal to \$5 per unit of retail product. Initially, the access price is set so that the non-integrated carrier *A* pays an access price of \$20 per unit of retail output per month for this customer. Carrier *B* however is now integrated with the upstream access provider.

In this situation, the cost to carrier *A* of serving the new customer is \$70 per unit per month, including the price of access. We maintain the strong assumption of “winner takes all” competition used by Tye so that carrier *A* will be forced to set a price of \$70 per unit for the retail product. If carrier *A* is, in fact, the lowest priced retailer then the customer will buy one unit of the product, carrier *A* will make no profit but the access provider will make \$15 profit from the sale of access.

In this situation, would the integrated carrier prefer its downstream division to undercut carrier *A*? The answer to this is not a priori obvious. After all the integrated carrier makes \$15 from letting carrier *A* make the retail sale. When considering its own retail strategy, the integrated carrier will take those access profits into account. If it steals the customer, then the integrated carrier will forgo the \$15 access profits that it makes from carrier *A*. These profits become an opportunity cost of carrier *B* stealing the retail customer. In these circumstances, won’t carrier *B* act as if it faces an access price of \$20 (the same as carrier *A*)? After all, if it sells one unit itself to the final customer then carrier *B* will bear the true marginal cost of access of \$5 and face the loss of access profits of \$15. In total, doesn’t this mean that the integrated carrier will act *as if* it faces an access price of \$20, the same as carrier *A*?

This argument about opportunity cost is seductive. It is presented in Telstra’s Submission regarding the access deficit contribution.¹⁴ The argument, however, is wrong.

What alternatives face the integrated carrier *B*? As per the opportunity cost argument, it could sell one unit of the retail product to the customer, either through carrier *A* or directly. If it sells the

¹² Tye, n 1.

¹³ Gans and King, n 4.

¹⁴ Telstra ADC, pp 29 to 31.

retail product through carrier *A* the integrated firm makes all its profits on access. It makes \$15 profit from the customer. Having its downstream firm undercut the price of carrier *A* and sell *one* unit to the final customer will only lower the integrated carrier's profit. So carrier *B*, if it seeks to maximise the profits of the integrated carrier as a whole, will never want to undercut *A* to just sell one unit of the retail product.

But recall that here (and unlike the example used by Telstra) retail demand "slopes down".¹⁵ If carrier *B* lowers its retail price below that of carrier *A* it does not simply steal the one unit of retail sales, but it can also raise retail sales. And, in fact, it is profitable to do this. Given the true marginal access cost of \$5, the cost of providing each retail unit for carrier *B* is \$55. If carrier *B* sets a price of \$65 then the customer will buy two units of the retail product. The integrated carrier will make \$20 profit (two units sold with \$10 profit per unit) by undercutting carrier *A* and selling two units of retail output. Taking the opportunity cost of the lost access sales to carrier *A* into account, carrier *B* makes an additional \$5 profit from aggressively undercutting carrier *A* in the retail market.

This example involves a simple downward sloping demand that is designed to show the failure of the Telstra "opportunity cost" argument. More generally, whenever demand is smoothly "downward sloping", the Telstra opportunity cost argument fails. In this sense, the Telstra claim (in Telstra-ADC) that its internal prices will reflect the prices it charges other carriers for PSTN access services (including any ADC), at best, is misleading, and more generally, is wrong from the perspective of competitive neutrality.

Tye notes a caveat to his claims about weak competitive neutrality relating to the "monopoly price". If the retail price under winner-takes-all competition would exceed the integrated firm's monopoly price, the opportunity cost argument fails. But our example here is not driven by this effect. It is easy to see that an integrated monopoly carrier would prefer to set a price of \$100 to the new customer, making profit of \$45 rather than a price of \$65 with profit of \$20. In other words, Tye's "monopoly price" caveat is not driving our result here. Rather, we have simply assumed that, in line with standard economics, the quantity of retail telecommunications products sold rises as the price of those products falls.

In summary, if the retail demand for telecommunications products slopes down, an integrated carrier will tend to be "more aggressive" than a non-integrated carrier whenever the marginal access price faced by non-integrated carriers exceeds marginal cost.¹⁶

Internal transfer prices

The second issue raised by our analysis relates to internal transfer pricing. If the integrated carrier requires that its downstream subsidiary pay an internal price for access equal to the access price for non-integrated carriers, won't this restore competitive neutrality?

While internal transfer prices may reinstate competitive neutrality even when the access price exceeds marginal cost, we are highly sceptical of this. In particular, the integrated carrier's retail division would not only have to behave as if the internal transfer price were a true cost, it would also have to deliberately avoid profit maximising behaviour for the carrier as a whole. If the retail division recognises that the transfer prices are merely moving money within the carrier and it seeks to maximise total carrier profits then it will behave aggressively in the retail market.

It is sometimes argued that "accounting separation" would create enough separation to force the retail division of the integrated carrier to behave as if internal transfer prices were "real costs". But again we are sceptical. If the retail division head reports to the CEO and board of the integrated carrier, it will be difficult for that division head to undertake actions that deliberately lower total carrier profits.

¹⁵ Formally our analysis requires that demand is *not perfectly inelastic*. Our results otherwise will apply regardless of the price elasticity of demand. Indeed, it would be highly implausible for demand to in fact be perfectly inelastic in any general market context.

¹⁶ The failure of the "opportunity cost" argument when strategic actions lead to new retail sales rather than simply "swapping" sales is also noted by Farrell J, "Integration and Independent Innovation on a Network" (2003) 93 *American Economic Review* 420.

We have addressed the issues of vertical integration elsewhere.¹⁷ In summary, we believe that internal transfer prices are unlikely to make an integrated carrier behave in a competitively neutral fashion if third-party marginal access prices exceed the true marginal cost of access.

But isn't the aggressive behaviour good?

Another way to interpret the above result is that it casts doubt on the efficacy of competitive neutrality as a standard for evaluating economic behaviour. After all, in the simple example above, the aggressive behaviour of the integrated carrier led to lower retail prices for the customer and greater economic surplus.

This conclusion, however, misses the point. If access prices are set too high – in the sense that the marginal access price exceeds the marginal cost of access – then having at least one carrier (the integrated carrier) who makes decisions on the basis of true costs can be economically desirable. This is formally shown by King.¹⁸ But this is (at best) a second-best result. Rather, the optimal access price should be set so that all carriers face a marginal access price equal to the true marginal cost of access. This will lead to vigorous competition and reinstates competitive neutrality.

We can see this from the simple example above. Suppose that carrier A had its access price lowered to the true marginal cost of \$5 per unit per month. Retail competition would then force the retail price for both carrier A and the integrated carrier down to \$55. This is less than the retail price of \$65 that arose under the distorted access prices. Thus, reinstating competitively neutral access prices benefits the end-users.

4. CONCLUSION

While there have been numerous definitions of competitive neutrality put forward to justify interconnection pricing methodology, none has fully respected the economic environment that currently applies in telecommunications in Australia. Put simply, demand for downstream telecommunications services is downward sloping for both individuals and, by implication, the market. Hence, simple comparisons involving fixed levels of sales for the purpose of considering “winner-take-all” competition are not applicable.

We instead build a framework of competitive neutrality as it would apply to a vertically integrated access provider competing with access seekers in downstream markets. Using this approach we can provide a consistent, general and practical definition of competitive neutrality and demonstrate that it implies that access prices should be the same across downstream firms. In particular, as the implicit access price for vertically integrated access providers is marginal cost, the regulated access price should also equal marginal cost if it is to be competitively neutral. Deviations from this, say to require recovery of past investment costs or on-going fixed costs, should be regarded as violations of competitive neutrality.

Specifically, if fixed costs *cannot* be recovered through fixed charges, then it may be necessary to raise marginal access prices. The optimal way to do this is through what is termed Ramsey pricing. Such pricing tries to minimise the social loss associated with the distorted pricing subject to raising sufficient revenue to cover the relevant fixed costs.¹⁹

If marginal access prices have to be distorted in order to raise revenue to cover upstream fixed costs, an appropriate Ramsey pricing approach is the desirable way to approach this task. But, as our analysis here shows, when such “mark ups” are placed on marginal access prices, competitive neutrality will be lost. Put simply, one of the costs of distorting access prices to recover upstream fixed costs, even if this recovery is as efficient as economically possible, is the loss of competitive neutrality.

¹⁷ Gans JS and King SP, “Investigating the Benefits and Costs of the Structural Separation of Telstra”, *Submission to House of Representatives Inquiry into the Structure of Telstra*, 31 January 2003.

¹⁸ King SP, “Price Discrimination, Separation and Access: Protecting Competition or Protecting Competitors?” (1999) 24(1) *Australian Journal of Management* 21.

¹⁹ See Laffont JJ and Tirole J, *Competition in Telecommunications* (MIT Press, Cambridge, MA, 2000). Ramsey prices can also be applied to fixed charges where entry and exit are possible. However, our attention here is on competitive neutrality and the marginal access prices.