

**Optus Submission to**

**Australian Competition and Consumer Commission**

**on**

**Efficient use of mobile infrastructure and investment**

**May 2004**

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## 1. Introduction

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- 1.1 This submission addresses one of the fundamental components of the ACCC's draft decision on the future regulation of mobile termination; namely, the impact that such regulation is likely to have on the efficient use of infrastructure in both the mobile and fixed-to-mobile services markets.

## 2. Background

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- 2.1 Section 152AQA of the *Trade Practices Act 1974* requires that, in the event of an access dispute, the ACCC must have regard to any determination it has made regarding the principles for pricing access to the declared service under dispute.<sup>1</sup>

- 2.2 As such, in determining its pricing principles the ACCC should consider the matters it must take into account in arbitrating an access dispute. As outlined in section 152CR of the Act, these include:

- (a) *whether the determination will promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services;*
- (b) *the legitimate business interest of the carrier or provider, and the carrier's or provider's investment in facilities used to supply the declared service;*
- (c) *the interests of all persons who have rights to use the declared service;*
- (d) *the direct costs of providing access to the declared service;*
- (e) *the value to a party of extensions, or enhancement of capability, whose cost is borne by someone else;*
- (f) *the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility;*
- (g) *the economically efficient operation of a carriage service, a telecommunications network or a facility.*

- 2.3 Optus believes the draft pricing principle determined by the ACCC – anecdotally known as an adjustment path towards a closer association of prices

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<sup>1</sup> Assuming that the existing declaration is varied, as posited in the draft decision by the ACCC. Otherwise, section 152AQA is not relevant.

and costs for the mobile termination service – has not had sufficient regard to section 152CR.<sup>2</sup>

- 2.4 This submission considers whether the draft pricing principle is in the long-term interests of end-users of carriage services, specifically, in accordance with section 152AB, whether it *encourages the economically efficient use of, and the economically efficient investment in infrastructure* used to supply carriage services.<sup>3</sup>

### **3. Concerns with the ACCC position**

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- 3.1 The ACCC conclude that a “move toward cost” based regulation of mobile termination will have positive efficiency effects on the use of infrastructure. For example its draft determination it says that in an unregulated market:

*... Commission believes a pricing structure is likely to emerge across mobile termination, FTM and retail mobile services that involves:*

- *Above-cost (inclusive of normal profit) pricing of the mobile termination service;*
- *Consequently above-cost pricing of retail FTM services; and*
- *Subsidised prices of some retail mobile services. (page vi)*

- 3.2 The current pricing structure is believed (by the ACCC) to result in direct efficiency losses in the market for fixed to mobile services (via less than efficient demand of retail services) and in inefficiencies in the retail mobile services market (such as too much investment in handsets as a result of inefficiently high turnover of handsets).

- 3.3 The ACCC believes that mobile operators are complicit in this outcome, with:

*... each mobile provider [having] an incentive to lower retail prices to mobile consumers in order to attract more subscribers to its network. Armstrong characterises this form of market behaviour as one of “competitive bottlenecks”. (page 119)*

*... the resulting disassociation between price and costs for all these services is likely to distort decision and lead to an inefficient use of telecommunications infrastructure.*

- 3.4 Optus understands from the draft determination that the ACCC rejects arguments that such pricing structures may be efficient on the grounds that:

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<sup>2</sup> Whilst the ACCC has considered some of these matters in deciding to maintain the declaration, it has not outlined its reasons sufficiently in terms of how its pricing principles take into account this section.

<sup>3</sup> Optus’ previous submission considered the impact of the ACCC pricing principles on other matters the ACCC must have regard to in 152CR.

- Mobile operators are free to earn excess profits in a less than effectively competitive mobile services market and as a consequence high mobile termination charges are the source of these “excess profits” (page 121).
  - Parties have failed to summarise all the externality effects influencing the market outcomes and failed to demonstrate the existence of network externalities. In addition, parties (specifically Optus) have made conceptual and empirical errors in estimating the welfare (and hence efficiency) effects of such externalities.
  - The market for subscription is “mature” (and implicitly the elasticity of mobile subscription is zero) and hence “there are signs that the market is mature and, therefore, that marginal externalities are negligible”.
  - Arguments on Ramsey pricing have been poorly constructed and failed to show how Ramsey outcomes are likely to be revealed in a competitive market situation.
- 3.5 As such, the ACCC’s draft decision is that mobile termination rates should be regulated to move towards a measure of cost.
- 3.6 Optus has significant concerns with the ACCC’s draft decision. In particular, Optus believes that the ACCC has failed to differentiate between arguments for no regulation and arguments to support a pricing principle involved effective cost based regulation.<sup>4</sup>
- 3.7 In summary, Optus’ concerns include:
- The ACCC conclusion that mobile competition is less than effective is false and has ignored the entry of Hutchison, the availability of cheap infrastructure and the vigorous product differentiation and pricing common in the market. Moreover the ACCC has failed to demonstrate how regulating mobile termination will actually address this market failure. For example, if operators truly have market power they could simply move “above-cost pricing” to their mobile originating services - if there is indeed less than effective competition in mobile services, which Optus disputes.
  - The ACCC has ignored the extensive economic literature on externalities in the mobile market. Subscription and usage externalities are well defined in the literature and can be observed in pricing structures. Moreover, the two-sided nature of the mobile services market brings with it inherent externality effects which are internalised

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<sup>4</sup> Whilst the ACCC has not indicated TSLRIC at this stage, it has used TSLRIC modelling (excluding network externalities) indicated by modelling undertaken by the UK regulator, US mobile operators, Primus, and by the ACCC using Telstra’s RAF.

in a calling party pays environment (and therefore cannot be ignored by regulators). These were not ignored by the UK Commerce Commission.<sup>5</sup>

- The ACCC has identified some conceptual errors in Optus' welfare calculation of the impact above-cost prices for fixed to mobile services, but the ACCC has then, puzzlingly, made the same error in assessing the impact of lower mobile subscription levels in the very same market. It has therefore understated the (very large) efficiency loss from lower mobile subscription levels. A thorough empirical analysis shows that the case for regulation is weak.
- The ACCC, like Armstrong (2004), incorrectly assume that the own-price elasticity of demand for mobile subscription is zero. The ACCC equates this with a "mature" market and incorrectly assumes the impact of lower subscription charges effect only the turnover of handsets rather than subscription levels - ignoring the empirical evidence of a significant elasticity of demand for mobile subscription.
- The ACCC has failed to understand (or ignored) the economics of pricing services in a multi-product competitive (or even regulated) environment. Moreover, it has failed to quantify the efficiency losses it is likely to create by not accounting for all the social benefits associated with subscription nor Ramsey pricing in the regulated pricing principle (even if it believes it is not a likely outcome of the competitive dynamic).

3.8 Each of these concerns is elaborated on below.

#### **4. Competition in the mobile services market**

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- 4.1 Optus reiterates its position that the mobile services market is extremely competitive.
- 4.2 The ACCC's approach to competition analysis in its draft decision is narrow and static and, in Optus' opinion, would lead to a conclusion of less than "effective competition" in almost every market in Australia. The ACCC appears to misunderstand the current dynamics of the telecommunications industry. It says:

*... the supply of new services on 2.5G and 3G networks **may** drive further growth and competitive impact in the industry in future periods.*  
(page 84)

- 4.3 This is a very surprising conclusion. Presently, three operators (Vodafone, Telstra and Optus) are on the verge of spending hundreds of millions of dollars on new mobile networks, which will directly compete with existing mobile services and which will change fundamentally the balance of competition in the mobile and potentially the fixed telephony markets. However, the ACCC

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<sup>5</sup> Setting aside concerns with the way in which the UK regulator calculated the appropriate adjustment for network externalities.

conclude that this *may* have a “competitive impact in future periods” and that there are “high barriers to entry”.

- 4.4 The reality is that historic and recent competitive activity shows that barriers to entry are low, product differentiation is extensive, prices have fallen substantially (for example, Hutchison’s \$99 plans have had a substantial impact on market prices recent), entry and exit has occurred (3G), and innovation is occurring (data services).
- 4.5 The ACCC’s competition analysis appears to be based on a number of incorrect assumptions and facts regarding the state of competition in the market. Optus review of the ACCC analysis highlights that:
- (a) There are six mobile networks in Australia with 13 carriage service providers operating over those networks. Surprisingly, the ACCC did not include those 13 in assessing concentration ratios in the industry, yet it includes “resellers” in most other competition assessments. For example, in its fixed to mobile competitive assessment it includes AAPT and Optus’ figures for resold business. The ACCC should take greater account of modern economic literature that shows very competitive outcomes result from markets involving a small number of players. It appears the ACCC has had regard to such analysis in its assessment of competition in transmission markets when it adopted a “rule of three” – deciding to undeclare transmission routes where there were at least three market participants. A similar view prevailed in the authorising Telstra’s acquisition of IP1.
  - (b) Barriers to entry are low. The ACCC notes the availability of spectrum (One.Tel’s and 3G 2GHz band) on page 67. It says, however, that sunk costs are high even though as recently as 2000, Hutchison and One.Tel launched into the Australian market. Optus contends that One.Tel’s assets are available to any new entrant (perhaps an existing MVNO or utility) and that existing carriers wishing to benefit from scale have an incentive to compete for roaming arrangements.
  - (c) Market growth is strong. Optus’ own experience is that it can compete effectively in mobile services and develop new services that expand the market. The ACCC’s conclusions concerning “cannibalisation” and the need for additional market participants to yield competitive market outcomes are inconsistent with recent history and the huge potential consequences of 3G services on the competitive landscape.
  - (d) Price competition is fierce. Optus cannot understand the conclusion that “prices in the retail mobile services sector are moving around an equilibrium level”. Optus is unaware of any economic theory or market equilibrium in mobile services, and believes there is no evidence to suggest one.
  - (e) Profitability is not high. The ACCC’s use of accounting profits for limited periods to justify regulation and conclusions on effective competition is surprising for an economic regulator. As Optus has stated in previous submissions: profit analyses which rely on accounting allocations between divisions, accounting values for assets

(excluding intangibles), accounting asset life estimates, ex post financial cost of capital estimates, annual financial figures, and that exclude economies of scale and scope in the industry have no place in estimating economic profits.

- 4.6 Overall, Optus believes the ACCC's conclusion that competition in retail mobile services is less than effective is clearly based on flawed assumptions and is incorrect.
- 4.7 Moreover, the ACCC appear to misunderstand some of the basic features of competition in the mobile market and the drive to compete for customers. Mobile customers seek operators as an intermediary to provide them with access to a mobile service. To do this the operator must provide:
- (a) A handset and a network capable of delivering the services demanded – the handset is an integral part of the mobile network. The ACCC appear to try and differentiate “inefficient investment in handsets” from investment in mobile services. They are one and the same.
  - (b) Connectivity with other mobile network and fixed networks.
  - (c) Coverage in geographic areas where the subscriber demands.
- 4.8 The ACCC's decision to regulate mobile termination as “an essential input” to the fixed to mobile service assumes that such a service is separate to the mix of services being provided. This too is incorrect. The only “essential input” in Optus' mobile business is the customer, and customers are free to switch between networks.<sup>6</sup>
- 4.9 As such, a more appropriate conceptual framework within which the ACCC can analyse the mobile services market is involves the recognition of joint production costs between subscription and termination services. The production of these services are joint in nature as it is impossible to supply termination to a customer without already supplying him or her with subscription services. These services are not separate as presented by the ACCC.
- 4.10 As Optus seeks to grow its business it incurs costs. The cost of growing the business is the cost associated with acquiring and retaining the marginal subscriber, which include sales commissions, marketing, network expansion, and billing costs.
- 4.11 It is therefore erroneous to identify and regulate one service associated with offering mobile services to customers. The dynamics of the market are not fixed and the relative importance of revenue streams is changing.
- 4.12 For example, data services are increasingly important – as the ACCC has identified. However with the growth in data services comes IP technology that may breakdown the mobile operator's billing relationship with customers for

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<sup>6</sup> To say that we can “lock in” customers for the term of contract would make no sense because our market power or control would, by definition, be transitory.



originating services. This might increase the reliance on termination charges for recovering the incremental cost of the customer joining the network. However, given the ACCC's regulation of termination this would not be possible and may prevent new service development (or result in financial ruin for mobile operators).

- 4.13 The interdependencies of mobile services cannot be referenced by the ACCC on one page of a decision (page 40) and then dismissed on the next. The ACCC either bases its regulatory intervention on the basis that there is a static and separate market for mobile termination in which mobile operators can control access to (even though subscribers can easily switch networks) or the ACCC concludes that there is a market for a mix of mobile services which can not be produced independently of each other. The two are incompatible views on the market for mobile services.
- 4.14 Optus is concerned that some basic misunderstanding of the mechanism of competition may lead the ACCC to propose inappropriate tightening of regulations.

#### **Appropriate market definition**

- 4.15 Competition for subscribers, or “competitive bottlenecks”, is an intrinsic feature of the mobile market. It has clearly formed the basis of the ACCC's substitution analysis and its basis for regulation.
- 4.16 However, Optus believes that the ACCC has erred in converting its substitution analysis into an appropriate market definition.
- 4.17 NERA for Optus has undertaken a detailed assessment of the ACCC's substitution analysis and consequent market definition. NERA find that the ACCC's market definition:
- ... is clearly counter-intuitive and, in any event, inconsistent with the ACCC's own substitutability analysis. The ACCC substitutability analysis suggests that, once a subscriber has subscribed to a particular network there is no good substitute to contacting that subscriber other than via termination of calls on that network. However, the correct market definition corresponding to this substitutability analysis is the market for termination of calls to that subscriber irrespective of which network they are connected to. We therefore contend that, on the basis of its own substitutability analysis, the ACCC should have concluded that the relevant markets are the markets for termination of calls to each mobile subscriber.*
- 4.18 Optus believes the ACCC needs to amend its market definition before issuing a final determination. Competition in the mobile services market is focussed on developing innovative services to attract subscribers. Mobile users enjoy significant benefits from the fierce competition amongst mobile operators who compete to deliver the mix of prices and services demanded by users.
- 4.19 As a direct consequence of amending its market definition, Optus believes the ACCC should again review its assessment of competition in the market. The ACCC should find in favour of a market for subscribers in which each face

very low switching costs and can make mobile operators compete for their business.

- 4.20 Optus believes that such an analysis will indicate that it is in the long-term interest of end-users of mobile services to allow unfettered competition, free from regulation.

## 5. Externalities in mobile markets

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- 5.1 Two-sided markets (and the mobile services market in particular) have been given considerable attention in the economic literature (see Armstrong (2004) for a survey and recent work by Rochet and Tirole (2004)). Rochet and Tirole (2004) provide a definition for two-sided markets that in essence concludes that “the price structure matters”. More precisely:

*Consider a platform charging per-interaction charges  $a_B$  and  $a_S$  to the buyer and seller sides. The market for interactions between the two sides is one-sided if the volume  $D$  of transactions realized on the platform depends only on the aggregate price level ...by contrast  $D$  varies with  $a_B$  while (equal to  $a_B + a_S$ ) is kept constant, the market is said to be two-sided (page 9).*

- 5.2 Armstrong (2004), amongst others, has recognised that the mobile market is an example of a two-sided market - origination on one-side and termination on the other. The ACCC too, appear to accept that the market is two-sided. It believes that mobile operators can earn greater profits by setting a low price for subscription and a high price for mobile termination.

- 5.3 The fact that a market is two-sided, which is implicit in the conclusion that the price structure matters, means that:

*... the relationship between end-users must be fraught with residual externalities. (Rochet and Tirole (2004)).*

- 5.4 It appears illogical, therefore for the ACCC to claim that network externalities do not exist. The fact that price structures matter means that the response on each side of the market to particular price structures will have a direct effect on the other side of the market and the aggregate level of demand for mobile services. That is, the price structure matters as much as the price level.
- 5.5 If the price structure affects that aggregate level of demand it means, by definition, that a sub-optimal price structure will result in too little use of mobile service. In other words, a sub-optimal price structure will not maximise aggregate demand and therefore pricing on each side of the market does not internalise the benefits created across the entire market when that side transacts in the market.
- 5.6 Changing the structure of prices in a two-sided market, such as the mobile services market, will have an effect on investment and use of infrastructure in the mobile originating side and the mobile terminating sides market. If it did not, the ACCC’s basis for regulation would not exist.

- 5.7 The mobile market has well defined externalities: subscription and usage. For a full discussion we refer the ACCC to Rochet and Tirole (2004). In the mobile services market each side of the market receives benefits from the other side by:
- (a) Subscription: Participating (or subscribing) to the market. The benefit arises because the other side now has the option to call that subscriber.<sup>7</sup>
  - (b) Usage: Making calls to subscribers, whether they are fixed to mobile or mobile to fixed calls. The benefit arises when someone calls you and you receive utility from that call.
- 5.8 Externalities are created when the prices for subscription and usage do not internalise the costs and benefits associated with each transaction.
- 5.9 The decision of a subscriber to join a mobile network has a positive impact on the other side of the market – in particular on the fixed telephone users who might want to call that subscriber. If the price does not reflect that positive benefit, there will be too little subscription.<sup>8</sup>
- 5.10 It is important to note that subscription externalities exist on both sides of the market. That is “subscription” to a mobile or “subscription” to a fixed network has externality consequences for the other side of the market (particularly if prices are distorted by regulation).
- 5.11 The efficient subscription price to a network (being the one that will ensure efficient use of infrastructure) is equal to the cost of joining each network, less the benefits that the other side of the market receive as a result of that subscription.
- 5.12 Usage externalities also potentially exist on both sides of a call. The efficient price for a call should take into account both demand and supply side conditions. Such usage externalities have been the subject of extensive research (see Hermalin and Katz (2002)) and it is shown that cost based pricing in the presence of externalities lowers welfare. Usage externalities are not considered further in this submission as they are inherent in all services that operate under a calling party pays model, and are therefore not unique to mobile telephony.

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<sup>7</sup> Note these benefits include the value of actually being able to call that person (reflected in the demand for fixed to mobile calls) and the unexercised option value which is not reflected in the demand for fixed to mobile calls.

<sup>8</sup> The size of the externality and the associated distortion in the use of resources will depend on the price elasticity of the good or service.

## Subscription externalities

- 5.13 The ACCC claims that there is evidence to suggest that ‘*marginal externalities are negligible*’ (page 137). This is based on its view that the marginal external benefit of mobile subscription falls with the number of subscribers:

*The externality benefit (i.e., what others are willing to pay to have more subscribers) from each additional subscription is reflected by the marginal external benefit curve (MEB). This is assumed to slope downwards as well, eventually becoming zero. The reason for this is that the ‘attractiveness’ of new subscribers to existing subscribers is likely to vary. Those that are more attractive to call or be called by others are likely to be earlier joiners, and eventually the addition of new subscribers will be of little or no interest to existing subscribers. (Page 134).*

- 5.14 Optus disputes the ACCC’s claims the MEB curve is downward sloping.
- 5.15 Firstly, one reason the MEB curve would be downward sloping if there were some level of substitutability between subscribers. If this were the case, however, then the ACCC’s basis for regulation would not exist. This is because the ‘uniqueness’ of subscribers is vital to the ACCC’s assertions that mobile carriers have market power over termination to its subscribers. As outlined in the substitution analysis presented by the ACCC and examined by NERA, “once a subscriber has subscribed to a particular network there is no good substitute to contacting *that subscriber*”. Indeed, the ACCC’s logic regarding network externalities implies that if a person wanted to contact someone that did not have a mobile phone, that they would gain the same amount of satisfaction from calling someone else instead that did have a mobile phone. This logic clearly undermines the ACCC’s rationale for regulating termination charges.
- 5.16 Secondly, the ACCC posits that ‘*those that are more attractive to call or be called by others are likely to be earlier joiners*’. This argument implies that when deciding whether or not to become a mobile subscriber, consumers take into account the utility that others receive from being able to contact them. If this were the case, then we would expect that consumers would care about how much it costs for others to call them. However, it appears that the ACCC has already rejected this notion when it argues that:

*“...mobile phone users generally have no incentive to insist that the mobile network they subscribe to sets lower mobile termination charges. The Commission therefore believes mobile network operators are unlikely to be constrained in their pricing decisions for the mobile termination service by potential subscribers to their network”. (Page vi)*

- 5.17 The apparent justification by the ACCC is that “late joiners” is a common (mis)conceptualisation of network externalities:

*There is another sense in which a credit and charge card network may mature. It is possible that, at a sufficiently high level of membership on either the merchant side or the cardholder side, marginal changes in membership generate smaller or no benefits to other parties. For instance, to the extent that the incremental merchants on a network are substitutes for merchants already on the network, the value to a cardholder from having additional merchants accept cards very likely diminishes as the number of merchants increases.*

*In theory, the last merchants to join a network might turn out to be the ones most valued by consumers, but intuitively this is very unlikely to happen in practice. (RBA by Katz, 2001, page 14)*

5.18 However, whilst merchants may be substitutes for one another, people are not perfect (or even imperfect) substitutes for each other. In fact, in the telecommunications sector the value of an additional subscriber is arguably proportional to the number of existing subscribers as it is these subscribers who can now be called or make calls to the new subscriber. This suggests network externalities increase as networks ‘mature’.

5.19 Thirdly, the ACCC’s view of network externalities is inappropriately static. The draft decision says:

*‘There are signs that the market is mature and, therefore, that marginal externalities are negligible’. (Page 137).*

5.20 In other words, the ACCC argues that because penetration rates are, in its view, already relatively high then the number of possible new subscribers is low. Of course in a mature market many people will have a mobile phone, however the decision of each individual to *maintain* that services creates equal or greater external benefits for those people wanting to contact that individual than the subscriber’s original decision to join the network.

5.21 In addition, a more dynamic approach must be taken as in reality a constant stream of demand arises from consumers that are not ‘late joiners’, but are new to the addressable market. Such consumer groups include, among others, teenagers and immigrants. There is no reason as to why the MEB for these subscribers would be lower than for existing subscribers. Indeed, even in a market with 100% mobile penetration levels, there would always be potential subscribers entering the market and as long as this is the case, market failures will always arise if the network effects are not internalised.

#### *Fixed network subscription creates external benefits*

5.22 Importantly, the external benefit created by subscribing to the fixed network is large and exhibits all the characteristics described above for mobile subscription. Even though the fixed line market would be characterised as an extremely mature, the marginal benefit of subscription are very high and the external cost from dropping a subscription would also likely be very large.

5.23 Once again, if you want to contact an individual, there is no substitute and their decision to be contactable (by subscribing to a fixed network) has

significant external benefits for society and for those people wanting to call them.

### **Economic profit or internalising an externality**

- 5.24 The ACCC has indicated that customers bring with them a source of “economic profit”. However, the ACCC appear to be confusing end-user surplus and economic profit.
- 5.25 Optus believes it is irrational of the ACCC to conclude that individual end-users of carriage services have “market power” in the sense that it requires regulating by the ACCC. In everyday transactions, individual can (and should) exercise their individual preferences and seek to capture or internalise all of the net surplus created by their individual decisions.

- 5.26 Rochet and Tirole (2004) note that:

*The multi-product pricing literature, however, does not allow for externalities in the consumption of different products: To use the celebrated example, the buyer of a razor internalises in his purchase decision the net surplus that he will derive from buying razor blades.*

- 5.27 By contrast, Rochet and Tirole (2004) note:

*The starting point for the theory of two-sided markets by contrast is that an end-user does not internalise the welfare impact of his use of the platform on other end-users.*

- 5.28 This mistake has similarly been made by the ACCC. In assessing the price structures in the mobile and fixed to mobile markets, the ACCC has sought to identify negative welfare consequences when customers seek to extract an “economic profit”. A more appropriate characterisations is that the price structures are the market’s way of allowing subscribers to internalise the welfare impact of their use on the other side of the market. Indeed, in promoting efficient investment and efficient use of infrastructure, internalisation of external welfare impacts should be encouraged by the ACCC, not prohibited. NERA makes this point forcefully in its report for Optus, *Existence and Exercise of Market Power in Mobile Termination*.
- 5.29 NERA also demonstrate how it is possible and efficient for individuals to extract the external benefits of their individual mobile subscription decision from fixed network users (using mobile operators as their intermediaries).
- 5.30 The consequence of this analysis is that the ACCC’s draft pricing principle will prevent efficient pricing in the market and will in fact create an externality where one is currently internalised by the market. The ACCC pricing principle will therefore not promote efficient use of infrastructure.

## **6. Current pricing is more efficient than cost based prices**

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- 6.1 Mobile network operators selling into such a two-sided market must concern themselves with both price levels and price structures. Each affects the size of

the market (their network size) and their profits. The complexity of the optimal solution expands if the market is multi-sided.

- 6.2 Regulators concerned with economic efficiency have a similarly complex problem to solve when intervening in the price structures revealed by the market. This is not to say that regulatory intervention in two-sided markets is necessarily inappropriate (but we believe in this case it is), however it is clear that regulation in accordance with traditional one-sided market principles such as regulating at cost (as seems to have been adopted by the ACCC) is rarely correct.
- 6.3 Optimal pricing involves each side of the market extracting or internalising the external benefits (which accrue to the other side of the market) created by their actions. In broad terms, efficient use of infrastructure implies that subscribers (to both sides of the market) pay the cost of access less any external benefit they create and therefore can extract from others' willingness to pay.
- 6.4 There are a number of factors that lead to such pricing not currently being revealed in the mobile and fixed-to-mobile markets. They are primarily that:
  - (a) Fixed line subscription is regulated (at cost) and therefore fixed line subscribers cannot capture the externality they create by acquiring fixed line telephony.
  - (b) Mobile phone subscription is not regulated at cost, allowing subscribers to capture the externality they create. They do this (via mobile operators as their intermediaries) in the form of per minute charges for termination, rather than as a lump sum (which would create distortions).
- 6.5 Optus does not believe these factors should concern the ACCC enough to introduce cost based regulation for mobile. This is because:
  - Fixed line subscription has a very low own-price elasticity (estimated to range between  $-0.02$  to  $-0.10$  by Frontier Economics) and hence the welfare consequences of preventing fixed line users from charging "above cost" for mobile to fixed termination are *minimal*.<sup>9</sup> There are also many other reasons to regulate fixed line subscription, particularly its natural monopoly characteristics.
  - The efficiency gain from pricing mobile termination at TSLRIC and whether this leads to efficiency gains in the fixed to mobile market – which will depend on whether Telstra passes through these reductions in its fixed to mobile prices. We note that in submissions to date, Telstra indicates that it will not pass these through.
  - Mobile subscription has a very high own-price elasticity (estimated to range between  $-0.06$  and  $-0.54$  for access alone and between  $-0.41$  and

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<sup>9</sup> And they would likely be more than offset by the distortion created by unit charges for mobile to fixed calls, if a fixed charge could not be introduced.

–0.8 for access/usage together by Frontier<sup>10</sup>) and hence the welfare consequences of preventing mobile users from charging “above cost” for fixed to mobile termination are *significant*. We note the ACCC has failed to account for these efficiency losses from its draft decision (this is addressed further below).

- Fixed to mobile calls have a very low own-price elasticity (estimated to range between -0.08 and 0.43 by Frontier<sup>11</sup>). Optus maintains that the lower end of this range is appropriate and that hence the efficiency consequences of higher fixed to mobile prices is smaller than indicated by the ACCC.
- The relative price changes (from current price levels) proposed in the draft decision in combination with these externality effects will result in a net social welfare loss from regulation. Optus believes that empirically the trade-off of efficiency consequences does not presently lead to significantly distorted investment decisions and will in fact, lead to more efficient outcomes than cost based regulation of mobile termination.<sup>12</sup>

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<sup>10</sup> Due to bundling of access and origination, the latter estimates are likely to be appropriate.

<sup>11</sup> We note that Optus has relied on the estimate from Access Economics (of -0.08 which Optus “conservatively” rounded up to -0.1), which was incorrectly transcribed by Frontier (and hence the ACCC) to be 0.8. Optus is unaware of the source of Macquarie Equities estimate of -0.75 and finds it unreliable as it indicates that the price elasticity of fixed to mobile is as high as mobile originated calls (estimated by Frontier to be up to -0.8).

<sup>12</sup> On a conceptual level, we note that the ACCC has incorrectly interpreted CRA’s submission (for Optus) by saying:

... CRA seems to be implying that the total efficiency gain from the subsidy be set equal to the total deadweight loss from the FTM termination surcharge ... if this interpretation is correct, CRA’s rule will not result in the efficient outcome. (page 136)

Specifically, the ACCC is incorrect in concluding that following CRA’s rule:

... must result in an excessive subsidy and (therefore) an excessive FTM surcharge. (page 136)

By saying this, the ACCC is forgetting that any subsidy is in part a transfer and in part creates a social cost (because it is levied as a per minute charge). If the ACCC had read on (and quoted it in full), CRA’s criticism of the UK Competition Commission said by equating:



6.6 NERA on behalf of Optus has presented a report that outlines a detailed partial equilibrium analysis of the costs and benefits of regulating mobile termination. NERA has identified conceptual and empirical mistakes in the ACCC's partial equilibrium analysis that reveals that the case for regulating mobile termination on empirical grounds is weak.

6.7 Specifically, NERA find:

*... that the surplus created per subscriber as a result of 5cent lower FTM prices is around \$8. This means that a 5cent regulated reduction in termination charges will only produce a net benefit if there is a less than 0.8% reduction in subscriptions. We calculate that this requires that the elasticity of subscriptions be less than -0.064.*

*This analysis suggests that regulating termination price levels is likely to create net costs to end-users. Even in the most optimistic case, it is unlikely that regulation will produce materially positive net benefits.*

6.8 In summary, NERA demonstrate that the empirical case for regulation does not exist and that reducing termination rates by 5 cents (or more as proposed by the ACCC) will distort efficient investment and is definitively not in the long-term interests of end users of either mobile or fixed to mobile services.

#### **Note on partial equilibrium analysis in the fixed to mobile market**

6.9 On page 128-129 in its draft decision the ACCC has been highly critical of Optus' welfare analysis and presented (in Figure 7.3) its own conceptual analysis of the welfare consequences in the fixed to mobile market of reducing termination rates, incorporating the effect on mobile subscription levels.

6.10 Whilst a partial equilibrium analysis allows the ACCC to determine the effect in one market of a change in one variable, under *ceteris parabis* conditions, it does not allow a simultaneous consideration of a number of effects on that market. To perform a thorough welfare analysis a more general equilibrium approach to analyse second-round effects is required.

6.11 Optus has replicated figure 7.3 of the ACCC's draft decision below, which we acknowledge is a reproduction of Optus' partial equilibrium analysis<sup>13</sup>. The ACCC's analysis, like Optus' original analysis, assumes that the market operates at three equilibrium points. However, this is ostensibly incorrect

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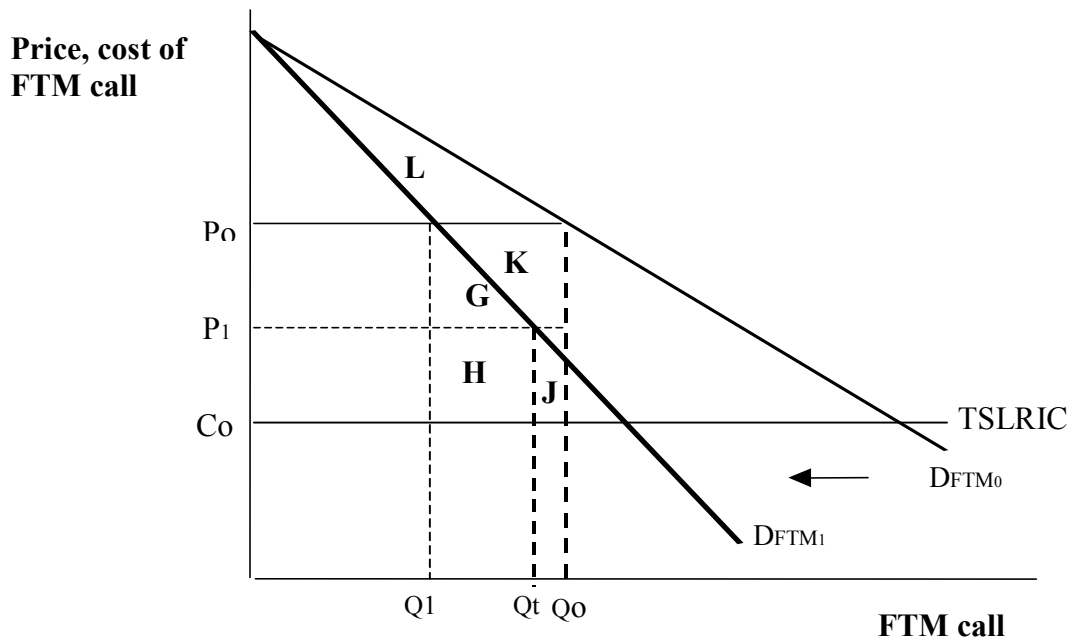
... the external benefit with the subsidy (rather than the deadweight loss) and [it] failed to balance social benefits and costs – in particular, a large part of the subsidy from termination will represent a transfer rather than a social cost. (page 22 of CRA)

This is precisely the error the ACCC appears to be making, in keeping with its UK counterpart.

<sup>13</sup> Whilst the ACCC has used TSLRIC in estimating welfare, it would be more correct to use marginal cost. We are not aware of any work to estimate marginal cost for mobile services.

because one of these points is transitional, that is,  $Q_1$  in figure 7.3 is not an observable market equilibrium point.

- 6.12 A more correct partial equilibrium analysis of this sort would be to show a simultaneous move from an initial equilibrium at point  $c$  to a final equilibrium at point  $d$ . This would incorporate both a shift in the demand for fixed to mobile calls as a result of a change in subscription levels and a change in the price resulting from a reduction in the mobile termination rate (assuming a degree of pass through to fixed to mobile retail charges).

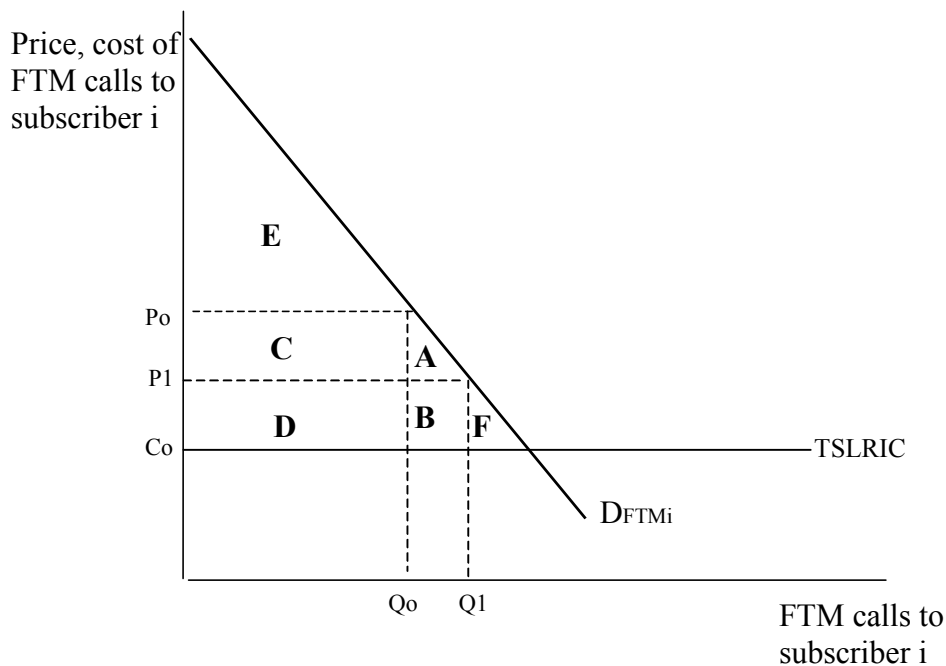


- 6.13 If the ACCC is determined to undertake a welfare analysis in this partial equilibrium framework then it should be observed that the two changes mean that:

- *Area L* is a loss in consumer surplus for fixed to mobile users as a result of lower mobile subscription levels.
- *Area G* is a transfer of surplus (previously collected by mobile operators and transferred to mobile users in the form of lower origination charges) to consumers of fixed to mobile services.
- *Area H* is a retained surplus that is collected by mobile operators and transferred to mobile users in the form of lower origination charges.
- *Areas J and K* together represent the loss in producer surplus (which would have been previously transferred to mobile subscribers) and are now a net loss in welfare to society.

*An alternative framework*

- 6.14 A simpler framework for this welfare analysis is from the perspective of a single mobile subscriber and an examination of the demand for fixed to mobile calls to that subscriber.
- 6.15 Consider a market to terminate a fixed to mobile call to a particular mobile subscriber,  $i$ , can be represented by the diagram below. This is consistent with each mobile subscriber being a single separate market, as they are not perfect (or even imperfect) substitutes for one another.



- 6.16 Assuming no retail costs or PSTN costs, the fixed to mobile termination rate is charged at  $P_o$ , which is illustrated to be above the cost (TSLRIC) of terminating this particular call. A net efficiency loss can be represented by triangle  $(A+B+F)$  at this price.
- 6.17 Area E on the diagram is the consumer surplus derived from calling subscriber  $I$  at price  $P_o$ . Areas  $C+D$  is the surplus that is collected by mobile operators (as intermediaries) and passed on to mobile subscribers through lower mobile subscription and usage charges.
- 6.18 If regulation forces the price to some level closer to TSLRIC, say  $P_1$ , there is a gain in net welfare equal to the deadweight loss areas  $A+B$ , assuming that full benefit is passed on to consumers. Area  $A$  is an increase in consumer surplus to the fixed user calling subscriber  $i$ , and area  $B$  is the increase in surplus from a greater level of fixed to mobile calls to subscriber  $i$  (due to the lower price).
- 6.19 However, the reduction in the mobile termination rate will mean that mobile subscriber  $i$ , if she continues to subscribe (an infra marginal subscriber), will

no longer be able to extract surplus  $C$  from the fixed to mobile callers who call her.

- 6.20 If on the other hand,  $i$  is a marginal subscriber, the loss of  $C$  being transferred in lower usage charges in the mobile retail market will cause her to drop her individual mobile subscription. The result is that the surplus derived from calling that person, the original triangle  $E$  and the surplus of  $C+D$  is lost altogether.<sup>14</sup>
- 6.21 A diagram such as the one represented above exists for each mobile subscriber. Therefore, assuming homogeneous demand for fixed to mobile calls to all subscribers, the total gain or loss to society from a regulated reduction in mobile termination rates is represented by the following equation.

$$\text{Welfare impact} = x*(\text{area } A+B) - y*(\text{area } E+C+D)$$

where:  $x$  is the no. of infra-marginal subscribers  
 $y$  is the no. of marginal subscribers  
 $x+y$  is equal to total mobile subscribers

- 6.22 NERA has provided Optus with an empirical assessment of this and other welfare effect in its paper, Mobile Services are Jointly Produced Products: Concepts and Empirics. It demonstrates that even with the most conservative assumptions, there is likely to be a welfare loss from regulation and consequently distorted investment in infrastructure in the mobile and fixed to mobile markets.

### Notes on Armstrong (2004)

- 6.23 The ACCC appears to rely heavily on Armstrong (2004) to justify its regulatory intervention. The ACCC quote Armstrong (2004) conclusion:

*As usual in this kind of 'competitive bottleneck' model, total welfare is not maximised since the interests of fixed network callers are not taken into account when the quantity of fixed-to-mobile calls...is chosen [and implicitly, the price of mobile termination services is set]. Welfare would be increased [if the number of fixed-to-mobile calls] were increased, i.e., if the implicit price for calling mobile subscribers from the fixed network were reduced to below the unregulated equilibrium level.*

- 6.24 Similar to the results of Gans and King analysis of the past, the ACCC conclude from Armstrong (2004) that the pricing structure will distort efficient use of infrastructure. However, like the analysis of Gans and King, the analysis presented by Armstrong (2004) is restricted to usage externalities and assumes that the own-price elasticity of subscription is zero on both sides of the market (fixed and mobile).

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<sup>14</sup> In fact this is a lower bound of the loss, as the fixed to mobile callers value from being having the option to call that lost mobile subscriber will not be fully reflected in their demand for fixed to mobile calls to  $i$ .

- 6.25 Optus knows (and the ACCC should also realise) that this assumption is incorrect. There is an own price elasticity of demand for subscription and if prices are raised subscription levels will fall. This is an economic certainty. The ACCC should therefore not rely on the above quote by Armstrong (2004) as supporting its case unless it believes that the demand for subscription is independent of the price of subscriptions.

## 7. Multi-product pricing

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- 7.1 Rochet and Tirole (2004) note that:

*Conceptually, the theory of two-sided markets is related to the theories of **network externalities** and of **(market and regulated) multi-product pricing**. From the former, it borrows the notion that there are non-internalized externalities among end-users. From the latter, it borrows the focus on the price structure and the idea that price structures are less likely to be distorted by market power than price levels.*

- 7.2 We have provided, above and in combination with submissions from NERA and CRA, a discussion of the practical effects of network externalities in the mobile market.
- 7.3 However, as advised by Rochet and Tirole, regulating pricing structures in the mobile services market requires the ACCC to resolve the multi-product pricing problem. Optus has considered the multi-product pricing problem in both the context of a competitive and regulated environment.

### Competitive multi-product pricing

- 7.4 Optus maintains that the mobile services market is competitive and should be defined as competition for an interdependent bundle of services associated with an individual subscriber.
- 7.5 In such a competitive environment, the incremental cost of a network cannot be defined according to the accounting principles associated with a separate mobile termination service. As outlined by NERA in its report for Optus, it is relevant to consider the incremental cost of mobile services as joint in nature. NERA quote the work of John Stuart Mill in his 1848 *The Principles of Political Economy*, but which appears to have largely escaped the current debate surrounding mobile termination:

*It sometimes happens that two different commodities have what may be termed a joint cost of production. They are both products of the same operation, or set of operations, and the outlay is incurred for the sake of both together, not part for one and part for the other. The same outlay would have to be incurred for either of the two, if the other were not wanted or used at all. There are not a few instances of commodities thus associated in their production. For example, coke and coal-gas are both produced from the same material, and by the same operation. In a more partial sense, mutton and wool are an example: beef, hides, and tallow: calves and dairy produce: chickens and eggs. Cost of production can*

*have nothing to do with deciding the value of the associated commodities relatively to each other. It only decides their joint value.*

*The gas and the coke together have to repay the expenses of their production, with the ordinary profit. To do this, a given quantity of gas, together with the coke which is the residuum of its manufacture, must exchange for other things in the ratio of their joint cost of production. But how much of the remuneration of the producer shall be derived from the coke, and how much from the gas, remains to be decided. Cost of production does not determine their prices, but the sum of their prices. A principle is wanting to apportion the expenses of production between the two.*

- 7.6 NERA note that mobile services, both origination and termination could be added to John Stuart Mill's list of services jointly produced for which "cost of production does not determine their prices". In this context, each new customer provides several jointly produced services.
- 7.7 Optus believes that all of the origination and terminating mobile services (data and voice) are indeed, jointly produced services. Moreover, the incremental cost of providing all these services hinges on the incremental acquisition of customers. To expand its customer base, Optus incurs incremental costs associated with network coverage and utilisation, sales commissions, promotions and other network and non-network costs.
- 7.8 Optus cannot supply a termination service in isolation. To sell one minute of termination to an individual consumer, Optus must first acquire that customer and provide other origination services.
- 7.9 As a consequence NERA find that competition in the presence of joint production costs sets efficient prices, which will be determined by market demands. If the ACCC regulates one mobile service (termination) below its market price, this will tend to lead to less efficient outcomes than the competitive market is currently delivering.
- 7.10 In this context it is also clear that the ACCC has misrepresented the term "cost" where it relates to mobile networks and its assessment of whether one service is priced inefficiently. It is inappropriate to think of some price being above or below cost - Optus owns a single mobile network over which we provide a range of services (voice origination and termination, data, short messaging, multimedia messaging, etc).
- 7.11 To arbitrarily allocate prices to a particular service and then say its price is above cost is inappropriate and not based on sound economic principles. To then regulate on the basis of the welfare effects of prices above "cost" is ludicrous.

### **Regulated multi-product pricing**

- 7.12 Notwithstanding the above, if the ACCC maintains its implied market definition of a "separate mobile termination market" it cannot simply dismiss

Ramsey pricing on the number of grounds that it believes that Ramsey pricing will not result from a competitive market.<sup>15</sup>

- 7.13 Regulating at cost one product of a multi-product firm based on a “equi-proportionate” mark-up rule will lead to distortions.
- 7.14 The principles of Ramsey pricing tells us that if marginal cost pricing is not sufficient to recover the total cost of running the firm then it is appropriate and efficient to use Ramsey prices (based on own-price and cross-price elasticities) in order to recover prices above marginal cost.
- 7.15 If the ACCC fails to apply Ramsey pricing principles in establishing the target regulation price, then detrimental efficiency consequences will necessarily arise. Indeed, it is not controversial that when services share a common cost base, the allocation of common costs on the basis of Ramsey principles provides more efficient outcomes than any other means of allocation (including equi-proportional mark-ups and appears to be the ACCC’s preferred approach to costing termination services).
- 7.16 Optus acknowledges that there are complexities involved in setting Ramsey prices and there are significant informational issues. However, in light of the superior efficiency outcomes of Ramsey pricing, the ACCC should, at the very minimum, apply a conservative proxy for a Ramsey mark-up on termination when estimating the cost of the service. Indeed, Optus notes that the ACCC

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<sup>15</sup> Optus disagrees with the ACCC's assertion that:

“Ramsey pricing at any level requires market power, without which carriers could not hold prices above attributable costs... However, the carriers claim that they operate in a market that is either ‘workably’ or ‘effectively’ competitive which would imply that such margins are not sustainable without collusion.” (Page 138).

In reality, competition will naturally drive firms towards Ramsey pricing structures. This is because Ramsey pricing is not just a monopoly profit maximising strategy, but also a market share enhancing strategy for competitive firms given its superior ability to take account of consumer demand preferences. To illustrate, a firm that moved away from Ramsey pricing would lose customers to competitors (all other factors held equal), while a firm would gain customers by setting prices in accordance with Ramsey principles if its competitors were pricing at cost.

Market power or collusion would only be required for Ramsey pricing if there were at least competitor in the market that only sold termination services. If this were the case, then that competitor could potentially undercut the Ramsey price for the relatively inelastic termination service. However, because of the interdependent and complimentary nature of the mobile services, termination is not, and is never likely to be, sold in isolation by a single firm. It thereby follows that the ACCC’s logic regarding the inability of a competitive market to set Ramsey prices is incorrect.

has had no problems in setting a proxy for termination costs based on international benchmarking to overcome the complexities of modelling.

- 7.17 Given the ACCC has ignored Ramsey pricing principles in setting its target price to date, Optus believes that the ACCC has failed to demonstrate that its pricing principle will not distort efficient investment in infrastructure.