MOBILE SERVICES AS JOINTLY PRODUCED PRODUCTS: CONCEPTS AND EMPIRICS

A Report for Optus

Prepared by NERA

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Sydney

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1 INTRODUCTION AND OVERVIEW

Optus has asked NERA to provide a critique of both the conceptual and empirical analysis in the ACCC's draft decision on declaration of mobile termination. This report can be divided into two related parts:

1. An analysis of the mobile services industry using the economic framework of joint production costs.

2. A review of the empirical framework adopted by both the ACCC and Optus in estimating the potential costs and benefits of regulating termination prices.

The purpose of the first part is to show that the ACCC should be very careful in positing a price/cost comparison for termination in isolation. We argue that termination and subscription services are largely jointly produced. That is, you cannot terminate a call to a subscriber unless you are already providing the subscriber with subscription services. This has two important implications. Firstly, when products are jointly produced efficiency does not require the price of each service be equal to 'cost' because there is no meaningful concept of cost for an individual service. Rather, efficiency only requires that the sum of prices be equal to the (marginal) cost of producing all the services. Secondly, competitive markets can generally be relied on to deliver this efficient outcome.

We then examine whether there is any potential market failure in the mobile services industry that may lead to less than efficient outcomes. We find that there may be a market failure of sorts in that the current price structure for termination to marginal subscribers does not involve perfect price discrimination. That is, the current price structure is a relatively crude single per minute/per call charge for termination. This does not allow the mobile network operator (MNO) to extract the full value callers place on an individual becoming a subscriber. As a result the MNO's have an inefficiently low incentive to grow their ***total subscriber base***. The use of a single per minute price also means calls terminated ***per subscriber*** will be inefficiently discouraged (assuming the MNO attempts to extract some level of termination surplus per subscriber).

This has two effects. Firstly, the total revenue received by MNOs as a result of putting a marginal subscriber on their network is less than the full value to society of that subscriber. As a result, there will be inefficiently few subscriptions. Secondly, the price structure for termination services inefficiently inhibits the number of calls made ***per remaining subscriber***.

Whether a regulated reduction in per minute prices improves social welfare depends on whether improving the distortion in FTM calls per subscriber provides greater benefits than the costs associated with worsening the distortion to the level of subscriptions. (We do not explore here the possibility of introducing more efficient price ***structures*** as an alternative to changing the price ***level***.)

This is essentially an empirical question and is the focus of the second half of the report. The mathematics boils down to the following formula:

Benefits of regulation = $A^* N_1$

Costs of regulation = $B^*(N_1-N_0)$

Net benefit of regulation = $(A+B)^*N_1 - B^*N_0$

Where:

A= Social surplus of greater calls per subscriber;
B = Social surplus per (lost) subscribers;
N_0= Initial number of subscribers; and
N_1= Post regulation number of subscribers (where (N_1-N_0) is negative).

Given that $N_0 \geq N_1$ it follows that regulation will only produce a net benefit if A+B is greater than B by proportionally more than N_0 is greater than N_1 (ie, $\frac{A+B}{B} > \frac{N_0}{N_1}$). In practical terms this states that if the surplus per subscriber created by lower FTM calls is \$1 and the total existing surplus per subscriber is \$100 then social welfare will only be improved if regulation causes a less than a 1% reduction in subscriber numbers.

We examine this issue using the assumptions deployed by the ACCC in its draft decision and by Optus in its previous submissions. We find that, based on these assumptions, the average social surplus per subscriber (ie, "B" above) is likely to be in excess of \$1,000 per annum. We also find that the surplus created per subscriber as a result of 5cent lower FTM prices is around \$8. This means that a 5cent reduction in termination charges will only produce a net benefit if there is a less than 0.8% reduction in subscriptions.[1] We calculate that this requires that the (absolute) own price elasticity of subscriptions be less than 0.06.

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 seems unlikely that regulation will produce materially positive net benefits.

[1] This analysis assumes that there is no correlation between the valuation callers place on being able to call a particular subscriber and that subscribers own private valuation of his subscription. If, on average, callers value calling privately marginal subscribers at less than other subscribers the benefits of regulation will be larger.

2 EFFICIENCY WITH JOINT PRODUCTION COSTS

A key finding in the ACCC's draft decision was that mobile termination services are currently charged 'above cost' and are 'cross-subsidising' below cost prices for subscription services – with deleterious effects in both the market for subscription and the market for termination (which is an input into the market for fixed to mobile calls).

> ***As indicated above, the 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;***
> - ***consequent above-cost pricing of retail FTM services; and***
> - ***subsidised prices of some retail mobile services.***
>
> ***The Commission believes the broadly cross-subsidised nature of this pricing structure is likely to emerge irrespective of the effectiveness of competition in the retail mobile services market.***
>
> ***In turn, this pricing structure is likely to generate direct efficiency losses in the market within which FTM services are provided. This is likely to be in the form of less than efficient consumption of retail FTM services. Based on plausible assumptions relating to the elasticity of demand for FTM calls and the starting quantities, prices and cost for FTM calls, the Commission estimates this direct efficiency loss could be as high as $282 million per annum. Fuller specification of the basis of this estimate is outlined in Chapter Seven. Further, the Commission expects this pricing structure will generate greater than efficient consumption of retail mobile subscription services, and a consequent efficiency loss in the market for retail mobile services.*** [2]

The analysis above is most appropriate if subscription and termination services are independently produced – that is, if the supply of one service is independent of the supply of the other service. If this is the case then it is appropriate to compare price and cost of each service independently and one could then conceivably come to the conclusion reached.[3]

However, it may be more appropriate to consider the issue using an alternative conceptual framework, which is presented below. In this framework, it is assumed that mobile termination is not produced independently of mobile subscription, and that the more mobile subscribers an MNO serves, the greater its supply of both mobile subscription and termination services. In the extreme, if each subscriber always attracts a fixed number of terminating calls (irrespective of price) then subscription and termination services are

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[2] Page xiii of the draft decision

[3] However, if average cost for each service is above marginal cost then it would still be appropriate to explore optimal Ramsey pricing subject to a budget constraint in order to determine efficient price structures.

perfectly jointly supplied. That is, with every extra subscriber served a given level of termination service is also supplied. Recognising jointness in production makes a significant difference to the type of competition and efficiency analysis that is applied to the mobile services market. When products are jointly supplied it becomes difficult to compare the price and 'cost' of individual services because there is no meaningful economic concept of 'cost' for an individual service. The only meaningful concept of cost relates to the cost of producing all the jointly produced services. This fact was famously noted by John Stuart Mill in his 1848 ***The Principles of Political Economy.***

> ***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. (Emphasis added.)***

We believe that there is merit in the ACCC exploring whether the use of a 'joint production' analytical framework will inform their final decision. In the next section we review the standard competitive market and efficiency analysis for two perfectly jointly produced services. The following section adapts that analysis to take account of peculiarities in the mobile services market.

2.1 Standard Analysis with Joint Production Costs

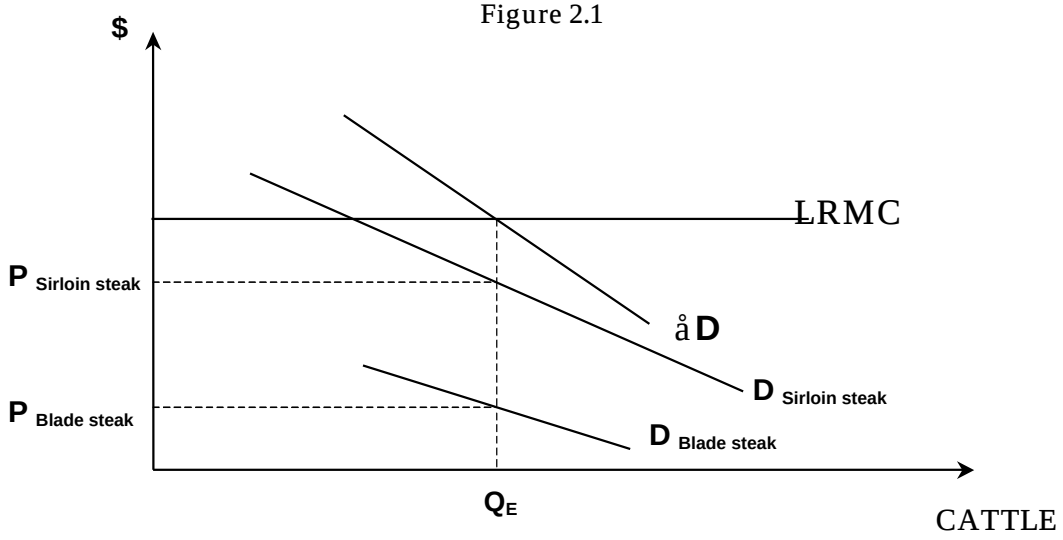
A simplified example from agricultural production can help show how the existence of joint production costs change competition and efficiency. Imagine that every beef cow produced by a grazier delivers two steaks – one sirloin steak and one blade steak. The price a grazier receives for his cow will be equal to the sum of the prices he receives for a sirloin steak and a blade steak. The marginal cost a grazier incurs in producing these goods will be equal to the opportunity cost of running an extra head of cattle on his pastures plus the cost of slaughtering a cow.

2.1.1 Competitive analysis

If there is competition between graziers then the equilibrium level of beef cattle produced each year will be such that the marginal cost of producing an extra head of beef cattle is equal to the sum of the prices received for both sirloin and blade steak. If the sum of prices received is less than the cost of an extra head of cattle then graziers will tend to reduce the size of their stock. If the sum of prices exceeds marginal cost then graziers will tend to increase their output of cattle. Equilibrium will be achieved where sum of prices equals marginal cost.

This is illustrated diagrammatically below.

Figure 2.1



The grazier effectively sells each cow for a price that is equal to the sum of the prices for its constituent parts. The grazier's production decisions do not depend on what each individual price is but only on the sum of the prices. Just like any other competitive market, the price of each steak is determined by the interaction between supply at the margin. However, with joint production costs the quantity supplied of one good determines the quantity supplied of the other. The price for both blade and sirloin steak will be found by drawing a vertical line up from the quantity of cattle produced by all graziers. If this quantity is less than Q_E then the sum of the prices of sirloin and blade steak will exceed the costs of running an extra head of cattle and there will be a competitive market response to increase output to Q_E. The opposite is true if total market output is to the right of Q_E.

2.1.2 Efficiency analysis

In the above example there is no economically meaningful concept of the 'cost' of a sirloin steak and the 'cost' of a blade steak. The only concept of cost that is relevant to the economic decisions of producers is the joint cost of producing both goods. As John Stuart Mill put it:

> ***"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."***

Nonetheless, a competitive market still delivers an efficient outcome. Efficiency requires that additional heads of cattle be produced until the value to consumers of an extra head of cattle is equal to the (marginal) cost of its production. The value to consumers is represented by their willingness to pay for one extra sirloin steak plus their willingness to pay for one extra blade steak. This in turn is given by the sum of their individual demand curves for sirloin and blade steak. It follows that the efficient outcome is the market equilibrium outcome where the sum of the demand curves intersects the industry marginal cost curve.

In general this will not involve prices for sirloin and blade steak being equal – despite the fact that both have identical 'cost of production'. The price of each service depends purely on the relative intensity of market demand at the equilibrium level of joint production. If consumers are willing to pay a higher price for sirloin than blade steak at outputs of Q_E then this will be the market and efficient outcome.

(Note that the above efficient outcome should not be confused with a 'Ramsey' pricing outcome. Ramsey pricing is used to recover common fixed costs that are not recovered by pricing all services at marginal cost. The above analysis assumes common variable (ie, joint) production costs rather than common fixed costs. As drawn, the price of sirloin steak is above the price of a blade steak. This is not because demand for sirloin is less elastic, it is because the willingness to pay for sirloin exceeds the willingness to pay for blade steak – ie, one demand curve is above the other.)

It is worth examining what the efficiency consequences would be if a legislative requirement were imposed that the price for the two goods could only differ based on different costs of production. As there is no discernible difference in the cost of production such a requirement is likely to be interpreted as requiring that prices of each good be equal. As consumers will be unwilling to pay more for blade steak at current production levels then, while production remained at Q_E, this would result in the legislated maximum price of sirloin falling to the price of blade steak.

Consequently, the sum of the prices received by graziers would fall below long run marginal cost. Graziers would respond to this by reducing investment in their cattle herds and cattle production would fall below the socially optimal level of Q_E. This would continue to occur until the market price of blade steak rose such that it was equal to half the long run marginal cost of production. As drawn, this would result in a significant loss of social welfare.

2.2 The Mobile Services Industry in a Joint Production Framework

Mobile termination services and mobile subscription services such as origination would appear to be, to a large degree, jointly supplied. In the previous example the production of an extra blade steak automatically creates the production of an extra sirloin steak. In the

case of mobile services the production of an extra subscription service automatically creates the supply of termination services to that subscriber. For the most part the above competition and efficiency analysis can be applied to the mobile services market. The same conclusions can be drawn, namely that:

- it is not generally meaningful to discuss the cost of termination or the cost of subscription services separately;

- regulating termination prices to be approximately equal to origination prices is likely to result in an inefficient contraction in the number of total output (ie, the number of subscribers).

However, there are some aspects where the mobile services market differs from the above simple example. Most relevantly, in the above example each 'cow' produced a fixed quantity of sirloin and blade steak. In the mobile services market each subscriber that an MNO attracts 'produces' a varying quantity of subscription and termination services. That is, the number of calls originating from, and terminating to that subscriber is not fixed.

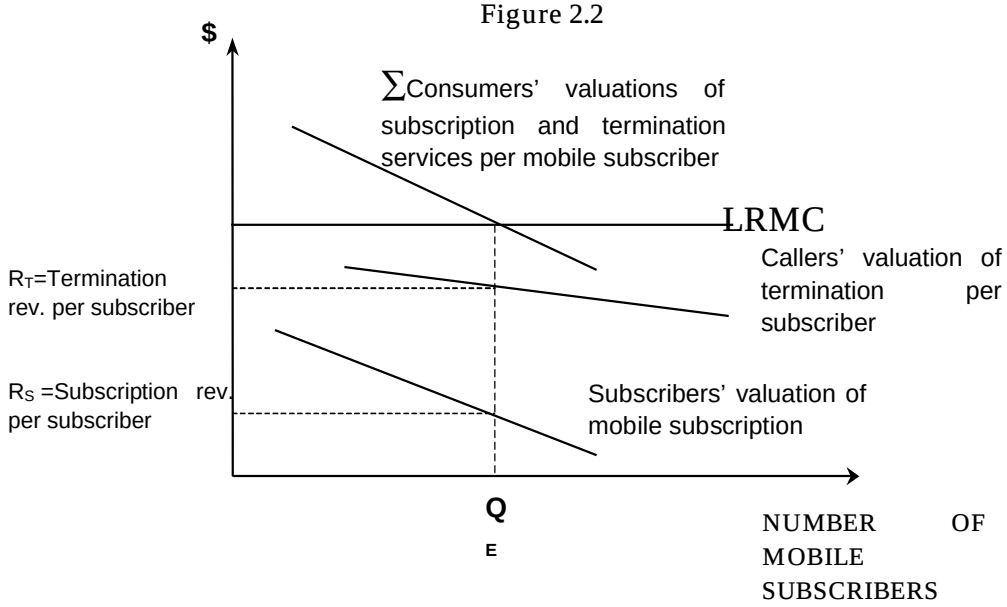
This is important because MNO's are now unlikely to be able to extract the full valuation for termination to a marginal subscriber. In the previous example, the marginal sirloin steak was sold for a price that was exactly equal to the marginal valuation consumers' placed on that steak - and the same was true for the marginal blade steak. As a result, graziers received a total price per cow that reflected consumers' valuation of an extra cow at the margin. This is why the market produced an efficient number of cows. Unfortunately, this condition will only hold in the mobile services market if MNOs can extract the full social surplus associated with every call terminated to a new subscriber. Only then will MNOs have the efficient incentive to attract new subscribers. However, perfect price discrimination of those terminating calls to their subscribers is unlikely to be possible – at least with current prices structures. This means that callers will not tend to pay their true valuation for calls to subscribers. MNOs will not receive the true social value of adding an additional subscriber and will, therefore, have an inefficiently small incentive to do so.

To see the importance of this fact let us examine two scenarios: one where perfect price discrimination of termination is possible and one where it is not.

2.2.1 When perfect price discrimination is possible

If perfect price discrimination is possible then competition in the mobile services market will deliver an efficient level of both subscription and termination services (both in total and per subscriber). Figure 2.2 below illustrates why this is the case.

Figure 2.2



Efficiency requires that subscribers be added to MNO networks until the total social value associated with a new subscriber is less than the marginal cost of attracting and supporting that subscriber to the mobile sector. The social value of a new subscriber is equal to the value the subscriber places on subscription services consumed (eg, mobile originated calls) plus the value callers to that subscriber place on termination services consumed (eg, FTM and MTM calls to that subscriber). If, at the margin, each MNO is able to extract the full valuation for these services then the market will automatically deliver an efficient level of subscriptions at Q_E. The revenue per subscriber will be set at R_S leaving a surplus for all but the most marginal subscribers. Similarly, the revenue from termination per subscriber will be set at R_T leaving a surplus on termination for all calls other than those terminated to the most marginal subscriber.

Under these assumptions the marginal revenue to any MNO from attracting an additional subscriber will be equal to $R_S + R_T$ – which is also equal to the social value placed on an additional subscriber. If the level of subscriptions is above the optimal (Q_E) level then $R_S + R_T$ will be less than the marginal cost of attracting and servicing an additional subscriber. Consequently, MNO's will not invest in growing their subscriber base. By contrast is if the level of subscriptions is below the optimal level then MNO's will intensify their efforts to

attract additional subscribers as $R_S + R_T$ will be greater than the marginal cost of attracting subscribers.

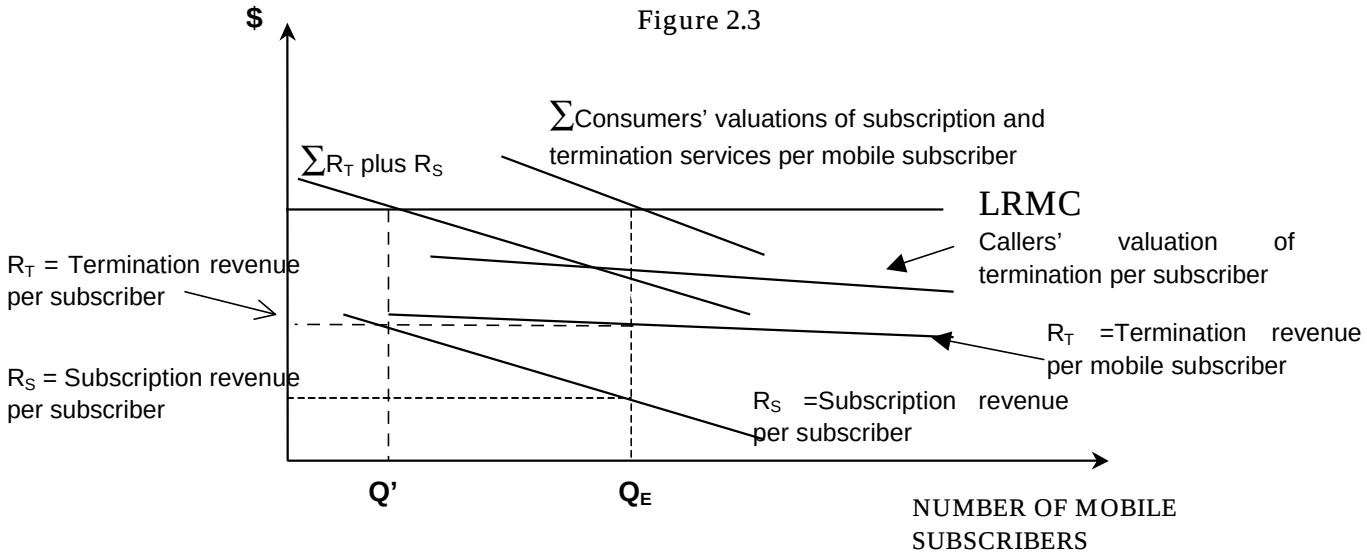
The end result will be that the market will deliver the efficient level of subscriptions.

2.2.2 When perfect price discrimination is not possible

The joint production cost framework allows us to see that, to the extent it exists, the source of market failure is the fact that information restrictions prevent MNOs capturing the full valuation callers place on terminating calls to marginal subscribers (ie, pricing in such a manner that the MNO captures the full social value of these calls ***and*** does not inefficiently discouraged them***).***

We can see this if we relax the unrealistic assumption that MNOs are able to perfectly price discriminate calls terminating to their subscribers. With this assumption relaxed the termination revenue per additional subscriber will be less than the value callers to that subscriber place on termination. That is, R_T will be less than the social value of termination for a new subscriber. This means that MNOs will have a less than socially efficient incentive to attract and retain new subscribers to the mobile sector. This is described in the below figure where the market outcome is no longer the efficient outcome (Q_E) but is instead Q'.

Figure 2.3



This socially inefficient level of subscription results from the fact the revenues from termination per subscriber (R_T) are now uniformly less than callers' valuation of termination per subscriber – due to an assumed inability for MNOs to perfectly price discriminate calls to each subscriber. The market will respond to this by reducing the number of subscribers until the willingness of marginal subscribers to pay increases by enough to recover the reduction in R_T resulting from the inability of MNOs to perfectly price discriminate. As drawn, this will occur at a level of subscriptions equal to Q' rather than the efficient level of subscriptions Q_E.

2.2.3 Tension between discouraging calls per subscriber and discouraging subscriptions

The efficient outcomes described in section 2.2.1 above require that MNOs are able to price termination such that no calls are inefficiently discouraged but, at the same time, all callers to marginal subscribers receive zero surplus. The latter condition is necessary if MNO's are to have the socially efficient incentive to attract/retain subscribers – ie, if the market is to deliver an efficient number of subscribers. The former condition is required to ensure that there are an efficient number of calls terminated per subscriber.

If the capacity to perfectly price discriminate is not available to MNOs then this creates a tension between two forms of efficiency. For example, if MNO's are forced to charge a single per minute price for all termination services then raising those prices towards 'monopoly levels' will increase R_T towards the true social value of termination per subscriber and thereby improve efficiency in the level of subscriptions. However, it will also tend to reduce efficiency in the level of calls terminating per subscriber.

It is an open question as to whether current per minute termination prices are inefficiently low or inefficiently high. The answer to this question is ultimately an empirical one – which we address in the next section. However, theory does tend to suggest that there is little ***a priori*** reason to believe that regulating termination prices to be in the vicinity of origination prices will be appropriate.

3 MEASURING THE NET BENEFITS OF REGULATION

The previous section examined the conceptual framework for analysing efficiency in the mobile services market. This section uses empirical assumptions relied on by both the ACCC and by Optus to put this conceptual framework into practice.

Reducing the regulated price of termination will impact on the efficient use and investment in infrastructure (or 'social welfare') in three separate ways:[4]

A. the improvement in social welfare associated with an increase in the average number of calls terminated per mobile subscriber as a result of the price of such calls moving closer to marginal cost; and

B. the loss in social welfare as a result of a reduction in the number of mobile subscribers (due to any concomitant increase in subscription prices). This is itself made up of three components:

   i. the loss of social welfare associated with calls no longer made to these subscribers (whether originated from a mobile or a fixed line);

   ii. the loss of social welfare as a result of the lost 'option value' to callers who lose the value of the option to call these subscribers – even in circumstances where they would not always have made calls; and

   iii. the loss/gain of social welfare as a result of calls no longer being made from these subscribers.

C. the gain in social welfare as a result of any increase in the number of fixed line subscribers as a result of FTM prices falling.

The analysis presented by both Optus and by the ACCC tended to focus on benefits and costs of the type A and Bi). Optus also tended to implicitly assume that only the calling party derived value from a call. This is a reasonable assumption if one is only interested in the sign (rather than magnitude) of the social welfare gains/costs of regulation, but is unlikely to be strictly true.

In terms of the ACCC's drat decision nomenclature:

- benefit of type "A" is the 'direct efficiency gain' in the retail market for FTM. This is the ACCC's estimate of the increase in social welfare as a result of an increase in the number of FTM calls ***per subscriber*** – assuming the number of subscribers is

4 The magnitude of these costs and benefits depend on the value placed on calls by both the calling and the receiving party.

unchanged. The ACCC estimates that this is in the vicinity of $104m pa associated with a 5 cent reduction in termination prices;[5]

- cost of type "Bi" is comprised of the fixed line 'externality' effect and a mobile network 'externality' effect;

- cost/benefit of type "Biii" is described by the ACCC as resulting from a cross-subsidised pricing structure that "*…**will generate greater than efficient consumption of retail mobile subscription services, and a consequent efficiency loss in the market for retail mobile services***"[6].

The remainder of this chapter critiques Optus and the ACCC's conceptual (as opposed to empirical) approach to estimating these social costs and benefits. Our main conclusions are that:

1. The ACCC criticises Optus' measurement of the benefits of regulation associated with benefit type "Ai". In particular, the ACCC argues that Optus should have taken account of the fact that current termination per minute prices may be well above 'marginal cost' (which may indeed be close to zero). However, the same argument can be applied to correct Optus' measurement of the costs of regulation associated with cost type "Bi". The net effect of both 'corrections' is to increase the estimated cost of regulation;

2. The appropriate measure of 'cost' in these calculations is not TSLRIC but is rather a marginal cost per minute concept – which is likely to be considerably lower than TSLRIC;

3. Ignoring the social value of a call to the called party (ie, call 'externalities') will not alter the sign of the total net welfare estimate provided that the called party's valuation of a call is, on average, proportional to the calling parties valuation of the call;

4. Optus conservatively assumed that MTM calls would fall in proportion to the number of mobile subscribers. A more appropriate assumption would be that MTM calls will fall more than proportionally to the fall in subscribers – as a drop in subscribers implies both fewer people to be called and fewer people to do the calling.

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[5] See page 127 of the draft decision.

[6] See page 139 of the draft decision.

3.1 Measuring Benefit Type A (Direct Efficiency Gains in the Market for FTM)

3.1.1 Allowing for the fact that initial prices are above marginal cost

The ACCC maintains that Optus' analysis of the direct efficiency gain would be improved if it recognised that the social benefit of a marginal extra minute of FTM calls ***per subscriber*** is equal to the difference between the current price and the underlying additional cost of producing that extra minute. The ACCC argued that the marginal cost of FTM calls is significantly below current prices and that even with all Optus' other assumptions the social benefit from a 5cent reduction in termination charges was around $10m rather than Optus' estimate of $1m (if you assume that the appropriate measure of marginal cost is 14cents per minute). The ACCC explained this in the following way on page 124 and 125 of its draft decision.

> ***To illustrate, consider Figure 7.1 below. In this diagram, the initial retail price of a FTM call is P_0 cents per minute at which level consumers purchase Q_0 minutes of the FTM service. The TSLRIC of production is C_0 cents per minute. Compared to a situation where the price of a FTM minute is set at its underlying cost of production, a price of P_0 cents per minute generates an increase in producer surplus equal to the area A, and a decrease in consumer surplus equal to the area A + B. Overall, society as a whole loses the area B. This area is sometimes referred to as the dead-weight loss or efficiency loss of prices being set in excess of the underlying cost of production.***

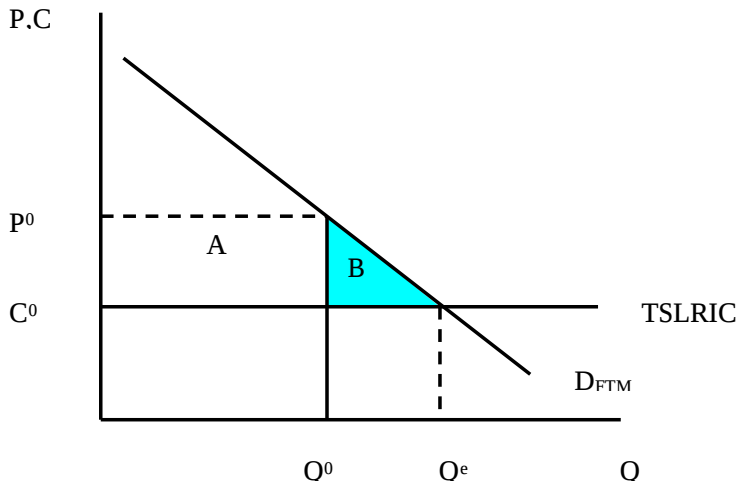

Figure 7.1 – Efficiency loss when price is greater than cost

In Figure 7.2, suppose the per-minute price of a FTM call is reduced from P_0 to P_1 cents per minute. In response to this reduction in price, demand for FTM calls will increase to Q_1 minutes. As a result of this, consumer surplus will increase by the area A + B; while producer surplus will fall by area A, but** increase **by area D. Overall, therefore, society as a whole will be better off by the area B + D.

By apparently assuming that the new price of a FTM call will reflect its underlying cost of production, Optus' analysis does not take into account the additional area of efficiency gain represented by the area D in Figure 7.2.

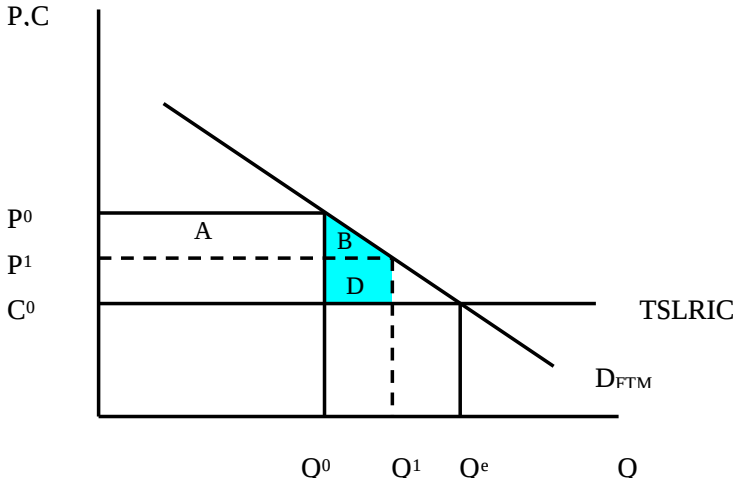

Figure 7.2 – Efficiency gain from a closer association of prices and costs for FTM call minutes

3.1.2 Using TSLRIC to approximate marginal cost

The ACCC recalculates Optus' direct efficiency gain using an estimate of the '***the underlying cost of production'*** equal to 14 cents per minute for FTM calls**.** This appears to be the ACCC's proxy based estimate of the TSLRIC of a FTM call. However, TSLRIC is inherently an average cost measure (albeit, a long run average cost measure). We believe that it may be more appropriate to use ameasure of cost that represents the cost to society of producing the extra minutes per subscriber – which is a marginal cost concept.

A necessary, but not sufficient, condition for TSLRIC and marginal cost of termination per subscriber to be equal is that there are constant returns to scale in the provision of FTM minutes per mobile subscriber.[7] It appears reasonable to assume that there are economies of scale in providing termination minutes per subscriber. Consequently, the ACCC's use of TSLRIC based measure of cost will tend to underestimate the true direct efficiency gain.

3.2 Cost of Type Bi (Fixed and Mobile 'Externality' Effects)

3.2.1 Costs associated with lost FTM calls

If regulation of termination prices results in an increase in subscription prices and a consequent reduction in the number of subscribers, the resulting loss of social surplus associated with FTM calls to those subscribers can be estimated in two steps:

- estimate the social surplus associated with FTM calls per marginal[8] subscriber; and
- multiply this by the number of marginal subscribers that are expected to cease being subscribers as a result of the regulation of termination.

It would appear that such social surplus from termination must exist for marginal subscribers. This is especially true if it is assumed that MNOs are able to price above 'cost' for fixed line customers to call subscribers. (Similarly, if competition amongst MNO's causes these 'profits' to be used to subsidise subscriptions then the market will have

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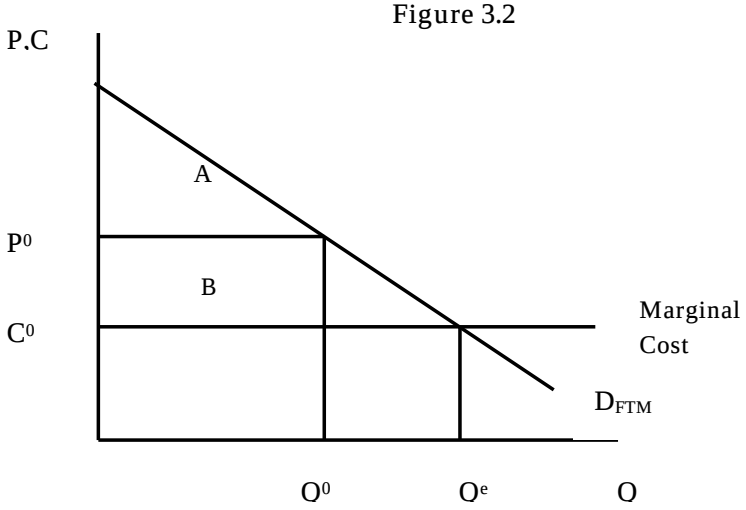
[7] In fact, the stronger assumption is also required that the age profile of all currently sunk assets is such that they all need replacement in the short term. If this is not true then, at any given point in time, the marginal cost of continuing to use these assets in providing the relevant service is less than TSLRIC as estimated by the ACCC. That is, TSLRIC is designed to provide a 'fair' return on sunk assets by setting their regulatory value on the basis that they must all be replaced today. This has little to do with the marginal cost of society continuing to use those assets into the future. The ACCC should not confuse what the measure of cost that is fair and appropriate in setting regulatory asset values with what is required in undertaking social efficiency measurement.

[8] A marginal subscriber is one whose ***private*** valuation of subscription not significantly above the price charged for subscription services.

automatically factored some (but not all) of the 'externality' into its prices.) The existence of FTM surpluses per subscriber can be shown in relation to the demand for FTM calls to an individual subscriber.

Figure 3.2



The above demand curve represents the willingness of fixed line customers to call a particular subscriber. If prices are set above marginal cost (C^0) at P^O the social surplus associated with FTM calls to that subscriber is equal to A+B. This amount of social surplus will be lost if the subscriber ceases to remain a subscriber.

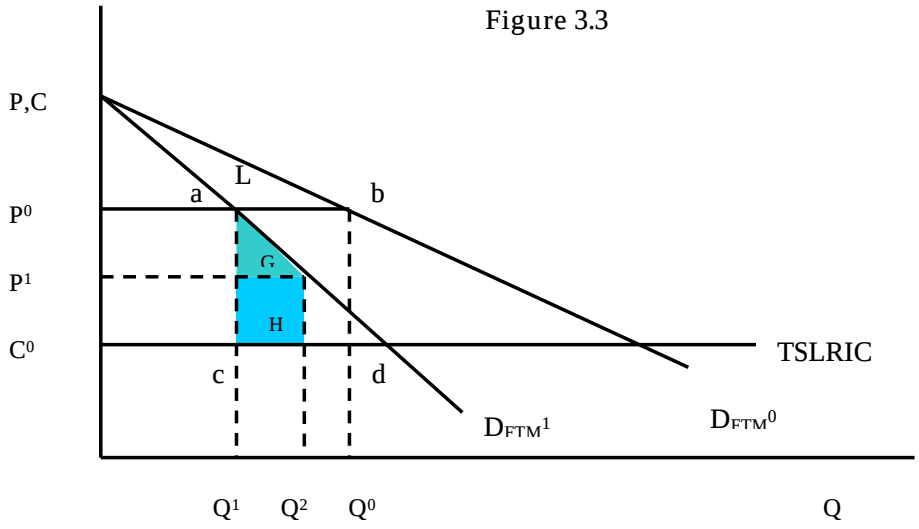
It is worth noting that the (per call) value of lost FTM calls as a result of lost subscribers must exceed the (per call) value of calls made as a result of lower FTM prices. This is a reflection of the fact that all calls lost must be valued at or above the current price of FTM calls. By contrast, all calls gained must be valued below the current price of FTM calls. In terms of the above diagram, the valuation per lost call will be equal to the average valuation of those calls to the left of the current equilibrium quantity while the valuation per call gained will come from the right.

Consistency requires that if area 'D' in figure 7.2 of the draft decision (reproduced above) is to be included in the measurement of welfare gains from regulation then area 'B' in figure 3.2 above should be included in the measurement of welfare loss from any reduction in subscribers. By contrast, Optus' submission implicitly estimated the loss in surplus associated with a loss of a subscription (given pricing of FTM at P^0) as area A – ie the lost consumer surplus to FTM callers as a result of the exit of that subscriber.

The impact of these adjustments can also be shown in relation to figure 7.3 in the ACCC's draft decision. In aggregate, Optus initial estimate of the efficiency cost was equal to area L less area G. The ACCC amended this to include the full social benefit of increased FTM calls per subscriber such that the relevant estimate of efficiency cost was L less G less H – which may be negative (ie, an efficiency gain). However, the corollary of including area H as a

benefit from regulation is the inclusion of the rectangle 'abcd' as a cost of regulation.[9] When this is done the social cost of regulation is unambiguous (as drawn) and is equal to a value greater than L (ie, L + abcd – G –H, where abcd>G+H).

Figure 3.3



3.2.2 Costs associated with lost MTM calls

Precisely the same conceptual framework can be applied when estimating any loss of social surplus associated with MTM calls to subscribers who may drop their subscriptions if regulation of termination results in higher subscription charges. The ACCC argues that because the mobile industry is 'mature' with high levels of penetration then it is reasonable to assume that the value any such costs are likely to be small.

> ***Whether or not subsidisation of mobile subscription improves the efficient level of consumption of mobile subscription services depends on whether there would be an additional externality benefit generated by additional subscribers in the absence of any subsidisation of the price of subscription. To illustrate, consider Figure 7.4. In this figure, the private demand curve representing individuals' willingness to pay (WTP) for subscription slopes downwards, indicating that individuals vary in their valuation of subscription. 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***

[9] – this being equal to the sum of all the areas 'B' in figure 3.2 for all lost subscriptions.

> ***are likely to be earlier joiners, and eventually the addition of new subscribers will be of little or no interest to existing subscribers.***[10]

However, for the same reasons discussed under figure 3.2 above, in order for there to be a zero social benefit to callers as a result of an extra subscription it is necessary that the extra subscriber receives zero calls per annum. For this reason we believe that the view expressed by the ACCC is a strong view which requires further consideration.

Moreover, a credible contrary view can be put that the social value of MTM calls per subscriber increases more than proportionately with the number of mobile subscribers. The number of potential call combinations in any given telecommunications network is equal to:

$\sum_{i=0}^{i=n}(N-i)$; where N equals the number of subscribers.

For example, if there are 2 subscribers (A and B) then there is only one possible call combination (A talks to B). However, with 3 subscribers there are 3 possible and unique call combinations and with 4 subscribers there are 10 and so on. Other things constant, it is a reasonable presumption that the number of calls made on a telecommunications network will be proportional to (or at least a positive function of) the total number of possible call combinations. It follows that, the more subscribers on a network (ie the more mature the network) the greater the social surplus per subscriber rather than the reverse. Moreover, this effect becomes larger the greater the number of subscribers. If there are only 2 subscribers on a network then adding a third only increases the number of call combinations by 2. However, if there are a million subscribers already on the network then adding a new subscriber increases the number of possible unique call combinations by one million.

3.2.3 Using TSLRIC to approximate marginal cost

Once more, we believe that an appropriate definition of cost in this sort of welfare measurement is the cost to society of producing the relevant minutes per subscriber – which is a marginal cost concept.

3.3 Costs of Type Bii (Option Value)

A potential issue with both Optus' and the ACCC's efficiency measurements is that they rely on estimates of the demand function for minutes terminated to mobile phones. This provides an indication of the willingness of callers to pay to actually call subscribers. However, they do not necessarily reflect the full value that callers receive as callers are not required to pay anything for ***the option*** to call a mobile subscriber – even if they do not exercise this option.

[10] Pages 133 and 134 of the draft decision.

Put simply, I may derive a benefit from a friend holding a mobile subscription even in circumstances when I do not make contact with him on his mobile. For example, I may say the day before 'I will meet you at 8pm or I will call you on your mobile'. Even if we do meet at 8pm and do not use the mobile network it is likely that both my friend and I receive considerable utility from my friend's mobile subscription. This utility comes in the form of both the increased flexibility we have to make such 'loose' social arrangements. It is also true that mobile subscriptions give 'peace of mind' to many potential callers irrespective of whether they ever actually call the mobile (eg, parents of young teenagers may value the perception that their children can contact them in an emergency even if such emergencies happen very infrequently).

These types of values are associated with the 'option value' mobile phone subscriptions provide – rather than the calls actually made. Consequently, observing the actual number of calls made to mobiles and the price paid for those calls will not capture these social values. We are unaware of any hard data on these values and, consequently, have ignored them in our empirical discussion of the net benefits of regulating termination. Nonetheless, it appears intuitively reasonable that these sorts of option values could account for a very sizeable percentage of the true social value per subscription. Indeed, it is conceivable that the value on ***being able*** to place calls to a subscriber could exceed the value of calls actually made to a subscriber.

3.4 Costs/Benefits of Type Biii (Social Value Derived by the Subscriber)

The total social value associated with any individual mobile subscription is equal to:

- the social value placed on that subscription by callers to that mobile subscriber net of the costs avoided if they do not call the subscriber; plus

- the social value that the mobile subscriber places on their own subscription less the costs that would be avoided if that mobile subscriber ceased to subscribe.

The discussion to date has focused on the first dot point while this section focuses on the second. To the extent that subscription prices are currently set above or equal to the marginal cost of providing subscription services then there must be some positive social value associated with ***all*** mobile subscriptions – as subscribers must place a value on the subscription that exceeds the price they are charged.

However, if the current prices for subscription services are less than the marginal cost of subscription then some subscribers may place a value on their subscription that is less than the cost at which it is charged. Increasing subscription prices to better reflect marginal cost will improve efficiency, at least in a narrow sense, by causing the exit of some subscribers with valuations of the service that are below the marginal cost to society of providing the service to them. This is only strictly true in a narrow sense as the overall social cost depends on the net impact of both the first and the second dot point. Even if a subscriber values

subscription at less than the cost of providing it to her it may still be efficient for her to remain a subscriber provided the value callers place on her subscription is high enough.

To the best of our knowledge the question of whether current subscription prices are above the ***marginal cost*** of providing those services has not been addressed. However, we note that marginal cost may be well below average cost in the mobile network industry due to the importance of large fixed network costs. The ACCC's analysis suggests that overall MNOs are pricing above average cost – although this may be largely explained by the ACCC's view that termination is priced above average cost.

3.5 Benefits/Costs of Type C (Social Value from Higher Fixed Line Penetration)

It is possible that regulating mobile termination will make fixed line subscription more attractive to customers due to a lowering in the average price of fixed line calls. This may increase the number of fixed line subscriptions, which in turn may create social value for potential callers to the new subscribers. Alternatively, it is also possible that reductions in mobile termination will make fixed line subscriptions less attractive as a result of the fact that fixed line subscribers may have a smaller pool of mobile customers to call from their fixed line.[11]

Which of these two effects are dominant will depend on whether benefit of type "A" exceed costs of type "Bi" as they relate to fixed line customers. The magnitude of any subsequent change in fixed line penetration levels will depend on the elasticity of fixed line subscriptions with respect to the price of FTM calls and the number of mobile subscribers.

Neither Optus nor the ACCC has examined this potential social cost/benefit of regulating mobile termination. We assume that this is reflective of the fact that it is generally assumed that the elasticity of fixed line subscriptions to FTM prices and mobile subscriptions is immaterially different to zero.

[11] There is unlikely to be any such benefit/cost associated with lower mobile termination prices creating lower MTM calls and thereby increasing the attractiveness of mobile subscriptions. This is because setting 'above cost' termination prices to 'cross-subsidise' mobile subscription prices is only a practical policy if the network with which termination is being negotiated can not respond by raising their own termination prices. If two mobile networks raise termination prices to each other and attempt to pass back the termination profit in retail subscription prices then they will find that they have not achieved any reduction in the price of subscription services. This is because the act of raising termination price increases subscription costs per customer at the same rate it increases termination profits per customer (assuming balanced traffic). The same is true for reductions in termination prices between MNOs. Consequently, reductions in termination prices charged between mobile networks need not have any impact on the attractiveness of subscription to mobile customers.

3.6 Accounting for Call 'Externalities'

The ACCC has questioned whether a complete analysis of the social welfare effects of regulation can be carried out without also accounting for the fact that the calling party also receives some benefit from receiving a call.

> ***On a conceptual level, the Commission believes that the fixed-line externality is only one externality that affects the interaction between the FTM, retail mobile and mobile termination services. That is, the Commission believes it is just as likely that mobile subscribers derive some benefit from having greater numbers of fixed-line callers being prepared to call them on their mobile phones. However, to the extent that the price of FTM calls is kept above their underlying cost of production, this will generate a welfare loss to mobile subscribers by reducing the willingness of FTM consumers to make FTM calls. The Commission believes a proper analysis of all externality benefits would require further consideration of the magnitude of these and other possible externality benefits. In this regard, the Commission agrees with AAPT's comments that it would be inappropriate to place undue focus on only one of the possible externality effects that might be expected to impact on the FTM, mobile termination and retail mobile services.***

We agree with the sentiment of the ACCC's comment, however we would take a different stance on the apparent conclusion that accounting for 'call externalities' would tend to increase the estimated net social benefits of regulating termination. While it is true that accounting for call externalities would increase the estimated social benefits of higher FTM calls per mobile subscriber it would also increase the estimated social cost of lower FTM calls to due to fewer mobile subscribers.

If a relatively simple, and seemingly reasonable, assumption is made that the value a receiving party places on a call is proportional to the value a calling party places on a call then the main effect of accounting for 'call externalities' would be to scale up the estimated costs and benefits of types A and Bi. Consequently, it would not change the sign of the net benefit calculated from A less Bi.

Cost Bii would be unchanged as a result of accounting for call externalities – as this cost does not depend on calls actually being made. However, accounting for call externalities would make it more likely that current mobile subscription prices are set above the true (social) marginal cost of subscription. That is, accounting for the value that receiving parties place on calls from mobile subscribers would increase the social costs associated with raising subscription prices.

4 EMPIRICAL ANALYSIS

This section attempts to take the empirical assumptions used by both Optus and the ACCC to derive estimates of the social cost of regulating termination. Where necessary we also introduce new assumptions to highlight the sensitivity of the outcomes to changes in assumptions. In carrying out this work we have not attempted to derive our own view of the underlying empirical relationships.

4.1 Optus and ACCC assumptions

The following table lists the assumptions adopted to date in both Optus' and the ACCC's analysis.

Table 4.1 ACCC and Optus Assumptions

Issue	Optus' Assumptions	ACCC's Assumptions
FTM calls per mobile subscriber		
Current own price elasticity of demand for FTM	-0.10	-0.60
Current price for FTM	40c / min	38.5c / min
Current quantity for FTM	4.244bn min pa	6bn min pa
Extrapolated demand curve for FTM from current elasticity and price quantity data	Linear	Linear
Marginal cost of FTM calls	35c / min (implicit)	14c / min (TSLRIC)
MTM calls per subscriber		
Current own price elasticity of demand for MTM	-0.8	NA
Current price for MTM	20c / min	NA
Current quantity for MTM	11bn min pa	NA
Extrapolated demand curve for MTM from current elasticity and price quantity data	linear	NA
Marginal cost of MTM calls	20c / min	NA
Impact on the number of mobile subscribers		
Current own price elasticity of demand for subscription	-1.0	Something less elastic than –1.0
Current price for subscription	$145 pa	NA
Current number of subscribers	13.9m	NA
Extrapolated demand curve for subscription from current elasticity and price quantity data	Linear	NA
Marginal cost of subscription services	NA	NA
Market dynamics and other		
Percentage of reduction in termination prices that fixed line operators pass through into lower FTM prices.	100%	100%
Percentage of lost termination profit per subscriber that MNO's pass through to mobile subscribers in higher subscription charges.	100%	NA (possibly something less than 100%)
Profile of calls to marginal subscribers	As per average profile	Fewer than average

Value of 'call externality'	Zero (implicit)	NA
Option value	Zero (implicit)	Zero (implicit)

* We note that Optus' stated elasticity in its submission is -0.8 but that, due to a calculation error, the implicit elasticity is –4.0.

4.2 Net Benefits of Regulation Given Assumptions

The following table provides a breakdown of the net benefits of a 5cent regulated reduction in termination prices given Optus' stated assumptions as above. We choose a 5c reduction as this is the value Optus choose to explore in its initial submission and was the value the ACCC critiqued in the draft decision.

Table 4.2: Net Benefits Given Optus Calculations

Social Cost/Benefit	Cost/Benefit
Type A – Direct benefits in increased FTM calls	
Total value	$949,963
Type B – Social surplus per mobile subscriber	
Type Bi – surplus on lost FTM calls	$778.58
Type Bi – surplus on lost MTM calls	$98.92
Type Bii – lost option value	$-
Type Biii – lost social surplus from subscription activities (can be negative)	$-
Total surplus per subscriber (sum of above four cells)	$877.50
Reduction in number of subscribers	$1,454,667
Total cost of type B (multiplication of above two cells)	$1,276,465,574
Type C – Social benefits/costs from changes in fixed line penetration	
	$-
Total net social surplus	-$1,275,515,610

That is, Optus' assumptions are consistent with a direct social benefit of around $1m and social cost due to lost subscriptions of around $1.28bn – leading to a clear presumption that costs outweigh benefits. However, if these estimates are amended for the assumptin that marginal cost of FTM is equal to 14 cents per minute gives the following table.

Table 4.2: Net Benefits Given Optus' Assumptions and Marginal Cost per FTM Minute of 14c

Social Cost/Benefit	Cost/Benefit
Type A – Direct benefits from increased FTM calls	
	$8,929,660
Type B – Social surplus per mobile subscriber	
Type Bi – surplus on lost FTM calls	$842.69
Type Bi – surplus on lost MTM calls	$98.92
Type Bii – lost option value	$-
Type Biii – lost social surplus from subscription activities (can be negative)	$-
Total surplus per subscriber (sum of above four cells)	$941.61
Reduction in number of subscribers	$1,454,667
Total cost of type B (multiplication of above two cells)	$1,369,735,929
Type C – Social benefits/costs from changes in fixed line penetration	
	$-
Total net social surplus	-$1,360,806,269

As can be seen, the estimated net social cost of regulation increases to 1.36bn pa when the ACCC's suggested amendments to the assumed marginal cost of FTM calls is applied.

However, the ACCC also queried a number of Optus' assumptions including the assumed own price elasticity of demand for both FTM and subscriptions. Where the ACCC put forward an alternative assumption these are listed in the table in the previous section. However, there are a number of assumptions where the ACCC did not put forward an alternative assumption (eg, MTM elasticity of demand, mobile subscription elasticity of demand etc). For illustrative purposes we estimate the social benefits of a regulated 5 cent reduction in termination based on the following set of assumptions that fully incorporate the ACCC's stated assumptions and the assumption that the elasticity of demand for subscription and MTM is at the midpoint of the ranges provided to the ACCC by Frontier Economics. (We note that Optus believes that Frontier made a mistake in their range for FTM elasticity as a result of incorrectly reporting –0.08 as –0.80. For the absence of doubt we have not taken account of this below and have retained the ACCC's stated estimate of the elasticity of FTM at –0.60).

Table 4.3: ACCC Assumptions with gaps filled
(for illustrative purposes only)

Issue	ACCC's Assumptions
FTM calls per mobile subscriber	
Current own price elasticity of demand for FTM (ACCC assumption)	-0.60
Current price for FTM (ACCC assumption)	38.5c / min
Current quantity for FTM (ACCC assumption)	6bn min pa
Extrapolated demand curve for FTM from current elasticity and price quantity data (ACCC assumption)	Linear
Marginal cost of FTM calls (ACCC assumption)	14c / min
MTM calls per subscriber	
Elasticity of demand for MTM (midpoint of Frontier estimates)	-0.445
Current price for MTM (Optus assumption)	20c / min
Current quantity for MTM (Optus assumption)	11bn min pa
Extrapolated demand curve for MTM from current elasticity and price quantity data (Optus assumption)	Linear
Marginal cost of MTM calls (Optus assumption)	20c / min
Impact on the number of mobile subscribers	
Elasticity of demand for subscription (midpoint of Frontier estimates)	-0.3
Current price for subscription (based on Optus estimate)	$145
Current number of subscribers (millions) (Optus assumption)	13.9
Extrapolated demand curve for subscription from current elasticity and price quantity data (Optus assumption)	Linear
Marginal cost of subscription services (implicit Optus assumption)	$145
Market dynamics and other (illustrative only)	
Percentage of reduction in termination prices that fixed line operators pass through into lower FTM prices.	100%
Percentage of lost termination profit per subscriber that MNO's pass through to mobile subscribers in higher subscription charges.	100%
Profile of calls to marginal subscribers	As per average
Value of 'call externality'	Zero
Option value	Zero

The social costs and benefits associated with the above assumptions are described below.

Table 4.4: Net benefits associated with assumptions in table 4.3

Social Cost/Benefit	Cost/Benefit
Type A – Direct benefits in FTM calls per mobile subscriber	
	$98,478,903
Type B – Social surplus per mobile subscriber	
Type Bi – surplus on lost FTM calls	$244.24
Type Bi – surplus on lost MTM calls	$177.84
Type Bii – lost option value	$-
Type Biii – lost social surplus from subscription activities (can be negative)	$-
Total surplus per subscriber (sum of above four cells)	$422.08
Reduction in number of subscribers	$591,670
Total cost of type B (multiplication of above two cells)	$249,732,161
Type C – Social benefits/costs from changes in fixed line penetration	
	$-
Total net social surplus	-$151,253,257

With the above illustrative assumptions it can be seen that a 5 cent regulated reduction in the price of termination will tend to result in a reduction in social surplus of around $150m pa.

This should not be a surprising finding. Note that the above assumptions are consistent with a social surplus associated with calls to a mobile subscriber of around $422 per annum. By contrast, the increase in social surplus per (remaining) subscriber as a result of a (fully passed through) reduction in FTM prices is only $7.4 per annum. This represents only 1.7% of the total surplus per subscriber. Consequently, a 1.7% reduction in subscriptions as a result of a 5c reduction in termination prices will outweigh the social benefits of more FTM calls per (remaining) subscriber.

4.3 Linear Demand Curves

NERA was not asked to come to a conclusion on all the appropriate assumptions regarding current levels of prices, marginal costs, quantities and demand elasticities. However, we were asked to provide a conceptual review of both the ACCC's and Optus' analysis. In this regard we make the following observations.

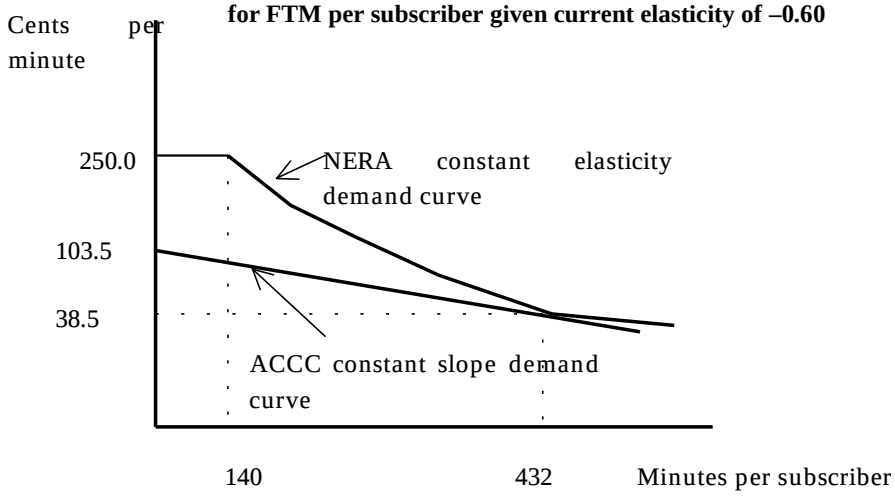
The assumption of linear demand curves tends to significantly reduce the size of the social surplus associated with calls to individual mobile subscribers. Most demand curves are convex to the origin reflecting an increasing rate at which the marginal utility of consumption declines with quantity consumed. A straight-line demand curve implicitly assumes that the elasticity of demand rises as prices rise.

As a result of assuming a linear demand curve in combination with an own price elasticity of demand of –0.6 the ACCC effectively assume that the most valuable FTM call is valued at 103 cents per minute. That is, the ACCC implicitly assumes that at a price exceeding $1.03 per minute no fixed line customer would ever call a mobile subscriber. This is not intended to be a criticism of the ACCC as the analysis the ACCC was clearly not attempting to accurately estimate all the social costs and benefits of regulation – rather it was making some illustrative amendments to Optus' assumptions.

However, in order to make as accurate estimates as possible of social welfare it is necessary to pay attention to the shape of the demand curve in its entirety – not just at current prices and quantities. In the absence of this information it is almost certainly inappropriate to assume a straight line demand curve. In our view a more reasonable assumption would be that the demand curve exhibits a constant elasticity of demand up to some maximum price at which it is assumed that customers will cease to buy the relevant service. While this is unlikely to be an accurate reflection of the actual demand curve it is much more likely to accurately reflect the social surplus associated with subscriptions than assuming a constant slope demand curve.

For the purpose of our analysis below we assume that the demand for both MTM and FTM calls exhibits constant elasticity of demand up to a maximum price of $2.50. That is, it is assumed that no-body ever values calling a mobile subscriber at more than $2.50 per minute. The difference between NERA's proposed approach and the ACCC/Optus straight-line approach is illustrated in the below figure.

Figure 4.1: Straight line versus constant elasticity demand curve for FTM per subscriber given current elasticity of –0.60



At current prices and quantities of FTM both demand curves have the same slope and elasticity (-0.60). However, the straight line approach results in a much 'flatter' demand curve and involves the unrealistic assumption that no FTM call to a mobile is ever valued at more than $1.03 per minute. Our proposed approach assumes that the elasticity of demand for FTM is constant until prices reach a maximum level at which consumers suddenly refuse to buy any FTM calls. We have conservatively imposed a $2.50 per minute maximum willingness to pay.

This implicitly assumes that when prices reach $2.50 per minute each subscriber would receive around 140 minutes of calls per year (or around 2.7 minutes per week). We believe such an outcome passes the 'smell test' and is preferable to the assumption that they receive no calls per year when prices exceed $1.03 per minute. Our assumption is also conservative in that it assumes that no caller ever values calling a subscriber on his or her mobile at more than $2.50 per minute. In reality, it seems likely that most subscribers would receive at least one call per year where the caller valued the ability to contact them in the tens, if not hundreds, of dollars per minute.

4.3.1 Empirical implications

If we adopt our proposed approach to extrapolating the demand curve for MTM and FTM beyond the current equilibrium then the estimated costs of regulation increase dramatically. Adopting all the assumptions in table 4.3, with the exception that we adopt our above proposal with respect to use of constant elasticity demand curves, gives the following net benefits of regulation.

Table 4.5: Net benefits associated with assumptions in table 4.3 except linearity of demand curves

Social Cost/Benefit	Cost/Benefit
Type A – Direct benefits in FTM calls	
	$109,830,989
Type B – Social surplus per mobile subscriber	
Type Bi – surplus on lost FTM calls	$568.36
Type Bi – surplus on lost MTM calls	$873.33
Type Bii – lost option value	$-
Type Biii – lost social surplus from subscription activities (can be negative)	$-
Total surplus per subscriber (sum of above four cells)	$1,441.69
Reduction in number of subscribers	$557,708
Total cost of type B (multiplication of above two cells)	$804,043,024
Type C – Social benefits/costs from changes in fixed line penetration	
	$-
Total net social surplus	-$694,212,035

Thus the net benefit of regulation goes from being around negative $150m in table 4.4 to being around negative $700m. This cost of regulation is based on, amongst other things, an assumption in table 4.3 that the own price elasticity of subscriptions is –0.30. It is instructive to ask at what elasticity of subscriptions the above calculations would begin to give a positive estimate of the benefits of regulation? The answer to this question is an elasticity of –0.042. That is, the own price demand for subscriptions would have to be more inelastic than –0.042 before regulated reductions in termination prices would start producing positive social benefits.

This would appear to be below all credible estimates of the true elasticity of demand for subscriptions. As such, it would appear to imply that much more analysis is required by the ACCC before it satisfies the 'burden of proof' generally required to justify heavy handed regulation of prices.