



Wholesale Mobile Voice Call Termination

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Wholesale Mobile Voice Call Termination

Summary

Ofcom proposes to cut mobile termination rates by, on average, 42% every year between 2011 and 2015, reducing them from 4.3 ppm to 0.5 ppm in the process. This must be one of the largest price cuts proposed by any regulator in any industry, in any country in the history of price regulation. The percentage is more than four times greater than any of the reductions previously applied to mobile termination rates in the UK.

Ofcom needs to justify such a dramatic step. It would have us believe that the question here is a narrow technical choice between two cost methodologies – LRIC and LRIC+. But moving from LRIC+ to LRIC only reduces the termination rate by 1 ppm whilst Ofcom actually proposes to reduce rates by 3.8 ppm.

The right way to assess Ofcom's proposal is to consider the impact of reducing termination rates below a level at which other mobile prices have to rise. This is the level at which mobile customers are directly affected and potentially harmed. Termination rates can fall without harm to customers if they reflect increased efficiencies, but there comes a point at which the reductions in prices will outstrip reductions in costs. We estimate that this occurs when termination rates fall below 3.7 ppm in 2014/15, or if prices fall faster than by around 4% every year.

Ofcom does not do this assessment, but we can anticipate its arguments for reducing rates to 0.5 ppm instead of 3.7 ppm. These are:

- that any rebalancing of mobile prices which follows from reducing termination rates below 3.7 ppm will not lead many mobile users to disconnect from the network, either because those who are affected by the price changes are not those who are likely to disconnect or because the subscriptions that are cancelled will be additional SIMs and not the primary mobile account.
- that even if some mobile users do disconnect, the benefits of lower mobile call prices and cheaper fixed to mobile calls for those who remain will more than compensate for any harm which results.

We explain in this submission why these arguments are wrong:

- we show why over 4 million mobile users would disconnect their mobile phones when prices rise as a result of termination rates falling as low as 0.5 ppm;

- 2.6 million of these users do not spend more than £10 per month on their mobile telephony. They are disproportionately D and E in socio-economic terms and very few of them have multiple SIM cards.
- those that will benefit from Ofcom's proposals will need to be spending more than £25 a month on mobile services.

Ofcom is required by law to minimise any harm to consumers arising from its proposals. The best way to do this is, of course, not to reduce termination rates below 3.7 ppm. But if Ofcom is determined to cut rates below this level, it can and should first take additional steps to protect consumers:

- It should adjust its cost models to better reflect the real world and to correct for errors. We show in this submission that, when this is done, the correct LRIC rate is at least 1 ppm (not 0.5 ppm) and that the correct LRIC+ rate is 3.3 ppm (not 1.5 ppm).
- It should adopt the LRIC+ standard and not LRIC, on the basis that this best serves the interests of UK consumers, notwithstanding what the European Commission might recommend.
- It should consider introducing measures like a vouchers scheme or a subsidised tariff alongside any reduction in termination rates in order to protect vulnerable mobile users.
- It should consider moving to 'two-part' interconnection charges which would achieve Ofcom's objective of lowering call prices whilst reducing the harm for vulnerable mobile users.

We are told that we live in times where radical measures are needed, but that it is important that the most vulnerable in our society are protected. In this case Ofcom is proposing to follow the European Commission's direction and cut mobile termination rates by 42% in each of the next 4 years but to ignore the impact that this will have on many of the most vulnerable in our society. Vodafone believes this would be bad news for low spending customers, for the UK telecommunications market, and for the UK as a whole.

Section 1: Overview

Ofcom states that the “*pivotal*” question in this consultation is whether to follow the EC’s Recommendation and adopt pure LRIC.¹ Ofcom finds little to choose between pure LRIC and its alternative LRIC+ (“... as the choice is between two second-best options (LRIC+ and pure LRIC), it is difficult to conclude that either of the two cost standards should be preferred on allocative efficiency grounds”²). Ofcom therefore feels obliged to follow the Commission’s Recommendation because it can find no good reasons, specific to the UK, that would enable it to justify doing otherwise.

Vodafone challenges this line of reasoning on a number of grounds:

- We believe that the fundamental question is not, as Ofcom suggests, a choice between cost standards but whether Ofcom should reduce mobile termination rates below the level which induces adverse effects on the number of people participating in the UK mobile market. This issue is closely related to the ‘strategic question’ posed by Ofcom in its first consultation (whether it “*should... adopt a policy of reducing termination rates as far and as fast as we reasonably can*”³) but not addressed in the current consultation.
- A proper review of the evidence cited by Ofcom in Annexes 12 and 13 shows that it does not support Ofcom’s contention that there is little to choose between the two cost standards in allocative efficiency terms. On the contrary, the evidence supports a preference for LRIC+.
- Our own market research shows that over 4 million customers are likely to cease to participate in any mobile network following the reductions in termination rates contemplated by Ofcom. This is the case even if we assume that operators can vary the required increases in subscription/periodic prices by spend cohort.
- We find that the vast majority of departing customers have only one SIM card and are disproportionately drawn from socio-economic groups D and E. In contrast the ‘winners’ from Ofcom’s proposals (who make sufficient calls to outweigh the increase in one-off or periodic charges) typically spend more than £25 per month and are disproportionately drawn from socio-economic groups A and B.
- These in themselves are compelling grounds for choosing not to follow the Commission’s Recommendation. Indeed Ofcom expressed similar concerns in its response to the Commission’s consultation on its Recommendation only a year ago. The reasons that Ofcom must

¹ 1.6

² A12.66

³ 1.13

supply for ignoring the Commission do not necessarily have to be specific to the UK.

If, despite our evidence, Ofcom persists with its binary choice between pure LRIC and LRIC+ then it should at least calculate the costs correctly. Vodafone has uncovered significant errors in Ofcom's cost modelling which cast serious doubts on its usefulness and integrity. In the case of pure LRIC, if Ofcom were to set charges at 0.5 ppm, then it would encourage operators not to invest in additional network capacity to terminate inbound calls. This risk is not material if rates are set using LRIC+.

The real 'pivotal' question

An assessment of the impact on consumers of a change in the level of termination rates must properly evaluate the impact of any proposed reduction on consumers of mobile and fixed-to-mobile services.

As Ofcom itself recognises a reduction in mobile termination rates (MTRs) that goes beyond projected reductions in (average) termination costs can be expected to lead to increases in (a) the subscription or periodic charges paid by mobile subscribers and (b) average retail prices of mobile services, as competing mobile operators try to recover any resulting shortfall of termination profits from the retail market. This is the 'waterbed effect'.

A proper evaluation of the impact on consumers of Ofcom's proposals should therefore compare:

- a factual scenario, which evaluates the impact on mobile consumers from the increase in subscription/periodic charges that is likely to result from Ofcom's proposals to reduce termination rates from current levels to 0.5 ppm, with
- a counterfactual scenario, where termination rate reductions from current levels would not be expected to lead to any increases in subscription/periodic charges, because they track the projected changes in (average) termination costs.

Vodafone has used Ofcom's model to estimate the level of termination rates in this counterfactual scenario under Ofcom's base case efficiency savings and volume growth assumptions. We calculate this 'profit neutral' charge to be 3.7 ppm in 2014/15 (see figure 1).

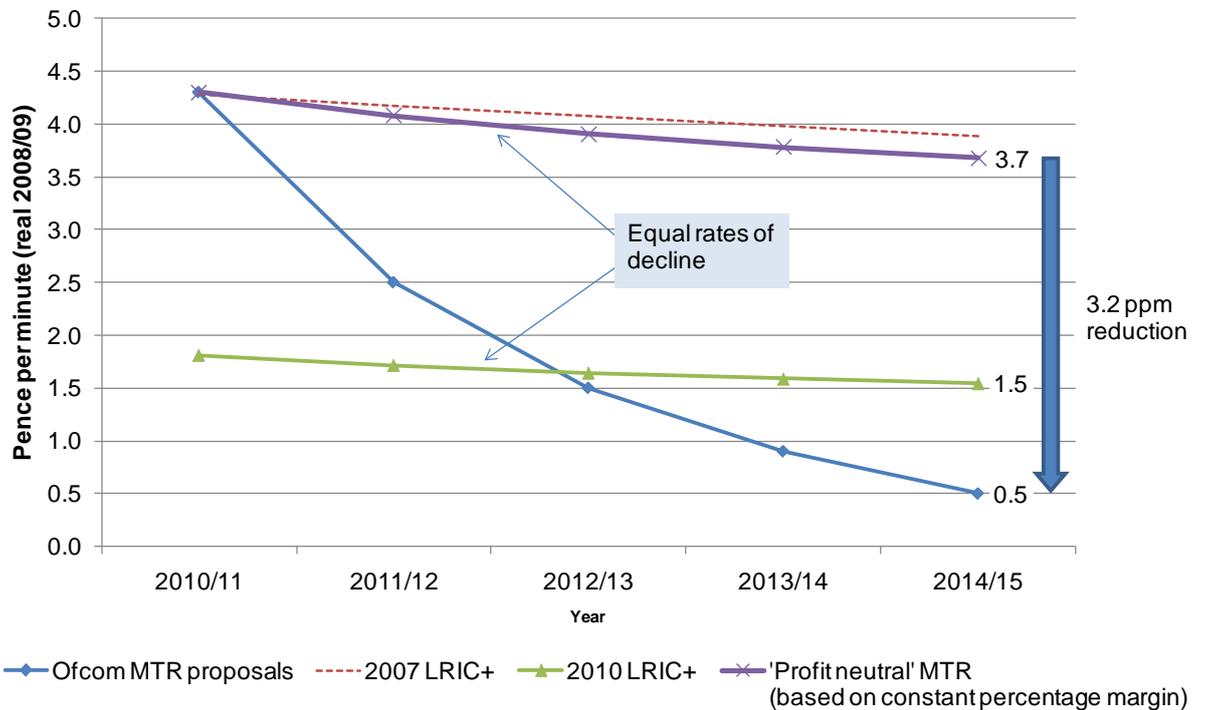


Figure 1 - Profit neutral termination rates

This 'profit neutral' level of MTRs has been calculated by assuming that, over the period, termination rates move in line with changes in the LRIC+ level, as projected in Ofcom's model, which arise from movements in input costs and changes in volumes. If the price of non regulated services also moves in line with their corresponding LRIC+ costs then we would expect the overall level of profitability of all services to remain broadly stable.

If the level of termination rates were to fall significantly below this 'profit neutral' path (as Ofcom proposes) then, for overall profitability to be maintained, the prices of other mobile services would have to increase at a rate higher than changes in their associated unit costs (as measured by LRIC+).

This implies that Ofcom's proposals would be desirable only if its 'effective' proposed MTR reduction of 87% (from 3.7 ppm to 0.5 ppm) leads to benefits from lower call charges for consumers of fixed-to-mobile (F2M) and mobile to-mobile (M2M) calls that exceed the reduction in benefits for mobile and fixed consumers from the higher subscription/periodic charges that mobile subscribers will face, as a result of the waterbed effect. This reduction would consist of (i) the fall in consumption of mobile communication services as a result of some mobile subscribers ceasing their mobile subscriptions in response to the increase in subscription/periodic charges, and (ii) the

reduction in the consumption of fixed-to-mobile calls as a result of there being fewer mobile subscribers for other fixed and mobile subscribers to call.

The available evidence supports LRIC+

Our review of the available evidence (detailed in Section 2) reaches a different conclusion to Ofcom's. We find that the evidence available to Ofcom at the time of publication demonstrates that its proposal is likely to lead to a reduction in overall consumer benefits. This is because (a) there is no (or very limited) evidence to support the presumption that reductions in termination rates lead to higher levels of F2M and M2M calls and (b) the evidence shows that the proposed effective termination rate reduction would have a material negative impact on the number of mobile subscribers in the UK market.

Our views are supported by our own market research (detailed in Annex 2) in which we have corrected for concerns that Ofcom has expressed about previous surveys and econometric research. We find that over 4 million users will cease to be customers of any network.⁴ This 'ownership effect' is apparent even when we reduce the effect of the proposed termination rate cuts on retail charges for low spending customers by assuming the operators can vary the price increases by individual spend cohort, for example, through changes to specific price plans.

We have also examined the characteristics of these departing customers (see Section 3 and Figure 2 below). We find that the leavers (rather than those simply giving up a SIM) are: typically low spending (63%), disproportionately drawn from socio-economic groups D and E compared with the general population and not users of data services.

⁴ Ofcom rather dismisses the fate of those with multiple sims by referencing a duty to promote ownership rather than subscription (A13.77). However, we note that Ofcom has an overarching duty to "further the interests of consumers in relevant markets". Ofcom must therefore explain why choosing to give up (say) a personal sim card (many people have different sims for work and personal use) is in the "interests of consumers".

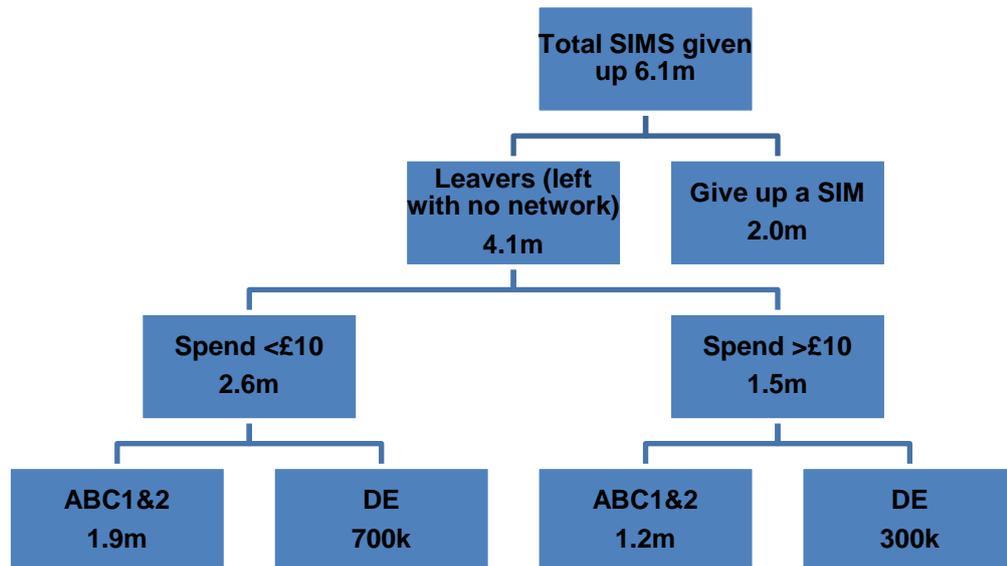


Figure 2 – Analysis of departing customers

For Vodafone the ‘pivotal’ question therefore is not a choice between pure LRIC and LRIC+ but whether Ofcom should reduce charges below 3.7 ppm in 2014/15. We believe that the evidence shows this would do more harm than good with more than 4 million users ceasing to be customers of any mobile network.

If, despite the evidence, Ofcom nonetheless chooses to set rates below 3.7 ppm then it should do so in a manner which minimises the adverse allocative and distributional effects which we have identified. This can be achieved by devising some form of voucher or low user scheme which is available to marginal customers and by setting charges based on LRIC+ and deploying a straight-line glide-path. Ofcom has already referred to voucher schemes in previous consultations, but not in this one. The issues associated with them are well understood.

Two-part charging should be reconsidered

We also suggest in Section 6 a form of two-part charging that we believe overcomes many of the practical implementation issues that have been identified previously. Our proposal is based on a fixed annual charge per interconnection link together with a per minute charge based on pure LRIC. We view this proposal as superior to the pure LRIC option proposed by Ofcom because it provides operators with an incentive to retain marginal customers: the greater the number of customers receiving inbound calls the higher the total interconnection link charges. However, this form of two-part charging is

inferior to LRIC+ because these incentive effects are weaker. Under our two-part charge there is now only an indirect link between the termination charges (in the form of the per link charge) and individual customer lifetime value.

Ofcom should not follow the Commission's recommendation

Ofcom has previously expressed serious reservations about the adoption of pure LRIC at the time when the Commission first proposed introducing the Recommendation. Specifically, Ofcom was concerned about the potential consequences of an approach that denied mobile operators the ability to recover their fixed and common costs. It noted, for instance, that the potential existed for recovery of these costs through higher subscription charges that might not operate in the interests of low-usage customers.⁵ Indeed, Vodafone notes Ofcom's view on the weight to be attached to the Commission Recommendation in 2009:

*"The fact that the Commission has recommended a particular approach does not of itself provide sufficient justification for adopting it, especially in the absence of adequate supporting analysis of rationale and impact"*⁶

In this consultation Ofcom identifies that it does not have to adopt the EC's Recommendation if there are "substantive reasons not to do so"⁷. We think that there is compelling evidence that Ofcom's proposals have severe and adverse allocative and distributional effects and this alone provides adequate justification for choosing not to follow the Commission's Recommendation. Whether these effects are unique to the UK is irrelevant.

It is also far from clear that the use of a LRIC cost standard by Ofcom in deriving charge controls would be consistent with the obligations under the Framework and Access Directives.⁸ Ofcom must demonstrate that its adoption of a LRIC cost standard is consistent with its wider duties.

Our full legal analysis is found in Annex 1.

⁵ Technical Annex to the Joint response of the Department for Business, Enterprise and Regulatory Reform and Ofcom of 2009 to the Draft European Commission Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU, paragraphs 3.13-3.14

⁶ Joint response of the Department for Business, Enterprise and Regulatory Reform and Ofcom of 2009 to the Draft European Commission Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU

⁷ 1.10

⁸ Vodafone has previously provided Ofcom with submissions from Compass Lexecon to the effect that it is only in exceptional circumstances that the use of a LRIC cost standard will be efficient and maximise benefits for consumers.

Costs should be calculated correctly

We have serious concerns that the existing model is not fit-for-purpose. In its current form it should not be used to estimate the costs of termination. The model does not calibrate with the real world, contains errors, uses unrealistic input values and parameters and fails to appreciate how a network without a call termination service would actually be constructed.

In Section 4 we summarise these deficiencies and in Annex 3 we go through them in detail. In Section 5 we propose a cost of capital that better reflects the returns expected by holders of equity.

Section 2: A review of the evidence

Summary

There is no theoretical reason to presume that pure LRIC pricing or indeed any effective cut in termination rates would enhance consumer welfare. Whether Ofcom's proposal to cut significantly termination rates is the right policy decision is therefore an empirical question. For Ofcom to satisfy itself that its proposals would not harm consumer welfare it would need to show:

- that there is no risk of a reduction in mobile ownership rates; or
- that, if there is such a risk, the welfare loss associated with such a reduction would be more than offset by the welfare gain from an increase in F2M and M2M usage.

Ofcom reviews the available evidence and is unable to arrive at either finding. It seems to regard the available evidence to it as unreliable or indeterminate.

"...as the choice is between two second-best options (LRIC+ and pure LRIC), it is difficult to conclude that either of the two cost standards should be preferred on allocative efficiency grounds."⁹

"Having considered the available evidence, we think that while a decline in ownership is theoretically possible, we believe that its extent is likely to be considerably lower, or less significant, than some stakeholders predict..."¹⁰

"The change in the retail mobile price structure should increase the usage levels of mobile subscribers who do not drop out, and they will benefit from making more calls. It is very difficult to estimate precisely these two off-setting effects. Overall, however, we believe that mobile users might benefit from the change to pure LRIC, although some users will lose out."¹¹ [Our underlining]

But even this is wrong. The evidence is clear. It shows that there is no support for Ofcom's proposal and that it would reduce consumer welfare. This is because:

- the evidence shows that subscription and ownership rates would fall;

⁹ A12.66

¹⁰ 9.173

¹¹ 9.181

- the evidence does not show that M2M and F2M usage would rise; and
- Ofcom is wrong to argue that the consumer welfare losses would be limited by the ability of operators to price discriminate.

The evidence shows that subscription and ownership rates would fall

Ofcom is right to point out that much of the evidence available to it at the time of its consultation measures the interaction between prices and *subscription* rates, rather than *ownership* rates. However, Ofcom is wrong to (a) suggest that this limits the strength of the conclusions that can be drawn from the evidence and (b) assert that “[l]ower MTRs may trigger changes that may reduce mobile subscription penetration but not necessarily reduce mobile ownership.”¹²

Ofcom’s position is founded on its belief that second (or multiple) subscriptions are more likely to be cancelled than single/unique subscriptions. Ofcom argues that this is for two reasons.

- The marginal benefit of an extra subscription is likely to be lower than the marginal benefit of the initial subscription for a given consumer. *“The marginal benefit of an extra mobile subscription is likely to be much lower than that endowed by the initial subscription, as it is the latter which gives the user the benefit of being connected.”*¹³
- Some consumers have multiple subscriptions to exploit differences between on-net and off-net call price differentials and as termination rates fall, these differences are eroded and the benefit of holding multiple subscriptions also falls: *“...a not insignificant proportion of respondents seem to do so in order to take advantage of differences in call charges.”*¹⁴

Ofcom’s position is flawed in theory and practice

Even if Ofcom was right that the marginal benefit of an extra subscription is lower than the marginal benefit of the initial subscription for a given consumer, it need not follow that the reduction in ownership rates would be significantly less than the reduction in subscription rates. Consumer A with two subscriptions might be willing to pay more for her second subscription than consumer B is willing to pay for his first and only subscription. That is, it is as likely that multiple SIM users are “infra-marginal” and single SIM users are “marginal” as the other way around.

¹² A13.76

¹³ A13.78

¹⁴ A13.78

The surveys referred to by Ofcom suggest that by far the most common reason for holding more than one subscription is not to take advantage of on-net and off-net call price differentials (12%) but rather to split business and personal calls (44%).¹⁵ This implies that the benefit of holding multiple subscriptions for these customers would not fall as termination rates decline.

New research commissioned by Vodafone shows that the majority of consumers (71%) that say they would cancel at least one subscription only have one. This evidence is discussed further below, but it implies that ownership rates would fall by almost as much as subscription rates as a consequence of Ofcom's proposal.

This evidence shows that any proposal that would reduce subscription rates would also reduce ownership rates. This would reduce the welfare of those customers that drop off the network, and could also reduce the welfare of those customers that would have called them. Any policy that reduces subscription rates would also compromise Ofcom's duty to secure opportunities for mobile ownership.¹⁶

The evidence available to Ofcom at the time of its consultation shows that subscription and ownership rates would fall

Ofcom has previously presented three pieces of evidence that could inform whether a reduction in termination rates would cause a welfare reducing fall in subscriptions and ownership:

- econometric studies including a new study by CEG;
- survey research; and
- a study of how subscription and ownership rates have changed in the UK.

All of this evidence suggests that some mobile customers would react to an increase in subscription charges by cancelling their subscriptions. Ofcom appears to attach most weight to the econometric study by CEG and least weight to the survey evidence.

¹⁵ <http://www.ofcom.org.uk/consult/condocs/mct/summary/mct.pdf>

¹⁶ At A13.77 Ofcom notes with reference to the Communications Act that it is "...required to secure the availability throughout the UK of a wide variety of services, including mobile – that is, in this context, to ensure that opportunities exist for mobile ownership for all who live and work in the UK."

Econometric studies show that subscription rates would fall

Ofcom's review of the available econometric studies on subscription elasticities suggests that a reduction in MTRs would lead to a reduction in subscriptions.

The CEG study shows that a 1% decrease in MTRs would cause a 0.034% decrease in subscriptions. Ofcom uses this elasticity to calculate that the reduction in termination rates between today and 2015 would imply a reduction in subscription of 2.2% (LRIC+) and 3% (LRIC). Ofcom then states that *"[t]hus, the model estimates that the choice between LRIC+ and pure LRIC may only lead to a difference in penetration of 0.8%. Both the LRIC+ and pure LRIC estimates are substantially lower than Vodafone's estimate of a 9.4% reduction in ownership in the EU-27."*¹⁷

Ofcom's view that the subscription rate decrease that would follow from its proposal to cut MTRs is small is flawed for two reasons.

- First, a reduction in subscription rates of 0.8% would potentially affect 400,000 people. It is not clear that this should be regarded by Ofcom as "small".
- Second, Ofcom is wrong to suggest that the relevant comparison is between pure LRIC and LRIC+. Ofcom's proposal amounts to an effective cut in termination rates of 3.7 to 0.5 pence per minute. This 86% reduction would lead to over a 1.4 million reduction in subscriptions according to CEG's estimates – over three times the estimate presented by Ofcom.
- Third, whether the subscription rate reduction should be regarded as "small" depends on the potential scale of any usage increase to offset it. A "small" decrease in subscription rates would lead to a reduction in consumer welfare unless we could be confident that there would be an offsetting increase in usage by those that continue to subscribe. As is discussed below, there is no evidence to suggest that usage would increase at all as a consequence of Ofcom's proposal (in fact, CEG also finds that there is *"no evidence of a direct significant relationship between MTRs and usage"*¹⁸). Without this evidence, Ofcom should be concerned about any reduction in subscription rates.

Surveys show that subscription rates would fall

Consistent with the econometric evidence, the survey research presented by Ofcom shows that mobile customers would cancel their subscriptions if

¹⁷ A13.100

¹⁸ A13.140

subscription charges increased as a consequence of a reduction in termination rates.

For example:

- The research by Jigsaw focused on the impact of a £10 increase in handset prices. The research asked all pre-pay customers about how likely they were to stop using their mobile phone under two scenarios. In the first scenario, the cost of the calls that people make over the lifetime of the handset would decrease by £10. In the second scenario there would be no offset in call prices. The research found that even when customers receive an offset in call prices, a significant proportion are still very likely or fairly likely to stop using their mobile phone (8% with the offset relative to 9% with no offset).

The research also asked contract customers about their reaction to a £2 increase in the monthly charge, both with and without an offset in call prices. Respondents were not given the option to stop using their mobile phone, as the possible options only included staying on the same contract, switching to a cheaper contract or switching to prepay. However, the research did reveal that peoples' decision of whether to switch was not significantly affected by an offset in call prices. This shows that people attach little value to an offset in call prices.

- Research carried out by Ofcom for its 2007 MTR Statement showed that a "...third of respondents were marginal customers i.e. would not re-subscribe if the price were to increase significantly".¹⁹ It was based on the number of subscribers who said they would not re-subscribe if the cost of subscription were to increase to £70, as this was estimated to be the cost of an unsubsidised entry-level handset at the time.

Although surveys may not give the precise magnitude of customer responses, both of these surveys show that there could still be large falls in subscription rates as a consequence of Ofcom's proposal. Ofcom would have to believe that survey respondents drastically overstate their behaviour in surveys to support its view that ownership would not be significantly affected by its proposed cut in termination rates.

Study of subscription and ownership rates in the UK

In addition to the econometric and survey evidence, Ofcom also presents evidence which shows how UK subscription and ownership rates have evolved as termination rates have fallen. Ofcom argues "[t]aken together, this

¹⁹ A13.69

*evidence appears to suggest that past changes in MTRs have not had a dramatic impact on subscription penetration rates.*²⁰

But as is recognised by Ofcom, the conclusions that can be drawn from a graphical analysis of historical trends are limited:

- other factors will have affected subscription rates – for example, during the period considered, costs fell significantly and these would have been passed on to customers and subscription rates without any change in MTRs; and
- the MTR reductions envisaged by Ofcom are far larger than those experienced in the recent past, which further limits how informative historical trends might be about the future.

Moreover, the historical evidence is not as clear-cut as Ofcom suggests. The historical evidence shows that while subscription and ownership rates have increased overall, pre-pay subscription penetration has fallen from 70% to 60% since 2000. While this reduction is described by Ofcom as “*a modest decline*”²¹ it nevertheless suggests that there is a relationship between termination rates and pre-pay subscription rates and/or, as noted above, other factors mean that the inferences that can be drawn from historical trends are limited.

New evidence shows that that subscription and ownership rates would fall

As discussed above, the evidence available to Ofcom at the time of its consultation showed that a cut in MTRs is likely to cause subscription and ownership rates to fall.

We have recently commissioned new customer research which confirms this conclusion. A detailed description of the survey approach, questions and answers are set out in Annex 2. We regard this new customer research as a reliable source of evidence because it overcomes a number of the concerns that Ofcom has previously expressed in relation to previous surveys and econometric research, specifically:

- Ofcom has expressed concerns regarding previous work on mobile subscription rates since it claims that “*lower MTRs may trigger changes that may reduce mobile subscription penetration but not necessarily reduce mobile ownership*”²². The new customer research allows us to distinguish between falls in ownership and falls in subscription rates. It first asks respondents how many mobile phones they own before

²⁰ A13.110

²¹ A13.109

²² A13.76

asking them how many mobile phones they would stop using in response to various scenarios.

- Ofcom criticised a previous Vodafone survey on handset prices because Ofcom considered that it was “*unclear whether those responding that they would reconsider a subscription to Vodafone had additional subscriptions with other providers*”²³. The new customer research relates to all customers and not just Vodafone customers.
- Ofcom disagreed with Vodafone’s decision to use absolute price increases in its survey on handset price since Ofcom considered that it was “*likely to exacerbate this overestimation even further than in the case where a percentage – i.e. 10% - price increase was applied to the price mobile consumers currently face*”²⁴. The new customer research has again used absolute price increases. However, Vodafone has also conducted some analysis of the likely price increases faced by the different groups of users. This analysis was based on the assumption of profit neutrality and not revenue neutrality, which deals with Ofcom’s comment that “*providers are obliged to maximise profits, and not revenues*”²⁵. The analysis shows that the absolute price increases used in the new customer research are consistent with the likely price increases that the lower spend groups (<£10 per month) will experience.
- Ofcom previously criticised Vodafone’s survey on handset prices because “*as our interest lies primarily with the take-up of communications services in the UK, rather than in Europe as a whole, the absence of the UK from the survey on handset prices may also diminish the relevance of these results for our purposes*”²⁶. The new customer research relates exclusively to respondents in the UK.
- Ofcom considered that in Vodafone’s survey on handset prices “*respondents may not have been aware that the proposed price increases would be (at least partially) offset, which may have affected their reaction*”²⁷. The new customer research explicitly asks respondents what they would do if their monthly charges increased, but they also received extra minutes/texts.²⁸

We recognise that there may be a difference between how respondents say they will behave in response to a survey question and how they would

²³ A13.79

²⁴ A13.84

²⁵ A13.81

²⁶ A13.88

²⁷ A13.88

²⁸ Two separate questions ask what customers would do in response to a 10% and a 20% increase in minutes and texts. Annex 2 sets out the basis for this calculation.

behave in practice.²⁹ However, we do not think that this is a reason to discard survey evidence, especially as other empirical evidence, based on revealed preferences, also points in the same direction (for example, the econometric work undertaken by CEG on behalf of Ofcom).

Many subscribers say that they would stop using their mobile if subscription charges were to increase

We asked customers whether they would stop using their mobile phone if their monthly subscription charges increased by £2.³⁰ An increase of £2 is the approximate average subscription charge increase that customers spending less than £10 per month could face if Ofcom were to cut termination rates from 3.7 pence to 0.5 pence. Details of this calculation are set out in Annex 2. To put £2 into context, this would represent at least a 20% increase in subscription charges for the 3% of customers that spend less than £10 per month on their mobile phone.

Figure 3 below shows that this would result in an 18.8% reduction in subscriptions and a 13.6% reduction in ownership.³¹

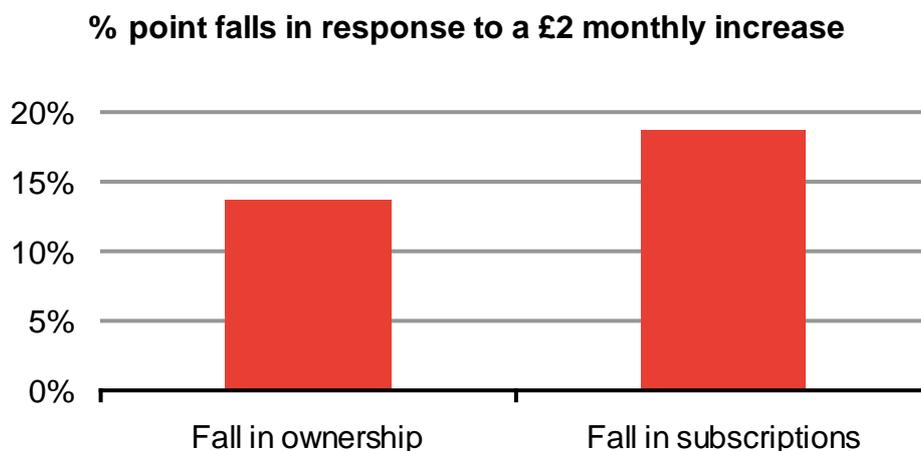


Figure 3 – Subscription and ownership reductions

Two conclusions can be drawn from these results.

- First, the scale of the reaction to the price change is large. Even if some consumers overstate what their reaction to the price change

²⁹ A13.86

³⁰ For prepay customers, the increase was presented as a minimum monthly top up requirement.

³¹ We have assumed that those multi-SIM users who drop some, but not all subscriptions, only drop one subscription. This may slightly understate the fall in subscriptions as 1% of respondents had three mobiles, so may have intended to drop two mobiles when they stated that they would drop some, but not all subscriptions.

would be in practice, the potential effect of Ofcom's proposals on subscription and ownership rates would still be significant. For example, even if we thought that half of the consumers would not behave in the manner implied by the survey results, the survey results would still suggest that ownership rates could drop by 6.8% in the event of a £2 increase in subscription charges per month.

- Second, the difference between the reduction in subscription rates and ownership rates is small. This directly contradicts Ofcom's view that single-SIM owners will not drop out of the market in response to the proposed cut in termination rates – in most cases a cancelled subscription means that a customer will drop off the network entirely. As is shown in figure 4 below, this is because most of those that would cancel a subscription only have one subscription.

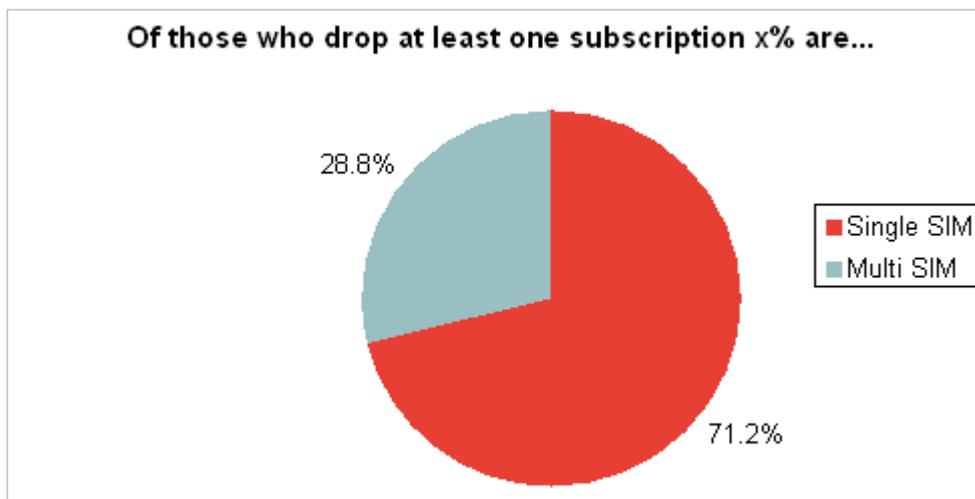


Figure 4 – Single and Multi-SIM status of departing customers

Most of those that would stop using their mobile phone would not change their mind if they were offered additional minutes and texts

We asked the customers that said they would stop using their mobile phone in response to a £2 increase in their monthly subscription charge if they would change their mind if they were given extra minutes and texts. The purpose of this question is to seek to mimic what Ofcom claims would happen in practice with the reduction in termination rates being reflected in lower (effective) prices/minute for MTM calls.

The majority of customers said that they would not change their mind. The figure below shows that even if customers were given 20% more texts and minutes, subscription and ownership rates could fall by 12.3% and 8.6% respectively were subscription charges to rise by £2.00. An 8.6% reduction corresponds to a 4.1m fall in the number of mobile owners.

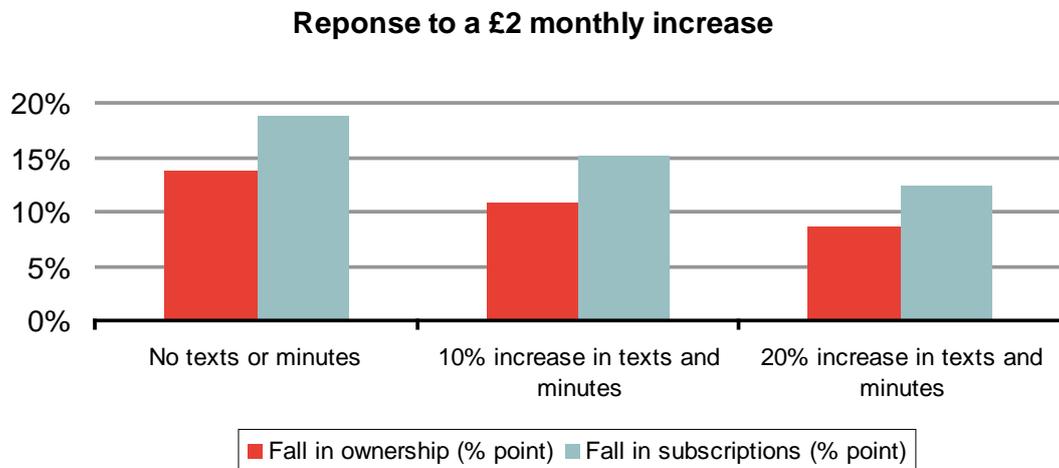


Figure 5 – falls in ownership and subscriptions

Sensitivity analysis

As noted in Annex 2, a £2 increase would be at the lower end of the subscription charge increases that customers would actually face if Ofcom’s proposals were implemented and would be most likely to apply to customers that spend less than £10 per month. Accordingly, figure 6 below shows what the subscription and ownership rate reduction would be assuming that:

- all customers with a monthly spend below £10 faced a £2 increase, but would also benefit from a 20% increase in minutes and texts;
- none of the customers with a monthly spend above £10 would cancel any of their subscriptions.

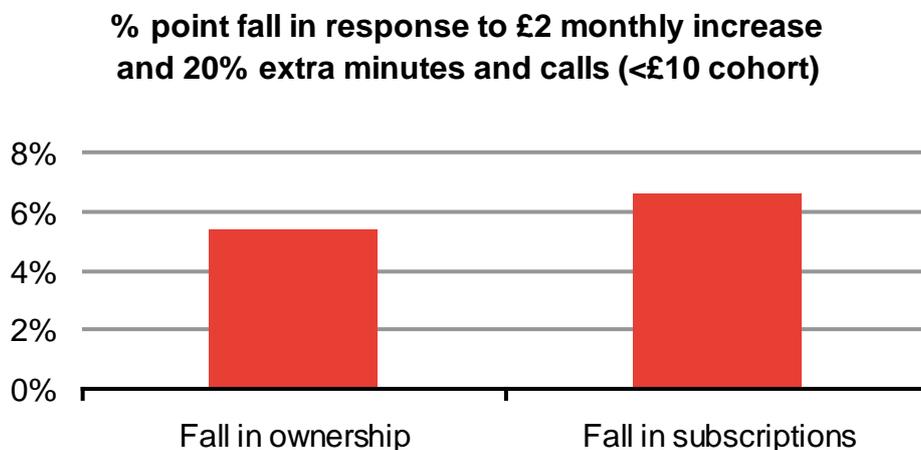


Figure 6 – falls in ownership and subscriptions <£10 cohort

The figure shows that even with these adjustments, there is still a significant fall in subscription and ownership rates of 6.6% and 5.4% respectively. A 5.4% reduction corresponds to a 2.6m fall in the number of mobile owners.

The only conclusion that can be taken from the available evidence is that a reduction in termination rates will very likely lead to a reduction in subscription and ownership rates, and that this reduction would be material.

The evidence does not show that M2M and F2M usage would rise

Despite the potential for significant reductions in subscription and ownership rates, Ofcom appears to comfort itself that the scale of the welfare loss would be small because of its belief that its proposal is likely to encourage a significant increase in M2M and F2M usage.

With respect to M2M usage, Ofcom arrives at this view largely on the basis of the weight that it attaches to cross-country comparison of minutes of use, stating that:

“...one of the most reliable indicators – average monthly Minutes of Use (MoU) per capita (debiased) shows that countries with low MTRs have a higher usage per capita... We believe that this is a useful indicator of output.”³²

With respect to F2M usage, Ofcom asserts without evidence that “fixed consumers are likely to benefit” from a reduction in MTRs because the costs they face for calling mobile customers will fall.³³

For the reasons set out below, we do not think that the available empirical evidence supports Ofcom’s view that M2M and F2M usage would increase.

The evidence does not support Ofcom’s view that M2M usage would increase

In our response to the May 2009 consultation, we provided a number of analyses to show that casual inferences drawn from cross-country comparisons would be very misleading (see Chapter 1 of our response). We argued that these analyses showed that the differences between the UK and the US in terms of minutes of use are most readily explained by differences in consumer preferences between the countries, rather than differences in termination rates. Ofcom has not properly considered the implications of the evidence that we provided and so we repeat the relevant parts here.

³² A12.65

³³ A13.127

We found that a proper comparison of Vodafone (UK) and Verizon (US) tariffs showed that the UK provides bundles that are at least equivalent in size and cost to the US bundles despite having very different termination rates. The results of this comparison are summarised in table 1 below.

UK			US		
Cost	Outbound bundled minutes	Implied ppm at full utilisation	Cost	Outbound bundled minutes (approx)	Implied ppm at full utilisation
£17.39	100	17.4			
£21.74	300	7.2			
			£36.36	425	8.6
£26.08	600	4.3			
£30.43	900	3.4			
			£48.48	1,150	4.2
£34.78	1,200	2.9			
			£60.61	1,725	3.5
£60.87	3,000	2.0			
			£72.73	Unlimited	n/a

Table 1 – UK and US pricing comparison

We also found that despite the availability of “big bundle” tariffs in the UK, priced comparably to those in the US, consumers elect not to subscribe to them and instead opt for the smaller bundles on offer. The tables below show that only \times of Vodafone’s contract customers choose contracts that include bundles with more than \times minutes of outbound minutes per month.



Table 2 – VF UK customers split by UK bundle thresholds



Table 3 - VF UK customers split by US bundle thresholds

Moreover, ✂.



Table 4 – ✂

This evidence suggests that Ofcom’s proposal need not lead to an increase in M2M usage – ✂.³⁴

Ofcom argues that a reduction in MTRs would nevertheless lead to expansion in usage because the risk of “overshooting” the bundle would be reduced as operators would be inclined to include more minutes in bundles.³⁵ Ofcom provides no evidence for this view and we find it unpersuasive: the average bundle usage in the UK is nowhere near the bundle capacity and so this risk seems trivial.

These findings are consistent with the inferences that can be drawn from the evidence that Ofcom presents in its consultation documents, which also confirms that simple cross-country comparisons can be highly misleading.

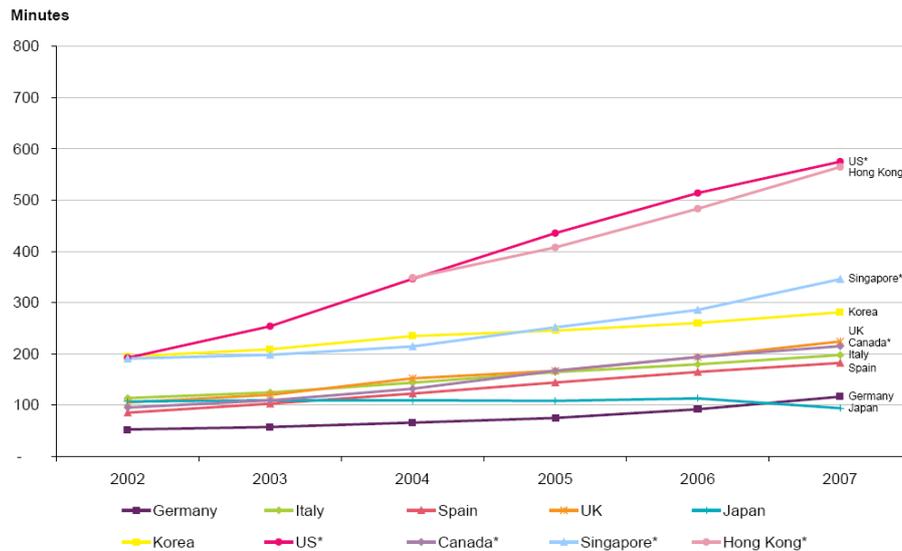
- First, Annex 7 of Ofcom’s May 2009 consultation contains the results of an econometric analysis of the relationship between the level of MTRs and minutes of usage. This analysis, in contrast to simple graphical cross-country comparisons, attempts to control for differences between countries that could affect usage. CEG states that “*We did not find robust statistical evidence on the relationship between usage and the level of MTRs*”.³⁶ This suggests that, an analysis of historical movements of MTRs across a range of countries failed to find any support for the hypothesis that MTRs have a significant positive impact on usage, and that differences in usage between countries are driven by other factors.

³⁴ ✂.

³⁵ A13.48

³⁶ Page 4, Annex 7, 2009 consultation

- Second, figure 7 below from Annex 5 of Ofcom's May 2009 consultation shows that the gap between the US and UK in terms of average minutes of use per capita has widened from 2002 to 2007, when at the same time, US and UK MTRs have converged. This also suggests that MTRs do not have a significant bearing on usage. Instead, it suggests that differences in usage between the US and the UK are driven by other factors.



Notes: US, Canada, Singapore and Hong Kong data have been de-biased.

* denotes a B&K country.

Figure 7 - Average monthly minutes of use per capita (de-biased)³⁷

The only graphical evidence that Ofcom presents that does not rely on cross-country comparisons is the chart below which shows that UK MTRs fell from an average of around 9 pence per minute in 2003 to an average of around 6 pence per minute in 2008. At the same time, the number of mobile-to-mobile off-net minutes per subscriber increased from around 250 minutes to around 650 minutes.³⁸ Ofcom concludes that “We believe this has partly been achieved via a reduction of the off-net charges which are directly affected by the level of MTRs...”³⁹

³⁷ Figure 10 of Annex 5, May 2009 consultation

³⁸ Figure 52.

³⁹ A13.139.

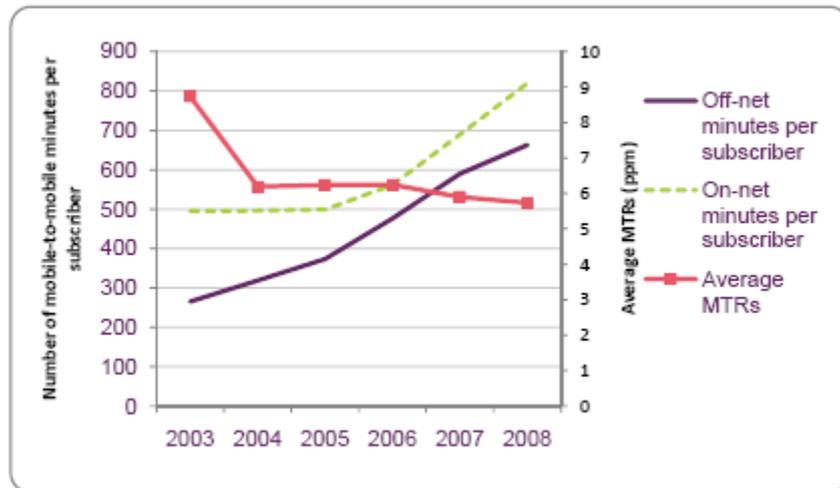


Figure 8 - Mobile call minutes per subscriber and MTRs⁴⁰

However, closer inspection of the data shows that:

- between 2004 and 2006 off-net minutes per subscriber increased from around 300 minutes to around 500 minutes, without any commensurate change in average MTRs; and
- between 2005 and 2008, on-net minutes per subscriber have increased at a similar rate to off-net minutes per subscriber, but on-net minutes are not driven by MTR changes.

Again, this data is consistent with our view that factors other than MTRs have driven the increase in off-net minutes over the past decade.

The evidence does not support Ofcom's view that F2M usage would increase

Ofcom argues that "...fixed consumers are likely to benefit" from a reduction in MTRs because the costs they face for calling mobile customers will fall.⁴¹

But the evidence calls into question the extent to which F2M call charges would fall in the event of a reduction in MTRs and hence the extent to which F2M usage would rise. In its response to the recent fixed narrowband retail markets consultation, T-Mobile drew Ofcom's attention to the implications of Ofcom's Figure 4.9 of that consultation which showed that BT's revenue per minute from fixed to mobile calls increased between 2006 and 2008 despite a *reduction* in mobile wholesale termination costs (as is shown in figure 9 below).

⁴⁰ Figure 52 of Annex 13

⁴¹ Annex 13.127.

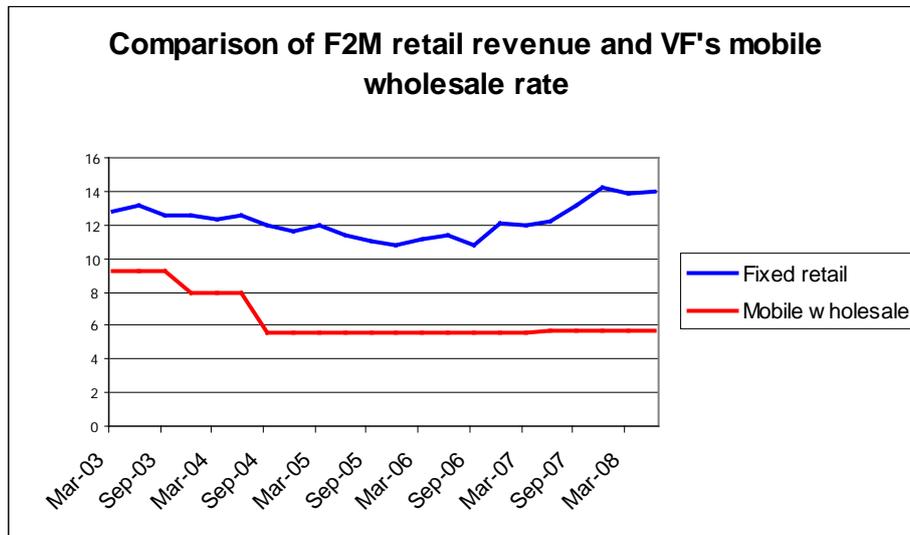


Figure 9 - Trends in F2M prices 2003 to 2008⁴²

In light of this evidence Ofcom argues that fixed operators may be passing on termination cost savings in the form of other types of price reduction (e.g. the price of “focal bundles”) and notes that overall fixed retail prices are falling. Even if Ofcom is right that fixed customers are somehow benefiting indirectly from a reduction in MTRs, Ofcom provides no evidence to show that there is a causal link between F2M usage (or any other kind of fixed usage) and MTRs.

Ofcom does not recognise that the welfare change for fixed customers depends not only on the additional calls that they could make to mobile customers that continue to subscribe, but also depends on the reduction in calls that could arise as a consequence of some mobile customers cancelling their subscriptions.

Ofcom is wrong to argue that the consumer welfare losses would be limited by the ability of operators to price discriminate

The evidence above shows that subscription and ownership rates would be likely to fall as a consequence of Ofcom’s proposal, and that there is no evidence to suggest that F2M and M2M usage would rise by enough to offset this welfare loss.

However, Ofcom argues that the ability of operators to price discriminate at the retail level is a reason to favour an effective cut in MTRs.

“It may, therefore, be more efficient from an allocative point of view to recover common costs from the retail side of the

⁴² Vodafone response to May 2009 consultation

*market where operators have better information about consumers' demand and can engage in price discrimination.*⁴³

Ofcom's argument is that operators could and would target subscription charge increases in a manner that would minimise subscription losses. It is questionable whether operators have the ability to target price changes to the degree implied by Ofcom, but in any event, the argument is flawed because operators would not have an incentive to behave in this way.

For an operator to behave in this way it would effectively fund reductions in incoming call revenues from its "marginal" customers by increasing the retail prices faced by its "infra-marginal" customers. This would make that operator's infra-marginal customers more profitable than they would have been otherwise. These customers would then become more attractive to other operators, who would successfully attract them with lower retail prices. Accordingly, a strategy of price discrimination would be unsuccessful because an operator would never seek to fund reductions in incoming call revenues from one group of customers by increasing the retail prices faced by another group of customers because retail competition would render it unprofitable to do so.

Vodafone made an analogous point in its Judicial Review of the Competition Commissions findings on mobile termination rates in 2003. We argued that, in computing the allowable externality surcharge, the Commission had set a surcharge which would be sufficient to induce a specific number of marginal subscribers to take up and/or renew their mobile subscriptions. But, in computing the surcharge required to achieve that objective, the Commission had acted illogically: whilst recognising that, in reality, competition among MNOs would prevent any individual MNO from directing all the revenues generated by the surcharge towards subsidies for marginal subscribers, the Commission had nonetheless computed the surcharge on the assumption (which it knew to be false) that all the revenues generated by the surcharge would be so directed.

Mr. Justice Moses found that MNOs could not be expected to direct subsidies (funded by the surcharge) only at marginal subscribers, because they had no commercial incentive to do so, and he found that the Commission had failed adequately to address this issue: *"the Commission's failure to grapple with the problem of lack of incentive undermines its conclusion as to the amount of [externality] subsidy"*.⁴⁴

We have previously argued that low usage (often prepay) customers are more price sensitive than high usage customers. If operators were able and

⁴³ A12.60

⁴⁴ Paragraph 133 of the High Court Judgment (T-Mobile, Orange and Vodafone versus Competition Commission and Ofcom) 27 June 2003.

incentivised to price discriminate as Ofcom claims then recent termination rate reductions should translate into lower retail prices for such low usage customers and less significant reductions for high usage customers. But this is not what pricing data shows.

- First, \times .⁴⁵

Table 5 – \times

- Second, in its 2008 consultation “*Mobile citizens, mobile consumers – Adapting regulation for a mobile, wireless world*” Ofcom found that between 2001 and 2008 “...contract customers [are] generally receiving more (or in some cases paying less)...” but “...prices for prepay customers staying roughly the same.”⁴⁶ The consultation also shows that the prices for low, medium and high usage prepay customers follow similar trends “*The predicted pre-pay charges for each user profile has remained stable or, slightly increased over the last seven years, in nominal terms.*”⁴⁷ This is during a period when MTRs have fallen significantly.
- Third, consistent with the evidence presented by Ofcom \times , information from Teligen shows that medium and high users have experienced the largest price reductions and low users the smallest price reductions (in fact, a price increase for T-Mobile).⁴⁸

⁴⁵ \times .

⁴⁶ Ofcom (2008), “*Mobile citizens, mobile consumers – Adapting regulation for a mobile, wireless world*”, paragraph 4.4.

⁴⁷ Ofcom (2008), “*Mobile citizens, mobile consumers – Adapting regulation for a mobile, wireless world*”, paragraph 4.53.

⁴⁸ Teligen collect and publish telecommunications price comparisons on behalf of the OECD. The methodology defines baskets of services (in this case low user mobile, medium user mobile and large user mobile) which are agreed by the OECD and held constant for a period of time (the 2006 basket has been used in our calculations, since this covers our period of comparison). Teligen then use their database of tariffs from two selected mobile operators in each country (which in the UK is O2 and T-Mobile) to determine the optimal (least cost) tariff for each basket definition. One disadvantage of the Teligen data is that it is not able to take account of handset subsidies. In order to partially rectify this problem we have used results from the Teligen model excluding SIM-only offers which have been an important feature of prices in recent years and so would have otherwise imposed a downward bias on our results for 2010. More details of the Teligen/OECD methodology and basket definitions can be found at: <http://www.teligen.com/publications/oecd.pdf>

	February 2007 monthly cost	May 2010 monthly cost	Percentage change
Low user O2	£11.69	£8.48	-27%
Low user TM	£7.29	£7.85	+8%
Medium user O2	£21.28	£12.77	-40%
Medium user TM	£15.95	£10.23	-36%
High user O2	£25.53	£13.43	-47%
High user TM	£21.28	£12.94	-39%

Table 6 – Teligen service prices

In short, there is neither theoretical nor empirical support for Ofcom’s view that price discrimination will limit the consumer welfare loss associated with its proposal.

Conclusion

Ofcom has failed to properly evaluate the impact of a substantial effective cut in termination rates on consumer welfare.

- All of the available evidence shows that subscription and ownership rates would fall in response to Ofcom’s proposal to cut termination rates. This would reduce not only the welfare of those customers that cancel their subscriptions, but also the welfare of those fixed and mobile customers that would otherwise have called them.
- Ofcom does not present compelling evidence to indicate that this welfare loss would be offset by a welfare gain from an increase in M2M or F2M usage.
- Ofcom’s argument that the reduction in ownership and subscription rates would be limited by the ability of operators to price discriminate at the retail level and avoid price increases for marginal customers is flawed.

In short, the available evidence shows that Ofcom’s proposals are likely to reduce consumer welfare. The next section shows that vulnerable customers will be particularly harmed.

Section 3: Distributional effects

This section details the impact of the proposed termination rate reductions on low spending and low income customers.

Ofcom's proposed reductions in MTRs will harm low spending mobile customers

We define low spending customers as those spending less than £10 per month on their mobile phone service. These customers will be affected by the rebalancing of prices that will accompany the proposed reduction in termination rates. In Section 2 we argued that MNOs would not fund reductions in incoming call revenues by only increasing retail prices faced by infra-marginal customers. Instead we would expect the price increases to apply to all categories of customers to the extent needed to just “offset” the incoming call revenue reductions for each. The implication of this is that the customer groups that attract the largest incoming call revenues would be expected to face the largest retail price increases. In practice there are limitations on the ability of MNOs to vary price increases by different customer groups, and MNOs are not able to target on this basis.

In Annex 2 we show that there is a statistical relationship between incoming and outgoing call volumes that allows MNOs to rebalance prices by reference to outgoing revenues. Higher outgoing revenue segments face larger retail price increases than lower revenue ones. Margins remain broadly unchanged. This is the level of rebalancing that we assume in our subsequent analysis.

In Annex 2 we detail how we used Vodafone’s customer data to construct the market research questions which we used to estimate the impact of the proposed termination rate cuts on customers with different expenditures on voice calls. We assume that each expenditure cohort will face:

- a higher fixed charge to off-set the loss of incoming call revenue which, for pre-pay customers, will be implemented through a minimum top-up combined with credit expiry;
- lower call charges as a result of the reduction in interconnection costs for off-net calls.

The resulting rebalancing is shown in Figure 10.



Figure 10 - Impact on bills of reduced MTR (3.7 p - 0.5 p) assuming targeting of fixed fee

We calculate that the proposed termination rate reduction will lead to the introduction of (or increase in) a fixed fee ranging from £X/month for low spend cohorts to £X/month for high spend customers. **Only customers spending more than £25/month would make sufficient savings in their call costs to offset the increase in fixed charges altogether.** Customers spending less than £10/month would, on average, be worse off by £X/month – made up of a £X fixed fee increase and an £X usage fee saving.

In our market research we investigated the impact of lower termination rates on low spending users (expenditure of less than £10/month). These users are assumed to face an increase in their fixed monthly costs of £2/month compensated by a 20% increase in their bundle allowance (or an equivalent 17% reduction in call prices).

In figure 11 we show the impact of these price changes on SIM penetration. Our data shows that the majority of ‘departures’ are from single SIM owners. In fact the largest group affected by the termination rate changes will be single SIM users spending less than £10/month. This contradicts Ofcom’s assertion that the main impact of the rate changes will come from multi-SIM owners giving up one of their SIMs.

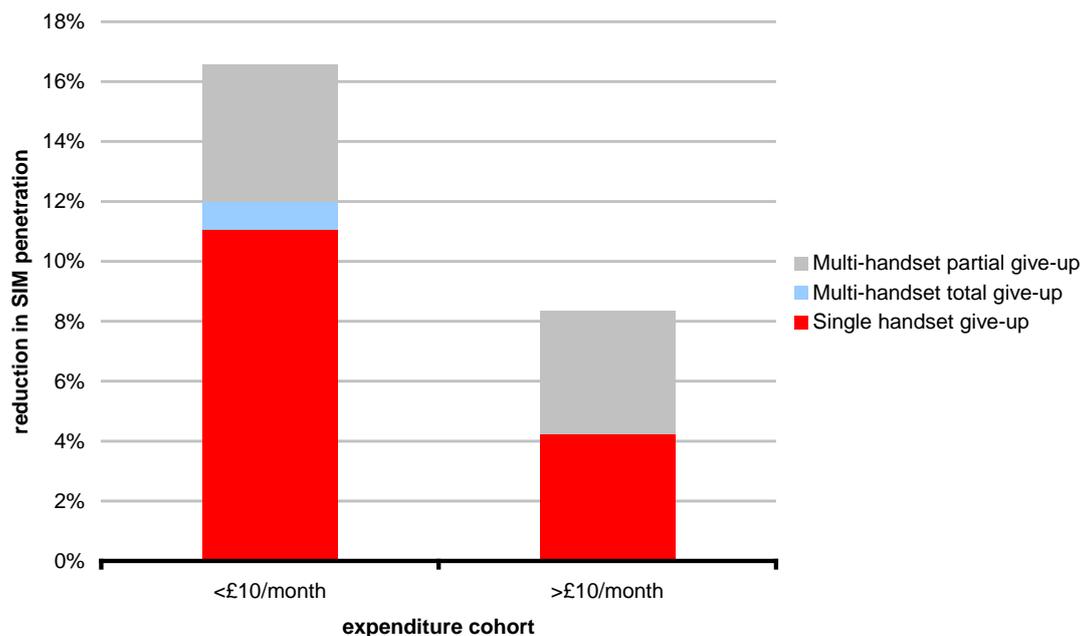


Figure 11 - Impact on SIM penetration of reduced MTR (3.7 p - 0.5 p)

Figure 12 shows the impact of these price changes on the penetration of mobile ownership (rather than SIM penetration).

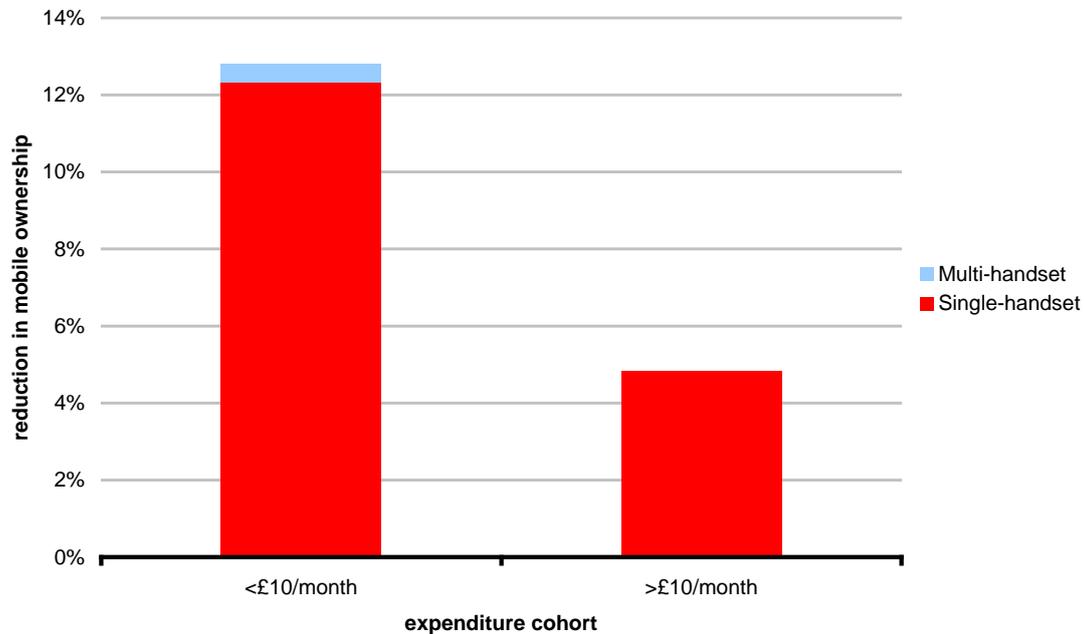


Figure 12 - Impact on mobile ownership of reduced MTR (3.7 p - 0.5 p)

Our research clearly shows that the scale of termination rate reductions proposed by Ofcom will harm low spending mobile customers.

These survey results allow us to draw conclusions about the reaction of different types of customers to the change in structure of retail prices. This is important because Ofcom’s conclusions are based on the assumption that:

“Low-usage subscribers will likely be worse off as for their given usage pattern they will end up with higher bills – e.g. if they made a given number of calls the introduction of a fixed fee and a reduction in call charges, which we believe will result from lower MTRs, could make them worse off. This reasoning, however, does not take into account the fact that a reduction in calling charges is likely to increase their usage, particularly since low users may well be sensitive to the price of calls. Starting from their ‘new’ usage patterns the ‘new’ retail price structure may make them better-off – i.e. they may pay less than they would have had with the ‘old’ price structure”.⁴⁹

⁴⁹ 13.126.1

Our market research shows that far from being sufficient to make them “better-off”, lower call prices are not sufficient to prevent many low user customers from giving up their mobile phone service altogether. The off-setting impact of lower call charges is lower for low users than it is for high users. The empirical evidence suggests that low usage customers are less likely to be influenced by a reduction in usage prices than high usage customers.

This result is not surprising since low usage customers make fewer calls and so will be much more concerned about the level of any unavoidable monthly or periodic charges. It is also important to note that low user customers make relatively light use of non-text data services (from either their mobile phone or a dongle or datacard on a laptop). Figure 13 below shows the percentage of customers that use data services. Although the <£10/month expenditure cohort makes some use of non-text data services, this is very limited compared with the higher spending cohorts; 90% of these customers use their mobile for voice and text alone.

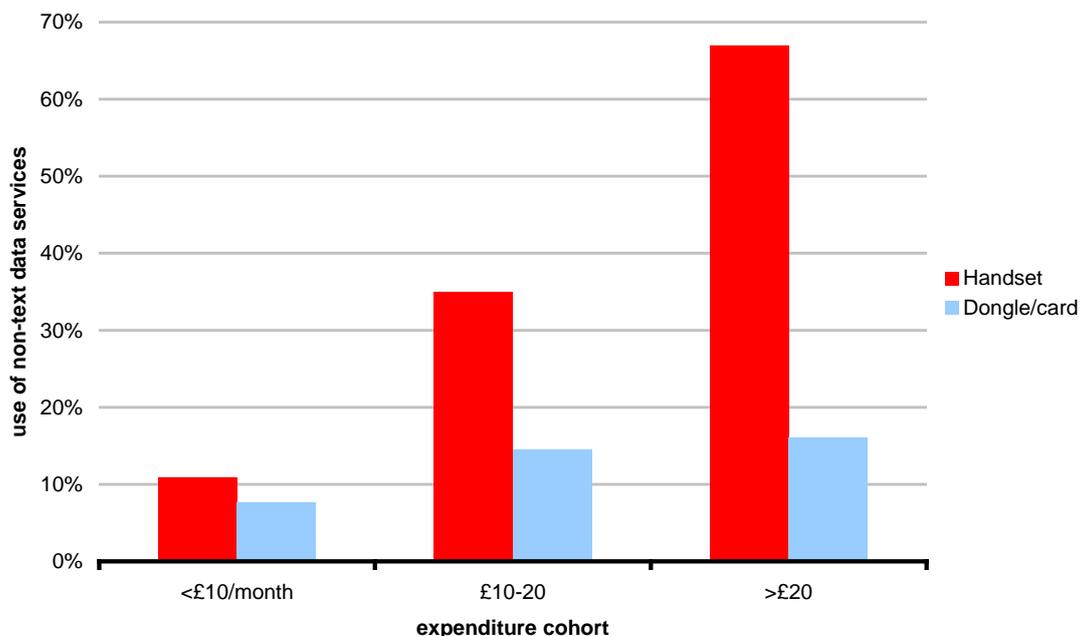


Figure 13 - Percentage of customers that use non-text data services (on phone or lap-top computer)

Ofcom's proposed MTR reduction harms lower income customers

We have considered the impact of proposed termination rate reductions on particular socio-economic groups.

Figure 14 shows the impact on ownership of various price changes split by socio-economic group. Note that those customers surveyed appear to

respond rationally: a greater proportion of customers would stop using their mobile phone if increases in the fixed fee were £2 (rather than £1) but a smaller proportion would stop using their mobile if the off-setting call allowance were increased by 20% rather than 10%.

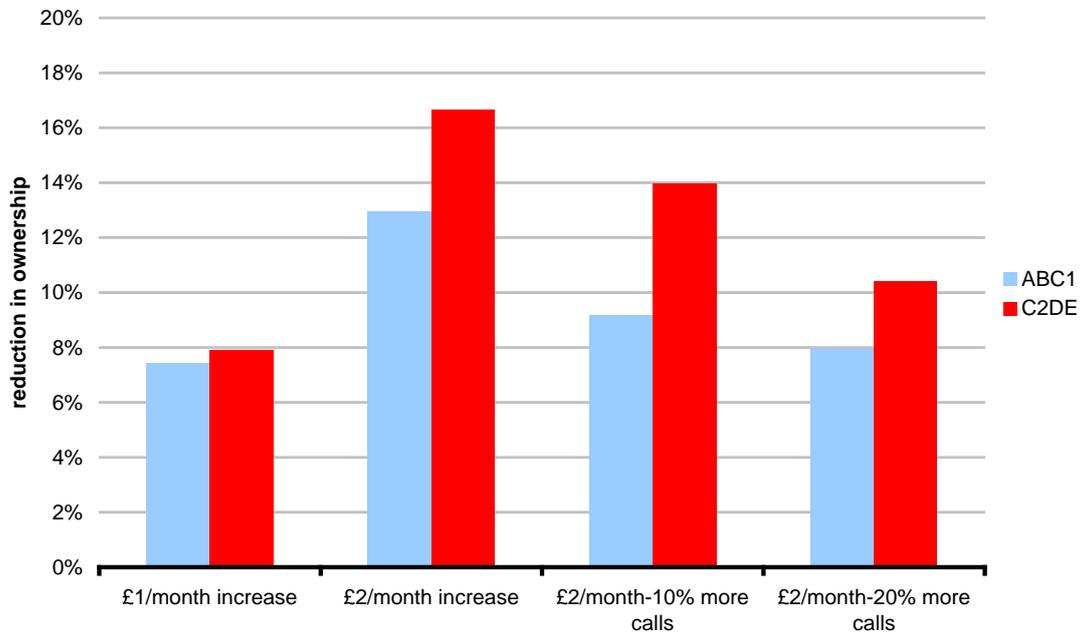


Figure 14 - Price sensitivity of mobile service take-up by socio-economic group

Figure 15 shows the same figures for low spending customers only (<£10/month). Sensitivity to price changes is even higher amongst these customers.

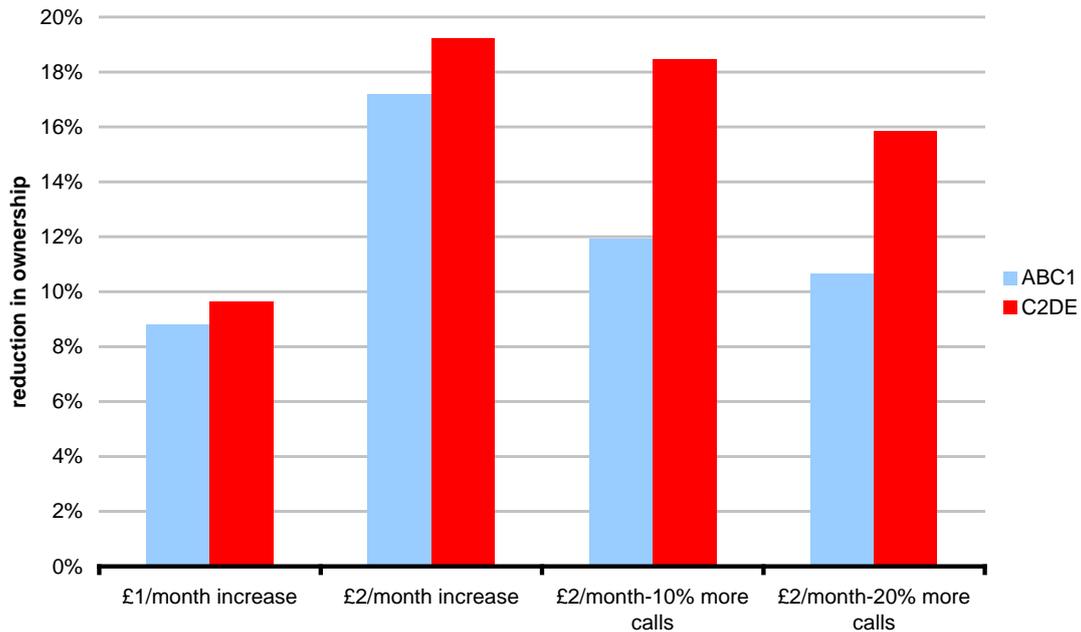


Figure 15 - Price sensitivity of mobile service take-up by socio-economic group for low users (<£10/month)

Figure 16 shows the breakdown by socio-economic group of those that would give up their mobile subscription if faced with a £2/month fixed fee increase off-set by a 20% increase in call allowance.

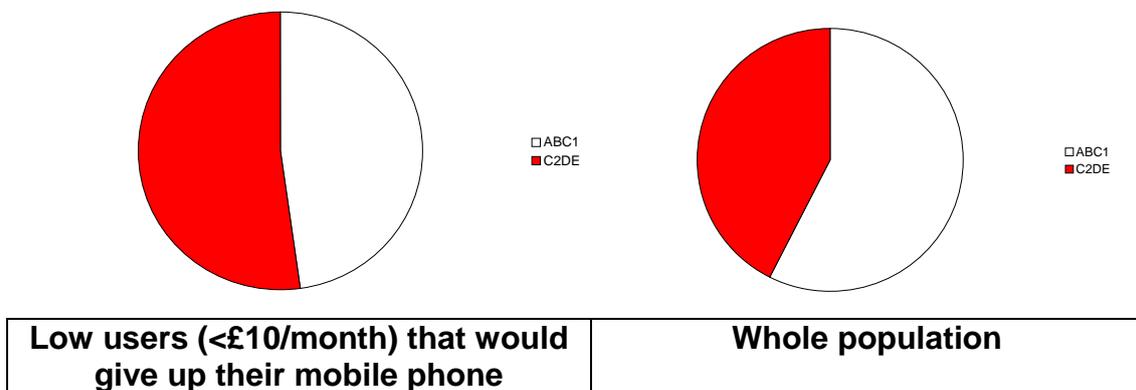


Figure 16 - Socio-economic breakdown of those that would give up mobile telephony

Our research shows that customers who say that they will give up their mobile phone following the scale of price increase implied by the termination rate reduction proposed by Ofcom are disproportionately drawn from socio-economic groups C2, D and E: 52% of customers who would give up their mobile will come from these groups, compared to 42% in the population as a whole.

The same is true of socio-economic groups D and E where the proportion that would give up their phone (25%) is greater than within the population as a whole (22%). Figure 17 shows the breakdown.

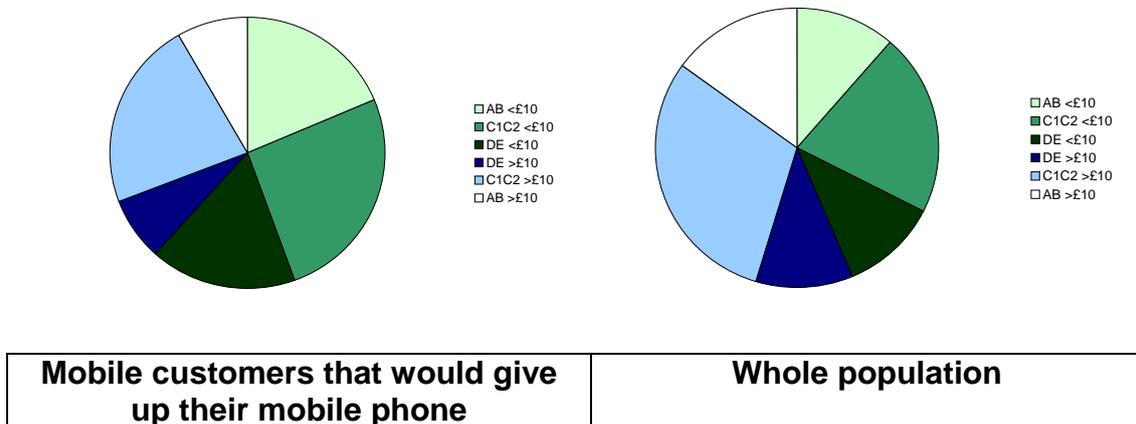


Figure 17 - Socio-economic breakdown of mobile-only users that would give up mobile telephony

Ofcom must give serious consideration to the distributional impact of its proposal. We have found that there are 4.1 million customers who are likely to give-up their mobile phone altogether following the price changes implied by the proposed reduction in termination rates. Of this 4.1 million:

- 2.6 million will be low users (less than £10/month);
- 1.1 million will be from socio-economic groups D and E;
- 700,000 will be low users from socio-economic groups D and E.

In contrast, only those customers spending over £25 per month will benefit from Ofcom’s proposals.

The Role of USO

Ofcom has previously suggested that concerns about the impact of termination rates on mobile penetration could be addressed via universal service-type provisions (in particular a “social tariff”). Ofcom’s preliminary consultation stated that:

To the extent that the impact is significant, this issue may be better addressed through alternative policy means rather than allowing termination rates to be higher than they would otherwise be - e.g. through broader consumer protection

measures. For example, some form of mandatory social tariff to ensure that mobiles are affordable for low usage subscribers could be the best vehicle to achieve this objective more directly.⁵⁰

However, Ofcom has made no attempt to consider the need for, or propose any such arrangements, notwithstanding the implications of its proposals for mobile penetration levels, particularly amongst the most disadvantaged users. If it proceeds with its proposal to reduce termination rates to 0.5 ppm or similar levels it should first ensure that appropriate safeguards are implemented to ensure that any harm to these users is minimised. This should include consideration of vouchers or other schemes.

US experience shows voucher systems are effective provided mobile is included

Voucher systems have been successfully used in the USA for a long time to guarantee support to low-income users. Two programmes called Lifeline and Link-up America were created in the 1980s to provide discounts on the monthly line rental and one-off activation fees respectively. They are technologically neutral as the user can choose to have the discounts applied to any voice (or bundled voice and broadband) packages offered by fixed or mobile operators. The operators are then reimbursed through the universal service fund.

The programmes have been successful. About 7 million customers use them, and over their lifetimes low income penetration of voice (fixed or mobile) has increased from 80.1% in 1984 to 89.7% in 2008, at a total cost for 2010 estimated to be around \$1.4 billion. The FCC recognises that a good part of the success derives from the decision (taken at a later stage) to include mobile providers within the scheme. This has facilitated take up within low-income users who are less likely to have fixed line facilities.

The eligibility criteria are defined at state level, but within general principles determined at the federal level.⁵¹ Eligibility criteria vary by state. States that have their own Lifeline programme may have their own criteria. For states that rely solely on the federal Lifeline and Link-Up programme eligibility criteria, subscribers must either have an income that is at or below 135% of the federal Poverty Guidelines, or participate in one of the following assistance programmes:

- Medicaid;

⁵⁰ See “Wholesale mobile voice termination – Preliminary consultation on future regulation”, May 2009, paragraph 6.50.

⁵¹ Source: <http://www.fcc.gov/cgb/consumerfacts/llu.html>

- Food Stamps;
- Supplemental Security Income;
- Federal Public Housing Assistance;
- Low-Income Home Energy Assistance Program;
- Temporary Assistance to Needy Families;
- The National School Lunch Program's Free Lunch Program.

The US experience shows that voucher systems to promote universal service are practicable and effective provided that mobile service providers are included.

Similar schemes exist in the UK

There are examples in other industries of social tariffs aimed at vulnerable users:

npower has a "Spreading Warmth Tariff" which:

- ensures that vulnerable customers have access to npower's cheapest enduring tariff in that region and
- is available to those households with a gross annual income of less than £13,500 and where someone in the household meets one of the eligibility criteria – aged over 60, disabled, suffers from a chronic illness or has a child under 16.

The 'WaterSure' scheme means that customers will pay no more than the average household bill. To be eligible:

- The supply must be metered
- The person who pays the water bill or someone else in the household receives benefit (Income Support, Income-based Job Seeker's Allowance, Housing Benefit, Council Tax Benefit, Pension Credit, Working Tax Credit, Child Tax Credit); and
- There are either:
 - three or more children under the age of 19 living in the household for whom the person receiving the above benefit also claims Child Benefit; or

- you or someone living in your household has a medical condition that means they use a lot of extra water.

We believe that these examples are informative but we acknowledge that there are differences between these schemes and what is required for the mobile industry. First they are aimed at vulnerable users. We are interested in encouraging participation by low users as well as vulnerable users. Second, the products are tied to an address, which limits the scope for arbitrage. Under a mobile phone voucher scheme a consumer could buy multiple pre-pay subscriptions from multiple stores using the same housing benefit form (say) and sell them on. This may be addressed by having some form of database of participating customers.

Ofcom must be mindful of EC's review of USO

Ofcom must also be mindful of the review of universal service currently being undertaken by the Commission. Ofcom's proposals for MTRs extend to 2014, by which time amendments to universal service arrangements may be applicable. Given the importance of mobile in meeting existing user needs for communications services and given the likely impact of Ofcom's MTR proposals on levels of take-up, Vodafone believes that it is not tenable for Ofcom to divorce its proposals from the future options for universal service provision.

Section 4: A critique of Ofcom's cost model (summary)

The 2010 cost model that accompanies the consultation cannot provide an accurate view of the voice termination charge in 2014/15 (or any other year) on the basis of either LRIC+ or pure LRIC. The model suffers from a series of inter-related flaws:

- there is no evidence that the model accurately captures the underlying cost volume relationships necessary to estimate 'pure LRIC';
- the model does not build a network that represents a benchmark MNO;
- the model produces a structure of retail prices that is widely divergent from what happens in the real world;
- amendments to the model from the 2007 version have introduced errors;
- unrealistic input values and parameters have been adopted with respect to some aspects of traffic and network design;
- the model does not properly address the impact of the significant increase in data traffic between the 2007 and 2010 versions;
- the pure LRIC overlay is not constructed properly and the pure LRIC outputs are thus much less reliable than those for LRIC+.

We believe that the cost modelling has suffered because of the abbreviated timetable. Previously operators were able to comment on earlier versions of the model. In the present process Ofcom has set itself the task of resolving all issues with the model and producing a robust and reliable result on a "single-shot" basis. Given the extent of the errors that we have been able to identify so far this is unrealistic.

We set out below our criticisms, and suggest solutions. (This section is a summary of our Annex 3, which contains a more detailed review of the cost model.)

The modelling approach adopted by Ofcom does not accurately capture the relationship between demand and costs and hence the estimates of pure LRIC derived from the model may not be accurate

It has been clear for a number of years that the model used by Ofcom to set mobile termination rates requires calibrating to the 'real world'.

When the model was first introduced, the results did not closely match the size of network or level of costs reported by the operators. This fundamental shortcoming was addressed by 'calibrating' the model to the actual size of network and level of costs for the network operators by adjusting a range of input parameters until overall cost levels from the model were in line with the operators' actual costs. The model could then be used to estimate costs in future years even though the model itself did not accurately capture cost the volume relationships.

Effectively when used to set 'LRIC+' termination rates, the model was used to convert the level of actual costs reported by the operators to the appropriate cost base for the purposes of setting the price control, through:

- re-basing actual costs levels to the level of a hypothetical efficient operator;
- allocating costs across services; and
- applying economic depreciation.

As such, the underlying inaccuracy of the algorithms used within the model was not in itself a critical factor in calculating charges, as the inaccuracies in the modelling of cost volume relationships within the model only had second order effects on the resulting termination rates.

Under Ofcom's current proposals this is no longer the case:

- the level of 'pure LRIC' termination rates is largely dependent on the model's cost volume algorithms but these cannot be calibrated against external data;
- the calibration exercise, which attempts to align overall model costs with that of actual operators, does not disentangle incremental from fixed and common costs and yet this fundamental to the estimation of pure LRIC.

In view of this fundamental change in the importance of the model's algorithms we would have expected Ofcom to:

- examine the accuracy of its model and its appropriateness for the purpose of estimating 'pure LRIC';
- conduct a thorough review process with the operators to ensure that the cost volume relationships within the model are accurate; and
- where there is still remaining uncertainty over the accuracy of the model results, to set mobile termination rates conservatively.

Ofcom has not carried out any of these steps; it has simply relied on an updated version of the model used in previous reviews. To the extent that changes have been made to the model these have tended to reduce the fidelity of the results in terms of overall costs and do not appear to have increased the accuracy of the underlying algorithms.

Even if the existing model were to be altered to calibrate better to the costs reported by the operators (as Vodafone does below) this does not imply that any pure LRIC estimates produced by the model are accurate because the calibration exercise can only be carried out by changing the overall total level of costs, rather than by separately distinguishing incremental costs from fixed and common costs.

The model does not build a network that is representative of the average benchmark MNO⁵²

Ofcom asserts that the model is properly calibrated as it generates values of accumulated capital and operating cost (GBV and opex) that are consistent with those of the actual historic averages of the 2G/3G operators. This is incorrect for capital cost measures, since Ofcom has inadvertently included handset costs within the model's GBV total when comparing against MNO actual values that contain no such hypothetical element as "network handset costs". Stripping handset costs from the model's outputs for proper comparison shows that the 2010 model significantly underestimates the capital expenditure necessary to operate a network, by up to 20%. Table 7 below (a copy of table 3.2 in Annex 3) also indicates that the 2010 edition of the model is significantly more poorly calibrated than the 2007 version was, suggesting that some of the changes recently implemented have reduced, not increased, the accuracy of the model.

⁵² This topic is addressed in more detail in pages 29 to 35 of Annex 3

Year	MNO Actual	2010 model		2007 model (per Ofcom)	
		Output	Difference	Output	Difference
2002	£3,092m	£2,546m	-£546m	£2,906m	-£186m
2003	£3,311m	£2,683m	-£628m	£3,158m	-£153m
2004	£3,629m	£2,884m	-£745m	£3,534m	-£95m
2005	£3,850m	£3,135m	-£715m	£3,887m	+£37m
2006	£3,843m	£3,330m	-£513m		
2007	£3,969m	£3,436m	-£533m		
2008	£4,088m	£3,479m	-£609m		

Table 7 - GBV model outputs compared with MNO actual values

Similar discrepancies are found in the comparison between actual and modelled numbers of particular asset elements, as Annex 3 explains in pages 32 to 35 and table 3.5. The model is clearly significantly under-estimating the necessary capital expenditure required in the real world, and hence is not properly calibrated, and is therefore incapable, in its present state, of estimating the cost of termination.

The model outputs a structure of prices that is widely divergent from the real world⁵³

The model suggests a weighted average network charge for data of 2.7p per megabyte in the current year⁵⁴. This equates to £13.55 for 500MB and £81.30 for 3GB. However 500MB on a handset per month can currently be purchased for £4.27 net of VAT, and 3GB on a datacard (or dongle) for £12.77 (the latter includes a free dongle device). This suggests that the model's costs are somewhere between three and seven times above current data retail charges (ignoring retail costs and device costs). Were data actually being sold at these much higher prices, then the volume of mobile data would be much lower. But it is the combination in the model of high data costs and high data volume assumptions that collectively generate the low voice termination costs. In the real world these two are incompatible which means that the model does not reflect what happens in practice and, in particular, is not allocating fixed and common costs between voice and data correctly.

This issue is new to the 2010 version of the model, in that in 2007 the forecast volumes of data were not so large and the retail prices of data were not so

⁵³ See pages 35 to 37 of Annex 3

⁵⁴ Table 3.6 of Annex 3

low, so that the stark contrast between the real world and the model was not so evident or important. This problem can be addressed in two ways:

- by examining the model's cost allocation algorithms to review the appropriateness of the division of costs between voice and data services;
- by ensuring the model better reflects what happens in practice by not recovering fixed and common costs on data services.

Both of these potential solutions are examined in the sections below, and in more detail in Annex 3.

Amendments to the model from the 2007 version have introduced their own set of errors

The errors relate to changes made to the latest model version. As we explain in detail in Annex 3, on pages 42 to 52, the Ethernet backhaul link quantities are not correctly transported from one workbook of the model to another, shared site numbers are not drawn from the proper source, there is an incorrect use of network handset costs, the dimensioning rule for switch sites no longer functions correctly, there is a failure to recover the costs of the newly introduced HSPA data at the same resource consumption rate on which it is dimensioned,⁵⁵ and there is an incorrect relative weighting between 2G and 3G unit costs to derive the blended termination rate.

Collectively the impact of the corrections to these problems is as table 8 below:

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
Original model output LRIC+	2.1508	0.7801	1.5428
LRIC+ corrected for errors as tables 3.7 to 3.13	2.2751	1.0282	1.7860
Original model output pure LRIC	0.5835	0.4127	0.5077
Pure LRIC corrected for errors as tables 3.7 to 3.13	0.6680	0.4862	0.5967

Table 8 – Correction of specific mechanical errors

⁵⁵ We presume that as we have only been notified by Ofcom of this particular error that this is the only one of these problems that Ofcom has spotted, or rather has had drawn to its attention by another operator

Unrealistic input values and parameters have been adopted with respect to traffic and network design⁵⁶

One discovery that Vodafone made as a result of the extensive information requests made of the operators by Ofcom in 2009, with the purpose of updating the 2007 model, was that although voice traffic is billed in minutes, it is dimensioned in erlangs, yet a simple conversion from one to the other leads to an underestimate of actual measured erlangs. The problem appears to be that the simple conversion ignores unbilled circuit occupancy including call set up time. Using a “ringing time” uplift of 8 seconds per call to all voice calls will compensate for this error.

Concerning data traffic, Vodafone has identified three errors:

- The same assumption of the representative operator’s market share of the handset market has been applied in the datacard market. This is incorrect because H3G, whilst a laggard in the handset market, has been a leader in the datacard market. The model is thus overestimating historic datacard traffic volumes for the benchmark average 2G/3G operator, and potentially incurring expenditure in the model before it was actually necessary.
- Whilst Ofcom has belatedly included HSPA in the model, it has only modelled it at current, rather than future, levels of throughput and efficiency.
- Ofcom’s estimate of the future datacard market size is unrealistically high, projecting continued expansion to 2020/21, when there is clear evidence that the market growth is already slowing. In any event data traffic will be migrating to an LTE network in the medium term, increasing the incremental cost of voice traffic on the 3G network.

In addition Vodafone considers that the model changes relating to site sharing between operators, 2G coverage radii, and 3G non-homogenisation are not correct. Furthermore, the model builds insufficient 2G TRXs in the past and 3G sites in the future.

The overall impact of these traffic and network design related changes is to take the outputs of the corrected model from table 8 above to table 9 below:

⁵⁶ Detailed in Annex 3, pages 53 to 74

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
LRIC+ corrected for errors as table 8	2.2751	1.0282	1.7860
LRIC+ corrected for traffic issues as tables 3.16 to 3.22	2.4836	1.3205	2.0273
LRIC+ further corrected for network design issues as tables 3.24 to 3.32	2.5517	1.4371	2.1130
Pure LRIC corrected for errors as table 8	0.6680	0.4862	0.5967
Pure LRIC corrected for traffic issues as tables 3.16 to 3.22	0.7679	0.5346	0.6764
Pure LRIC further corrected for network design issues as tables 3.24 to 3.32	0.7908	0.5739	0.7055

Table 9 – Correction of traffic and network design issues

The model does not properly address the impact of the significant increase in data traffic in terms of cost recovery⁵⁷

The correct approach to cost recovery is that it should mirror cost causation: specifically in the LRIC model the same rules that have been used to dimension an asset should be used to recover its cost. However this principle is not always followed. The significant increase in data volumes has revealed that data services in the model are attracting an excessive proportion of network fixed and common costs in relation to their contribution to network dimensioning.

Newly introduced in the 2010 version is the concept that voice and data have a different busy hour/day relationship, with data consumption more evenly spread across the day and the week. But since network dimensioning is done on the peak load, and cost recovery made against the annual volume, this means that each unit of data on an annual basis should have less relevance for network dimensioning than each unit of voice. The model fails to account for this and Vodafone suggests an appropriate modification.

Also new to the model is a discount to termination costs for voicemail terminated traffic – we consider that if voicemail traffic is to be excluded then the cost recovery should be on the volume of traffic without voicemail. Alternatively if voicemail traffic is to be included then it should be costed properly, including the dedicated platforms, software etc. required, and a weighted average termination cost of handset terminated and voicemail terminated traffic derived. Since it is likely that the cost of voicemail

⁵⁷ Detailed in Annex 3, pages 75 to 84

terminated traffic is at least the same as handset terminated traffic, the simplest solution is, as we advocate, abandoning the adjustment.

Another consequence of the growth of data traffic is to highlight the difference between circuit switched voice traffic which requires a discrete channel and is dimensioned in the model on an erlangs/capacity basis, and packet data which does not, and is dimensioned on a simple traffic throughput basis. Where the two types of traffic are combined in the model for the purposes of recovering cost elements that “handle” both, for example cell sites and backhaul links, it is important that the voice weighting in the cost recovery correctly reflects the voice erlangs/capacity uplift. As the model currently fails to do so, we suggest how this may be accomplished.

The net effect of these, plus another necessary cost driver change, is shown in table 10 below.

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
LRIC+ corrected as table 9 above	2.5517	1.4371	2.1130
LRIC+ corrected for cost recovery issues as tables 3.34 to 3.36	2.7039	1.6056	2.2716
Pure LRIC corrected as table 9 above	0.7908	0.5739	0.7055
Pure LRIC corrected for cost recovery issues as tables 3.34 to 3.36	0.8153	0.5844	0.7244

Table 10 – Correction of cost recovery issues

This however still leaves a significant proportion of fixed and common costs being recovered from data traffic using an EPMU. But this does not reflect the higher prioritisation, in terms of QoS and other factors, of circuit switched voice over packet data, as considered on pages 82 to 84 of Annex 3, or the suggestion made in our previous consultation response that the elasticities of voice and data are different. Setting fixed and common cost recovery to reflect better what is happening to actual retail prices, i.e. by recovering only incremental costs from data services and thus recovering fixed and common costs from non-data services, increases the LRIC+ output for voice termination of 2.27 ppm above to approximately 2.69 ppm as table 3.37 shows.

*Unit costs and calibration*⁵⁸

The next stage of our review was to look at the 2010 changes to the unit costs and trends and to consider and improve the calibration with the average 2G/3G operator. We have reduced the gradient of the price reductions in radio access network unit costs which appear to be a contributor to the calibration failure. Once this has been done, as table 3.41 shows, GBV is £350m light every year. Since there is insufficient information as to where this difference might be inside the model, Vodafone has adopted the method used by Ofcom in 2003/04 of a simple constant uplift to all unit capital costs of 7.5%: this however still leaves the GBV on the low side of the MNO actual values, and the opex fairly closely aligned. The results of these adjustments are shown in table 11 below.

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
LRIC+ corrected as table 10 above	2.7039	1.6056	2.2716
LRIC+ corrected for unit cost and calibration issues as tables 3.40 to 3.47	2.9684	1.7586	2.4922
Pure LRIC corrected for as table 10 above	0.8153	0.5844	0.7244
Pure LRIC corrected for unit cost and calibration issues as tables 3.40 to 3.47	0.9337	0.6321	0.8150

Table 11 – Correction of unit cost and calibration issues

If in the alternative, only incremental costs are recovered from data services, then the LRIC+ of voice termination would be not the 2.49 ppm of table 11 above, but 2.98 ppm.

The pure LRIC overlay has not been properly constructed: the pure LRIC results are much less reliable than LRIC+⁵⁹

There are two difficulties with obtaining a pure LRIC result from the existing LRIC+ model.

The first is that, as discussed above, the current model has been constructed in a way that appears to recover fixed and common costs using an EPMU. But in reality the model simply (and most efficiently for this specific purpose) directly allocates all costs to services rather than attempting the much more complex task of first allocating incremental costs to services and then

⁵⁸ Detailed in Annex 3, pages 85 to 92

⁵⁹ Detailed in Annex 3, pages 37 to 41, and 95 to 104

secondly allocating common costs pro-rata to incremental costs.⁶⁰ The only check with the real world is to establish via the calibration process whether the model builds a representative network. No attempt has been made to ascertain whether the model correctly “knows” what is incremental and what is common. Any implicit or explicit division in the model between common and incremental costs is unlikely to be accurate. As Ofcom somewhat strangely puts it, whether the “*excess capacity caused by the modularity of initial deployment should be considered a real common cost or the result of short to medium term equipment build constraints and/or modelling simplification is not clear.*”⁶¹ The model therefore cannot separate fixed and common costs from incremental costs in any reliable and meaningful manner: but this is an essential requirement for a pure LRIC model and means that the current model is not fit-for-purpose.

The second difficulty is that the pure LRIC methodology employs a simplistic approach that assumes the same network parameters that build a network that is roughly the same as a real world network would be relevant in a world without voice termination, i.e. where traffic volumes were significantly lower.

There are however compelling reasons for assuming that a network planner, attempting to build a least cost network in the absence of voice termination, would vary some network design parameters, for example by recognising the greater area coverage of a 3G cell under a lower load (cell breathing), or by making some rural coverage sub-marginal and thus reducing the total area coverage of the network, or by varying the proportion of traffic sent to micro and pico sites as a result of the reduction in hot-spot intensity, and so on. In addition, a smaller network would have a lower level of administration costs – thus some admin costs might be incremental to termination. Thus a proper assessment of incremental costs arising from termination comprises not only the increment derived from a “full service minus” approach that Ofcom attempts to model but also that derived from the change in planning assumptions from a network built without termination traffic to one built with termination traffic. Inevitably therefore Ofcom’s methodology must understate the real level of costs that arises from the increment of termination traffic.

Vodafone has attempted to quantify this, but only in the case of one design change, that of micro and pico traffic, as explained on pages 102-103 of Annex 3. This suggests that an uplift to pure LRIC 2014/15 cost recovery of the order of 22% would be necessary to capture this one factor alone.

This gives a pure LRIC output based on all the amendments discussed in Annex 3 of:

⁶⁰ In fact the Ofcom March 2007 statement specifically acknowledges this, in A5.18 and A17.43 to A17.45, quoted in full on pages 40-41 of Annex 3

⁶¹ March 2007 statement, at A17.45

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
Pure LRIC corrected as table 11 above	0.9337	0.6321	0.8150
Pure LRIC additionally uplifted by micro and pico site build increment (22%)	1.1391	0.7712	0.9943

Table 12 – Vodafone revised pure LRIC outputs from the model

But we still have legitimate concerns that even if one could overcome the deficiencies of the LRIC+ model for calculating a pure LRIC, by adjusting for only one of several possible factors, and neglecting, amongst others cell breathing, coverage areas, and any administrative cost recovery, this 0.99 ppm above must still be an underestimate of the likely incremental costs of termination.

Summary of outcomes of Vodafone modelling adjustments

Table 13 below summarises the adjustments that we have made to the LRIC+ model and the outputs that it produces in 2014/15.

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
Original model output LRIC+	2.1508	0.7801	1.5428
Corrected for mechanical errors	2.2751	1.0282	1.7860
Further corrected for traffic issues	2.4836	1.3205	2.0273
Further corrected for network design issues	2.5517	1.4371	2.1130
Further corrected for cost recovery issues	2.7039	1.6056	2.2716
Further corrected for unit cost and calibration issues	2.9684	1.7586	2.4922
LRIC+ when run with all data traffic removed	3.1599	2.6912	2.9754

Table 13 – Correction of the model: LRIC+

Using LRIC+ EPMU a cost of 2.49 ppm is indicated, whereas if data services only recover their incremental costs, the LRIC+ charge should be 2.98 ppm.

Similarly, table 14 below summarises the adjustments for the pure LRIC output of the model.

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
Original model output pure LRIC	0.5835	0.4127	0.5077
Corrected for mechanical errors	0.6680	0.4862	0.5967
Further corrected for traffic issues	0.7679	0.5346	0.6764
Further corrected for network design issues	0.7908	0.5739	0.7055
Further corrected for cost recovery issues	0.8153	0.5844	0.7244
Further corrected for unit cost and calibration issues	0.9337	0.6321	0.8150
Pure LRIC additionally uplifted by micro and pico site build increment (22%)	1.1391	0.7712	0.9943

Table 14 – Correction of the model: pure LRIC

A minimum recovery of 0.99 ppm under pure LRIC is thus suggested by the model.

But all of these calculations have been conducted at Ofcom's cost of capital: in the next section we consider amendments to this and the cost model outcomes that result from more realistic WACC assumptions.

Section 5: Cost of capital

Vodafone considers that Ofcom's estimate of the cost of capital is too low. In particular, Ofcom has erred in its assessment of the equity risk premium and the equity beta and has under-estimated the values for these parameters. Furthermore we do not consider that Ofcom's approach is consistent with its previous decisions.

These problems with Ofcom's approach are considered below.

Equity risk premium is too low

Ofcom has used an equity risk premium (ERP) figure of 5%. Vodafone considers that this figure is too low in that the appropriate value for the ERP is 6%.

There is a range of evidence available to estimate the ERP. This includes historical evidence on equity returns relative to the risk-free rate and forward-looking survey based estimates of expected returns. We consider that the estimate of the ERP should be based on the historical evidence of long-run equity returns. There are two main reasons for this. First, historic evidence is available for a long time series (around 100 years) and for a number of economies. This represents a robust dataset. Second, the survey based evidence is less reliable and can be subject to short-term fluctuations. These fluctuations make it difficult to estimate the ERP in a way that is consistent with the other parameters of the cost of capital. Vodafone agrees with Ofcom that methods reliant on forecasts are subjective and prone to error.⁶²

In analysing the historic evidence of equity returns it is appropriate to focus on the arithmetic mean of returns. As a matter of theory there is no doubt that the arithmetic mean is the correct metric, and the use of long run data remains the most stable and reliable method of estimating the arithmetic mean. It is widely accepted that this is the appropriate benchmark for assessing the ERP in the cost of capital.

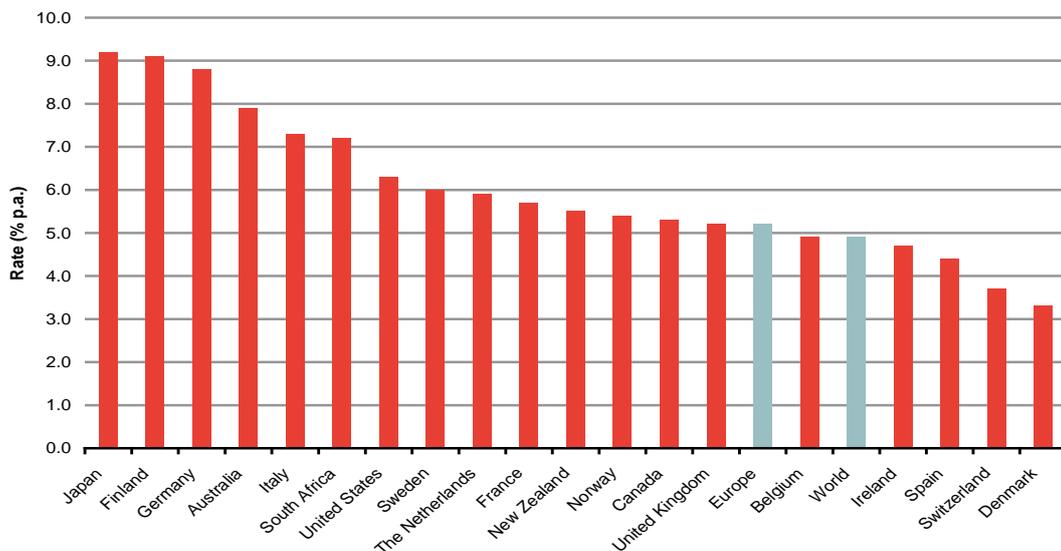
One of the most comprehensive analyses of historic ERP data is a dataset presented by Dimson, Marsh and Staunton (DMS, 2010).⁶³ The authors estimate the average ERP for 19 countries using historical returns data from 1900 to 2009, as well as an ERP for a 'world' index and a European index.

Figure 18 below plots the historic ERP (measured against bonds) calculated by DMS for these markets. The historic ERP figures based on this data source are:

⁶² See paragraphs A8.28 and A8.33 of "A new pricing framework for Openreach" Annexes to Statement, 22 May 2009.

⁶³ Dimson, E., Marsh, P., Staunton, M. (2010), *Credit Suisse Global Investment Returns Sourcebook 2010*

- 5.2% for the UK index;
- 4.9% for the world index;
- 5.2% for the Europe index; and
- 6.1% for the mean across all 19 countries in the sample.



Source: Dimson, E., Marsh, P., Staunton, M. (2010), Credit Suisse Global Investment Returns Sourcebook 2010

Figure 18 - Average historic market risk premiums 1900-2009

Vodafone considers that it is relevant to include the wider sample of data, rather than solely relying on the UK data - doing so results in a more broad-based estimate.

We also consider that other evidence on the historic ERP should be evaluated. Ofcom has placed too much reliance on the DMS evidence in its assessment and has ignored other evidence. Although the DMS dataset is a valid source of evidence it is not the only analysis of historical data, and we understand that the edition used by Ofcom in deriving an ERP for Openreach's WACC, which is also the basis for the estimate used here reflects data to 2008 and so ignores more recent equity return volatility during 2009.

Other evidence on historical returns is summarised in Table 15 below.

Evidence	Description	Value for ERP
Barclays Capital	Equity-Gilt study 2010. Data covering the period 1899 to 2009. Arithmetic equity return of 11% (Table 70). Risk-free return 5% (Table 72).	6.0%
Morningstar⁶⁴	Calculates historic risk premiums on a number of US indices (i.e. the S&P 500 index, the value-weighted NYSE index, and the NYSE deciles 1-2 index) using returns data covering 1926 to 2008	6.3% - 7.0%
Damodaran (2008)⁶⁵	Examines US stock returns and Treasury bond yields over the period 1928 to 2007	6.4%

Source: Frontier Economics

Table 15 - Other studies of the historic risk premium

The evidence on the historic ERP for developed economies provides a range of values from around 4.9% to 7.0%. Vodafone considers that a figure of 6% is the appropriate estimate of the long run ERP. The evidence indicates that since the beginning of the financial crisis the short-run ERP has been in excess of this figure: this is illustrated by the high level of volatility in equity markets that has been observed during this period.

Vodafone also acknowledges that consistency is important in estimating the cost of capital. As a result we have taken account of longer-run evidence in assessing all of the parameters of the cost of capital.

Equity Beta range is too low

Ofcom has adopted an equity beta range of 0.7–1.0 (assuming gearing of 25% to 35%). This represents a dramatic change compared to the previous determination in March 2007 when Ofcom used a range of 1.0 to 1.6 at a gearing level of 10%. To put this another way, Ofcom have concluded that the central value for the asset beta has declined from 1.17 to 0.6.⁶⁶ This is a highly significant and unlikely reduction over a period of just three years.

Vodafone considers that Ofcom has erred in placing too much reliance on short-run beta data. This is particularly a concern when it is likely that these short-run results would have been distorted by the impact of the financial crisis. Ofcom's report offers some explanation for the decline in beta, based on the analysis undertaken by Brattle.

⁶⁴ Morningstar (2009), *Ibbotson S&P 2009 Valuation Yearbook*, Chicago

⁶⁵ Damodaran (2008), "Equity Risk Premiums (ERP): Determinants, Estimation and Implications", *Stern Business School working paper*

⁶⁶ Using the Miller formula for converting from equity to asset Betas.

“A8.115 Brattle’s report suggests that observed equity betas for the parent companies of UK MCPs have fallen in recent years. Brattle offers a number of possible explanations why this might have occurred:

a) Changing investor perceptions about the risk attached to mobile telecoms stocks. Investors may have been concerned that mobile stocks would promise much and deliver little, but several years of solid performance have proved the resilience of these operators.

b) The increasing maturity of mobile networks now that 3G networks have been built out and nearly 100% coverage has been achieved. Mobile operators are now perceived as offering stable and positive free cash flows. This may be a temporary, cyclical state of affairs, since 4G network rollout is likely to begin in the coming years.”

In our view these explanations do not adequately explain the scale of the proposed reductions over the past three years. For example, it is not clear that the maturity of the business is any different today than it was in 2007.

Figure 19 below shows Vodafone’s equity beta since 2006. It is based on a rolling one year beta using daily returns data. The figure reveals the following:

First, the equity beta has declined significantly since the start of the financial crisis in September 2008. This decline in the beta would have coincided with increased levels for the equity risk premium.

Second, the difference between the beta on the UK index and the world index is generally not as significant as implied by Brattle’s analysis.



Figure 19 - Vodafone's equity beta

In our view it would be inconsistent to place weight on the more recent beta evidence without using a much higher estimate of the ERP that reflected the impact of the financial crisis.

Ofcom's statement implies that they have considered the impact of short-run financial market volatility:

"A8.105 We are estimating the cost of capital for a notional efficient mobile operator. We note that the level of volatility and uncertainty in financial markets has been very high for at least the last 18 months. When considering empirical evidence from time periods that include this period of volatility, care needs to be taken in separating short-term and long-term effects."

However, in estimating the appropriate beta value Ofcom has failed to adequately allow for the effect of the financial market crisis. We consider that the evidence between 2006 and 2008 points to an equity Beta in the range 0.8 to 1.2. We note that this still represents a significant reduction in the assessed beta value between the 2007 determination and now.

Summary of WACC computation

Table 16 below shows Vodafone's estimate of the cost of capital for MNOs after adjusting for the weaknesses in Ofcom's assessment identified above. This is based on the central values for each parameter. For the other parameters in the calculation we have adopted, for simplicity, the values proposed by Ofcom.

	Ofcom estimate	Vodafone estimate
Real risk-free rate	2.0%	2.0%

Inflation assumption	2.5%	2.5%
Equity risk premium	5.0%	6.0%
Equity beta	0.7-1.0	0.8-1.2
Gearing	25-35%	25-35%
Cost of equity (post tax nominal)	8.0-9.5%	9.3-11.8%
Debt premium	1-2%	1-2%
Corporate tax rate	28%	28%
Cost of debt (post tax nominal)	4.0-4.7%	4.0-4.7%
WACC (pre-tax real)	6.5-8.8%	7.7-11.0%
Average pre-tax real	7.6%	9.4% (for LRIC+)

Table 16 - WACC Computation

In Vodafone's view, therefore, a WACC of 9.4% is appropriate under the existing LRIC+ EPMU costing methodology (but not under pure LRIC). This still represents a reduction of over 2% from the previous mobile termination rate review (at 11.5%), but is significantly above Ofcom's new estimate of only 7.6%.

In the case of pure LRIC Ofcom must adopt a WACC at the upper end of the range

Estimation of a company's WACC inevitably involves an element of judgement and possible error. For example, the discussion above has already alluded to issues of disentangling short-run and long-run trends in beta estimates. The costs of these errors, and particularly the symmetry of costs, need to be considered.

When a regulated price is set on the basis of "LRIC+ common cost" there is arguably a degree of symmetry in error costs associated with either under-estimation or over-estimation of the WACC. Over-estimation may result in the company making excessive profits, whilst under-estimation (provided the marginal cost of capacity is still covered) will simply result in a reduction of profits for company to a level below that which will provide a return on the total investment, but which will still incentivise incremental investment where necessary.

If, however, Ofcom pursues a pure LRIC approach, this symmetry of error costs will no longer apply. Under-estimation of the WACC (for example, adopting a short term low beta) will make investment in incremental long run

capacity no longer commercially justified. For this reason, under a pure LRIC framework, Ofcom should adopt the figure at the upper end of the range in Table 16, i.e. 11.0%.

Cost model results from Vodafone costs of capital

Inputting these revised WACC values into the original Ofcom version of the costing model gives the following results:

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
Original model output LRIC+	2.1508	0.7801	1.5428
LRIC+ at 9.4%	2.3871	0.8157	1.6901
Original model output pure LRIC	0.5835	0.4127	0.5077
Pure LRIC at 9.4%	0.6531	0.4396	0.5584
Pure LRIC at 11.0%	0.7055	0.4685	0.6004

Table 17: Ofcom’s original model under different WACC

Applying the same costs of capital to the Vodafone revised version of the model will give the following result as per table 18 below:

Model outputs in ppm	2G 14/15	3G 14/15	Blend 14/15
LRIC+ corrected as Annex 3 at 7.6% WACC	2.9684	1.7586	2.4922
LRIC+ corrected as Annex 3 at 9.4% WACC	3.3372	1.8799	2.7636
LRIC+ when run with all data traffic removed (table 3.48 of annex 3) at 7.6% WACC	3.1599	2.6912	2.9754
LRIC+ when run with all data traffic removed (table 3.48 of annex 3) at 9.4% WACC	3.5844	2.9169	3.3217
Pure LRIC corrected as Annex 3 at 7.6% WACC	0.9337	0.6321	0.8150
Pure LRIC corrected as Annex 3 at 9.4% WACC	0.9915	0.6311	0.8497
Pure LRIC corrected as Annex 3 at 11.0% WACC	1.0589	0.6609	0.9023
Pure LRIC additionally uplifted by micro and pico site build increment at 11.0% WACC (17%) ⁶⁷	1.2342	0.7703	1.0517

Table 18 - Outputs from the Vodafone version of the model at varying WACC

This table shows that the corrected model at 9.4% cost of capital, when run under LRIC+ EMPU, will yield a charge in 2014/15 of 2.76 ppm but when run with no fixed and common cost recovery to data gives a charge of approximately 3.32 ppm. Under the pure LRIC methodology the model produces a cost of at least 1.05 ppm.

⁶⁷ This calculation and the rest of tables 17 and 18 are explained in detail at the end of Annex 3 from page 107

Section 6: Two-Part Charging

The principle and mechanics of a capacity-based charge for interconnection between telecommunications operators have been discussed in the UK for nearly 20 years without reaching any clear path forward. Vodafone believes that the potential exists to make progress on this matter and that some form of two-part charging as a proxy for a CBC can be introduced for mobile and fixed operators during the lifetime of the next price cap.

In this consultation Ofcom acknowledges that if what drives the costs of providing termination is capacity then it is optimal to use capacity-based charging for termination rates in the form of a two-part tariff encompassing a fixed charge and a per minute fee. Indeed there appears to be a measure of consensus within the industry that the underlying cost structure of a mobile network consists of two main elements:

- Costs incurred in providing wide area coverage in order to make and receive calls and provide other services;
- Marginal costs incurred in providing additional capacity over and above what can be provided by the basic 'coverage network'.

Vodafone agrees with Ofcom that if interconnection charges are set so as to reflect the way costs are incurred then this can achieve some allocative efficiency benefits (one of the key criteria that Ofcom uses to evaluate the benefits of pure LRIC versus LRIC+). Interconnection charges that entail a charge for capacity will allow retail tariffs to better reflect the underlying cost structures of terminating networks i.e. higher fixed monthly charges and with lower per minute charges. This trend, in the form of the increased prevalence of monthly bundled packages, already appears to be underway.

Despite the admitted benefits of a capacity-based charging regime Ofcom proposes only to revisit its implementation after 2015 because of the challenges of introducing such a scheme and the lack of enthusiasm amongst industry players. We disagree with this approach: we believe that a type of CBC in the form of a two-part charge can be introduced without either significant operational difficulties or major disruption to the industry within the next 4 years.

A move to capacity-based charging sooner rather than later is also consistent with the need for industry to move to an agreed interconnection regime for next generation networks. To the extent that next-generation network technology increasingly causes network costs to be more fixed than variable with respect to traffic and capacity, CBC may be more consistent with the structure of costs incurred by providers using converged IP networks and the corresponding allocative efficiency benefits of a move to CBC may be greater.

Vodafone's proposal

One of the criticisms levelled at LRIC+ by Ofcom is that it assumes that the proportion of common costs that should be recovered from mobile termination rates must be solely recovered via a mark-up on linear charges and that this is a poor reflection of the underlying cost structure of the service provided which has knock-on (and inefficient) effects on retail origination tariffs. It should be noted that Ofcom produces no evidence to support this view.

In any event we believe that this objection can be overcome. Our proposal is that a proportion of fixed and common costs should continue to be recovered from termination charges but that this should be done in the form of a two-part charge. The same quantum of fixed and common costs that are expected to be recovered via a per minute charge should instead be recovered via a fixed annual charge for each interconnection (E1) link required by the directly interconnecting party. Marginal costs would be recovered on the basis of a per minute charge and calculated in the same manner as pure LRIC. Both charges would be set using a corrected version of the Ofcom cost model i.e. based on the concept of an average efficient operator. The pure LRIC charge is an existing output of the model and the annual capacity based charge for a given year would be calculated as follows:

1. Calculate the difference on a pence per minute basis between pure LRIC and LRIC+.
2. Multiply this by the inbound traffic volume, 2G and 3G from the model to give the total value of the necessary recovery for the average efficient operator.
3. Take the inbound traffic volume from the model, and convert it into a Busy Hour peak load, in erlangs.
4. Using the model's traffic utilisation factors, convert this demanded number of channels into the required number of E1 links.
5. Divide the total sum to be recovered from step 2 by the required number of E1s to give a capacity based charge per E1 from the model.
6. Each MNO to apply this charge to its inbound voice interconnection links on a per link basis to recover from the interconnecting party.

According to our calculations using this methodology on Ofcom's original 2010 model the charge for an E1 link would be £44k per annum in 2014/15, in 2008/09 prices. The charge would be £87k using our modifications to the model.

Importantly, our proposal for a two-part charge preserves some incentive for mobile operators to maximise profitable participation in their networks. All

other things being equal, we would expect operators to want to retain marginal customers in order to maximise the contribution from interconnecting parties to fixed and common costs via the E1 link charge. The greater the size of the network (in terms of customers) the more inbound calls it attracts (the marginal customers that we have identified in our market research receive more inbound calls than they generate) the higher will be the annual fixed charge. Operators who receive on average a greater proportionate contribution to their fixed and common costs from the payments for links will be expected to recycle a proportion of this, via the waterbed, into lower retail charges to their customers.

We note however that the ‘incentive properties’ of our two-part charge are weaker than those that apply under a per minute LRIC+ charge because it can break the direct link between the termination rate and customer lifetime value. For example, attracting or retaining customers whose inbound calling profile differs from the aggregate inbound profile of the interconnecting party will not, at the margin, increase the demand for interconnection links or the contribution to fixed and common costs. In contrast, under a LRIC+ regime, operators are guaranteed a contribution to fixed and common costs from inbound calls.

For this reason we believe that a two-part charge will yield an inferior outcome to charges set on the basis of LRIC+. Two-part charging will however mitigate some of the adverse allocative and distribution effects described in sections 2 and 3.

Below we review the practical issues—outlined in the current consultation and in our previous response—associated with introducing the form of CBC that we propose. We find that there are no issues that are so intractable as to undermine the case for its implementation.

Difficulty of accurately forecasting demand for capacity

This is not a new difficulty under our proposals. Operators that directly connect with one another already forecast the number of E1 links that they require. In the case of Vodafone these forecasts are for one year ahead. It is true that if the cost of the link increases by a factor of 10 then there is a greater incentive on the interconnecting operator to predict demand accurately and to draw down only the resources they really need; we see this as an advantage rather than a disadvantage of our proposal.

Fixed capacity charges could be a matter of concern to smaller providers.

Under our proposals the total amount of interconnection charges that mobile operators are expected to recover (versus a LRIC+ per minute charge) does not change. Clearly some operators will be better off and some worse off depending on the profile of the traffic that they send to the mobile networks, and the efficiency with which they are able to utilise interconnection circuits. This is an advantage of the proposed system because these charges will better reflect the way that costs are incurred. It is possible for a smaller operator to reduce its interconnection costs by better balancing its demand for termination across the day; some smaller operators may therefore welcome the introduction of capacity-based charging. In any case, we do not regard a charge of £87k per link (or £44k using Ofcom's estimate of LRIC+) as sufficiently large to deter smaller operators from directly interconnecting if this is efficient from entering the market.

Number translation services

Services that require a differential charging regime can use dedicated links which do not attract a capacity charge. This already happens at the moment where, in our case, SMS and MMS traffic takes a different path to voice traffic. We do not believe that this undermines the attractiveness of our proposal because more than 95% of traffic terminating on any network in the UK is plain vanilla voice⁶⁸. These sorts of arrangements are likely to be required in the future on NGN networks where services such as voice and video that demand high QoS may use high tolerance bearers whilst other services such as MMS or IM can use less demanding QoS bearers.

Providers do not have an incentive to cooperate in its introduction.

We see potential advantages to most operators in introducing the form of CBC that we are proposing; not least the fact that some form of change in the interconnection regime will be required as operators migrate to NGN technologies. Further, more efficient use of the network resulting from CBC will enable MNOs to provide better value to their customers. Ofcom can quickly establish the appetite for a CBC scheme via an industry workshop.

Capacity usage would need to be actively monitored to efficiently manage the network and to ensure capacity requirements were met.

Interconnecting operators already monitor and efficiently manage the number of interconnection links that they require. A higher charge per link will increase the incentive on interconnecting parties to manage that capacity efficiently.

⁶⁸ Where that traffic is passed from another telecommunications operator

Capacity charges set too low

We believe that with the modifications that we propose to the Ofcom cost model the risk of setting capacity charges too low is minimal. If charges are set too low then there may be an excess of interconnection capacity and operators may need to recover more of their fixed and common costs from their retail customers. However, under a regime of pure LRIC operators must recover all of their fixed and common costs from retail customers and the consequences of setting the termination rate too low (for example if the cost model fails to capture the true cost-volume relationships) is that operators have an incentive not to terminate inbound calls.

As we note earlier we do not consider that a charge of £87k per link is sufficient to limit the entry or expansion of smaller providers.

CBCs as a remedy will not remove the need for MTRs to be set at some measure of cost.

True but, in the absence of a CBC regime, termination rates will be set on the basis of some measure of cost. The scheme that we propose does not add to this aspect of the regulatory burden.

Inbound / Outbound mismatch

We noted in our previous response that if CBC were introduced for mobile termination only then there would be a 'mismatched regime' with the fixed networks. We saw this as only an interim issue before the fixed networks could move to a CBC regime. However, it is now apparent that Ofcom itself wishes to implement different regimes for fixed and mobile networks until the current BT price cap ends in 2012 so it is apparent that Ofcom is not unduly concerned about any short-term distortions that may arise. Alternatively, Ofcom can ensure consistency of approach by moving to CBC for the whole industry in 2012/13 (with termination charges in the interim set on the basis of LRIC+ for mobile and fixed operators). This will give plenty of time for industry to resolve any operational difficulties.

Transit

Capacity-based charging represents an opportunity and a threat for transit operators. It is probable that transit operators would continue to charge M2M and F2M transit traffic on the basis of a per minute charge but pay for interconnection on the basis of a capacity-based charge. The transit operator can aggregate traffic from different networks, potentially with non-coincident peaks, and so reduce its own costs of interconnection by making efficient use

of CBC. Because the market for transit traffic is competitive we would expect to see transit providers passing some of the benefits of these efficiency gains on to their customers and competing aggressively for customers whose traffic they can carry without adding to their demand for interconnection links.

It may well be that under a CBC regime some operators who previously had direct interconnection would now choose to route incremental traffic via a transit operator. This is not an argument against CBC. In the past operators optimised their interconnection strategy on the basis of a charging structure that inadequately reflected the principle of cost causation; under a system of CBC a better overall outcome is achieved because operators optimise their routing strategies based on a correct set of price signals.

Impact on physical arrangements for interconnection and routing strategies

We suggested in our previous response that a system of CBCs could lead operators to change their routing strategies by reducing the number of interconnection links and increasing the use of transit operators. This may indeed happen in practice and will be efficient for the operator (and for society) if such a strategy reflects lower resource costs.

Pre-booked capacity vs. used capacity

Under CBC interconnecting operators will have a greater incentive to run their interconnection links 'up to the limit'. Again this is an efficient use of resources. However this incentive will be conditioned by a greater incentive not to risk degrading the quality of service experienced by their own retail customers.

Non-coincident peaks between different networks

Under our system of CBC the number of links required by an interconnecting operator is determined by the busy hour demand of the originating rather than the terminating network. Clearly, on average and especially for larger networks, we would expect these two busy periods to coincide. However, we do not regard this as a problem if this is not the case. Our proposal is better described as a two-part charge rather than a capacity only charge. The fixed annual charge is intended to recover a proportion of those costs that do not vary with changes in demand. The important feature of our proposal is that each interconnecting party makes a contribution to those costs in a manner that is 'fair' in that it, in some sense, reflects the amount of benefit that the interconnecting party receives from the terminating operator's investment in its network and, at the same time, it best reflects the way that costs are incurred in a mobile network.

Shifting peaks

The traditional “shifting peak” problem occurs when following introduction of CBC the busy hour shifts so that interconnecting operators no longer face the correct price signal for sending traffic in the busy hour. This would be a problem if CBC were intended to capture the incremental cost of aggregated traffic in the core of the network. However, we do not regard this as a problem in our proposals. Since networks pay for capacity at their own interconnection link only, and a per minute charge to cover the marginal cost in the core of the network, each network will purchase enough interconnection capacity for what it regards as its own peak requirement, given its time-of-day pricing plans.

Implementation costs

Because operators already order and pay for interconnection links between their respective networks we do not believe that there are significant costs involved in implementing our proposals.

Vodafone believes that our proposal is workable and can be implemented within the lifetime of the next price cap. If Ofcom remains concerned that recovering a proportion of common costs through a mark-up on linear charges causes inefficient retail origination tariffs then we urge it to convene an industry working group to begin discussing how and when our proposal can be implemented.

Section 7: Answers to specific questions

Q 3.1 Do you agree with our views on whether and when new MCPs should form separate markets? Are there any factors we have not considered which should inform this view?

Vodafone is in broad agreement with Ofcom's views on new MCPs.

Q 3.2: Are there any other types of providers we should also consider?

We are not aware of other types of provider that Ofcom should consider.

Q 3.3: Do you agree with our views on the specific call types that should be included in the market? Are there any factors we have not considered which should inform this view, resulting in call types other than those identified being either included or excluded from the market?

As we explain further at Annex 4 the donor network is not acting as a terminating operator when receiving calls to ported numbers since at the retail level the subscriber of the originating network is not seeking to connect to a subscriber of the donor network. It is therefore not clear that calls to ported numbers should be included in the proposed market definition. We are concerned that including this call type within the proposed remedies will lead to very strange termination rate gradients. To prevent this it may, as an alternative to excluding these ported out calls from the market, be possible to apply a different (i.e. a non-discrimination) remedy to this call type.

Q 3.4: Do you agree with our view of that the geographic market for each of our proposed markets should be the area of the UK within which the MCP provides and can set a charge for mobile voice call termination services?

Yes.

Question 4.1: Do you agree with our view? Or are there other developments, not considered elsewhere in this consultation document, for potentially removing the underlying causes of SMP?

We are not aware of any such developments. If they were to become apparent over the period of the price cap then Ofcom may need to reconsider the regulation of termination rates.

Question 4.2: Do stakeholders have any comments on the analysis set out in this section?

We have no further comments on Ofcom's analysis of CBP.

Question 4.3: Are there any other providers with SMP that we have not identified?

We are not aware of other providers.

Question 4.4: Do stakeholders agree with our proposed SMP assessment for the period until 2014/15?

We agree with Ofcom's assessment.

Question 5.1: Do stakeholders agree with the identified harm to consumers of excessive termination rates in the period 2011 to 2015?

There are potential harms to customers from excessive termination rates. However, we believe that there are significant detriments to customers, which Ofcom has not addressed, from setting rates below 3.7 ppm in 2014/15.

Question 5.2: Do stakeholders consider there to be any other forms of relevant consumer harm that we have not identified?

No. However, Ofcom does not appear to have addressed the harm from miscalculating pure LRIC and, as a consequence, of setting rates below cost.

Question 7.1 – do stakeholders agree with Ofcom's view regarding the need for transparency in MCT charges?

We support a requirement to publish MCT charges.

Question 7.2 – Do stakeholders agree with our preliminary view on application of a condition requiring network access to be provided on F&R terms?

We agree with a requirement that network access be provided on fair and reasonable terms.

Question 7.3 – what are your views on the need for an ex ante undue-discrimination condition for the period of the next review?

We know of no instances in which discriminatory behaviour has been a problem or, indeed, how operators could, in practice degrade a rival's service. We therefore question whether such a condition is required.

Question 7.4 - Do stakeholders believe that there are any circumstances or situations where the UK differs from other EU markets to the extent that would support a departure from following the EC Recommendation?

Ofcom can disagree and depart from the Commission's Recommendation: there is no presumption that the Recommendation must apply. In doing so Ofcom is required to give reasons for its decision; these reasons do not have to be specific to the UK.

Vodafone believes that a proper review of the information available to Ofcom at the time of the consultation together with the new evidence supplied by Vodafone in this response provides adequate and compelling grounds to depart from the Recommendation on the basis of the allocative and distributional harm that it will cause.

Question 7.5 – do you agree with Ofcom's proposals for its preferred set of remedies for the provision of MCT services?

No. Vodafone believes that setting a charge below a 'profit neutral MTR' (see Section 1) will have adverse consequences for mobile customers that are not compensated for by additional calling. If Ofcom believes that it needs to alight upon a particular costing methodology then it should choose one that minimises this harm. Put simply, Ofcom should set termination rates on the basis of a properly calculated LRIC+ methodology.

Question 9.1 – Do you agree that a four-year period for the SMP remedies is appropriate?

Vodafone believes that a four-year period is reasonable.

Question 9.2: Do you agree with our proposed modelling approach, as discussed in this section, the supporting annexes and the actual model? If not, please discuss the specific proposals you disagree with.

Vodafone believes that Ofcom's cost model is not fit-for-purpose either for the calculation of pure LRIC or LRIC+. The model contains material deficiencies and these are detailed in Annex 3 and summarised in Section 4. In the case of pure LRIC, if charges are set on the basis of the existing model then operators will have a disincentive to invest in network capacity to terminate inbound calls since they will fail to recover even incremental cost.

Question 9.3: What is your view of the harm caused by flip-flopping? Please provide evidence to support your response.

We do not have evidence of any significant harm caused by flip-flopping although it is obviously being used by operators to 'beat the cap'.

Question 9.4: Do you agree with our preferred option for resolving the issue of flip-flopping – i.e. charge changes restricted to the first day of each quarter and a 20% cap on individual time of day rate increases? If not, why not? Which is your preferred option and why?

No. We regard option 2 as overly prescriptive and proscriptive as it stands (see Annex 4).

Question 9.5: Are there other, more proportionate solutions that we should consider?

We suggest a modification to option 2 in Annex 4.

Question 9.6: Is it clear which types of calls are included in, and which types are excluded from, the new charge control and in turn the compliance calculation? If not, which call types do you want clarified?

It is clear which call types are included however we see little justification for including ported out calls. Although their inclusion is largely irrelevant where ported out traffic has an identical time of day mix to terminated traffic, if this is not the case then operators may be incentivised to charge very skewed time of day rates.

Question 9.7: Is Ofcom taking the right steps to monitor compliance?

Yes, provided option 2 is modified in the manner that we propose.

Question 9.8: Are MCPs able to provide the information required to demonstrate compliance and for Ofcom to monitor compliance?

Yes, the informational requirements under the proposed regime become less onerous.

Question 9.9: Do you agree with the conclusions of our distributional impact assessment?

No. Our research shows that there are significant adverse distributional consequences associated with the scale of MTR reduction contemplated by Ofcom.

Question 9.10: Do you agree with our EIA, that reducing MTRs will have no significant impact on any specific identifiable group? If you disagree with this statement we would welcome any evidence you hold showing why this statement might be incorrect.

No. Our research shows that 2.6 million low spending customers will be adversely affected by Ofcom's proposals and that a disproportionate number of these customers are drawn from socio-economic groups D and E.