

MTAS Investigation: Cross Submission

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Vodafone New Zealand

Authorship

This document was written by Aaron Schiff.
aaron.schiff@covec.co.nz | (09) 916 2012

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Executive Summary

1. This report contains our cross-submission on economic issues raised in submissions by other parties in response to the Commission's Mobile Termination Access Services (MTAS) investigation Draft Report. We have prepared this report at the request of Vodafone New Zealand, but the views expressed here are our own.
2. We comment on the two reports prepared by Concept Economics for 2degrees, and the Phoenix Research study referred to in the 2degrees submission and the first Concept Economics report.

The Concept Economics Reports

3. The first Concept report analyses the effects of mobile market entry under various scenarios. The second report comments on the Vodafone and Telecom restricted information that was formerly Commission-only information, and also updates the results of the first report using this information (however, the results do not change greatly).
4. In terms of Concept's analysis of the effects of entry in their first report and the updated welfare results in their second report, our main concerns are as follows:
 - The Concept model is a 'benefit model' and as such represents a partial welfare analysis.
 - Concept does not demonstrate that the benefits of price reductions that they calculate are attributable to further regulated reductions of mobile termination rates, rather than simply the entry of 2degrees (which has already occurred), or other potential entrants.
 - Concept uses an incorrect counterfactual in that it does not allow for the secret deal between Vodafone and 2degrees, and does not recognise that FTM termination regulation will make 2degrees worse off. These facts mean that, absent regulation, termination is likely to be a source of revenues rather than costs for 2degrees, particularly given that 2degrees has chosen to target low-spending prepay customers with its retail pricing.
 - The international evidence that Concept bases its factual scenario on is casual and does not control for other factors that affected mobile prices over time. Furthermore, the evidence does not show any link between MTR regulation and entry or subsequent price reductions.
 - The welfare benefits that Concept calculates of price reductions under the factual assume large price decreases for the complete volume of all mobile services. Prices for on-net calls and texts are very low, and it is unlikely that there is scope for large reductions in these prices. Any price reductions that do occur are likely to be limited to a much smaller volume of traffic.

- Excluding the current volume of on-net calls and texts from Concept's calculations results in much smaller welfare benefits.
 - Mobile broadband does not require mobile termination and will not be affected by the proposed MTAS regulation. It is not clear why benefits of reductions in data prices should be attributed to the proposed regulation.
 - Concept's demand elasticity assumptions are significantly higher than those in the academic literature. Changes in mobile prices and volumes in New Zealand in recent years have reflected the popularity of flat-rate pricing, and it is not possible to use the response of consumers to such pricing to make inferences about the demand elasticity when there is a positive per-minute price.
 - Concept's linear demand assumptions represent an upper-bound of the possible welfare effects.
 - The cost estimates used by Concept in their total welfare calculations are subject to considerable uncertainty, and therefore so are the welfare results.
 - Including terminal values in the calculations effectively extends the period of analysis, and increases the uncertainty around the results. The Commission rejected the use of terminal values in the previous MTR investigation for these reasons.
5. In terms of Concept's analysis of the Vodafone and Telecom restricted information, our main views are:
- There is no sense in which the current distribution of calls between on- and off-net represents an economic distortion. If the same volume of calls were distributed equally, consumer welfare would be the same as now.
 - On-net pricing does not soften competition between mobile networks. In fact, theory shows that the opposite is true.
 - Concept's partial and incomplete analysis of market outcomes does not tell us anything about the intensity of competition in the process that generated these outcomes.
 - SMS traffic between networks has a strong tendency to be balanced, because people often reply. This is why it can be profitable to set off-net SMS prices below the SMS termination rate.
 - Concept attempts to describe the outcomes observed in the retail mobile market as representing a lack of competition. In reality, prices for calls and texts are low and falling. In our view, the correct interpretation is that networks are competing intensely for mobile subscribers. Given the large benefits that flat-rate mobile pricing plans have delivered to consumers, it is difficult to reconcile Concept's conclusion that the mobile market is not competitive.

The Phoenix Research Study

6. Phoenix Research conducted a survey of high-school and university students in Auckland and Otago for 2degrees. It found that most Auckland students belonged to Vodafone and most Otago students belonged to Telecom. Furthermore, students made most of their recent calls and texts on-net. The results of this study are used as evidence by 2degrees and Concept that the mobile market is not competitive.
7. In our opinion there are a number of problems with the design of the Phoenix study and the interpretation of the results which mean that it is not possible to reach these conclusions. In particular:
 - Students are not representative of the population of mobile users, and may be strongly affected by peer pressure, influenced by advertising, and more price sensitive. All of these factors mean that students are quite likely to choose to belong to the same mobile network as their friends, everything else equal.
 - If students are price sensitive then they will have a strong incentive to coordinate their switching to another network that offers more attractive on-net pricing, and so it is not necessarily difficult to compete for students.
 - Given that only students were sampled, it is not possible to use this study to make broad conclusions about the mobile market as a whole.
 - Since only a small number of schools were sampled, it is also not possible to reach reliable conclusions at the level of the school.
 - Calling and texting patterns were studied by looking at the most recent 10 calls and texts of each student in the survey. This is not a random sample of each student's usage, and the most recent calls and texts may be biased towards those numbers most frequently used. This is particularly problematic for texting, where the tendency to reply means that only one or two text 'conversations' are likely to be observed. For calls, the duration of calls was not reported.
 - Phoenix does not report how many unique numbers each student called or texted. Evidence suggests that calling circles are small, and consumers do not care much, if at all, about the size of the network as a whole that they belong to.
 - As with Concept's analysis, it is not possible to draw conclusions about the process of competition simply by looking at market outcomes.
 - Phoenix's results do not tell us anything about the effects of on-net pricing on consumer welfare. Without on-net pricing, prices for on-net calls will probably be higher, while prices for off-net calls may be lower. It is not clear whether this will make consumers better off, particularly considering that under flat-rate pricing the price faced by consumers at the margin is zero.

1. Introduction

8. We have reviewed the submissions made by various parties on the Draft Report in the Commerce Commission's investigation of Mobile Termination Access Services (MTAS). This report contains our cross-submission on some economic issues raised in other submissions. We have prepared this report at the request of Vodafone New Zealand, but the views expressed here are our own.
9. We discuss the following:
 - The first Concept Economics report for 2degrees, on the effects of MTAS regulation on the retail mobile market.¹
 - The second Concept Economics report for 2degrees, which discusses restricted information provided by Vodafone and Telecom to the Commission, and updates the results of their first report based on this information.²
 - The Phoenix Research study referred to in the 2degrees submission and the first Concept Economics report.³

¹ Concept Economics, *Assessment of the Consumer benefits of Mobile Termination regulation in New Zealand*, 28 July 2009.

² Concept Economics, *Submission to the Commerce Commission in Relation to Data Reclassified as Restricted Information*, 11 August 2009.

³ Phoenix Research, *Measurement of On Net Mobile Traffic Among Students in Auckland and Dunedin: Key Findings*, May 2009, available at

http://www.2degreesmobile.co.nz/c/document_library/get_file?uuid=fff7bd97-ed42-4cce-9b92-70dd46149805&groupId=10128.

2. The Concept Economics Reports

10. Concept Economics prepared a report for 2degrees estimating the economic effects of price reductions in the mobile market following the entry of 2degrees. We have reviewed the Concept report that was submitted to the Commission and also their spreadsheet model which was provided to us as restricted information.
11. Subsequently, the Commission reclassified as restricted information some Commission-only information that was provided by Vodafone and Telecom in response to the Commission's information request, and gave parties the opportunity to submit on this data. Concept submitted another report for 2degrees which commented on some aspects of the data, and updated the results in their first report using the information that was not previously available to them.
12. In this section we discuss both of Concept's reports. Their final results did not change greatly after updating the data, so we discuss their first report first, and our comments on that apply equally to their updated results in the second report. We then discuss some other issues raised by Concept in the second report, based on their analysis of the Vodafone and Telecom restricted information.

2.1. Concept's Analysis of Effects of Regulation on the Mobile Market

13. Concept analyse two factual scenarios against each of two counterfactual scenarios, giving four scenarios in total. The factuials are that mobile prices fall by 60% or 30% over the next several years. The counterfactuals are that 2degrees exits the market at the end of 2011, or that it remains in the market with a 'limited scale' of operations. The net result is that retail mobile prices decrease more in the factuials compared to the counterfactuals. Four individual mobile services are modelled: Voice, SMS, MMS and data.
14. For each of the four scenarios, Concept estimate changes in consumer and total welfare between the factual and the counterfactual. These changes are driven by the assumptions about prices and demand elasticities for the four services.
15. The Concept model is a 'benefit model', not a cost-benefit model. It is a partial welfare model and only estimates benefits in the mobile market resulting from price reductions, without considering any detriments of regulation. As we submitted, the Commission's model of the economic detriments of regulation (the waterbed model) is incomplete. The Commission underestimates the FTM waterbed effect and omits the waterbed effect of MTM termination regulation. These are relevant detriments that must be balanced against any estimate of benefits of regulation in the retail mobile market.
16. Concept's factual and counterfactual scenarios are based on the entry of 2degrees into the mobile market. It is important not to confuse the effects of entry with the effects of the proposed regulation. Concept do not demonstrate that further regulated MTR reductions are required to achieve the benefits of competition that they have identified. All of their arguments about the effect of the entry of 2degrees on mobile prices and

therefore consumer welfare are weak, unless a clear link between the proposed regulation and these price changes can be established.

17. Further, the Commission's task is to promote competition, not to promote the interests of any one particular competitor, and so an analysis centred around 2degrees is of limited value for assessing whether regulation will achieve the objectives of the Telecommunications Act.
18. The remainder of this section discusses specific issues in Concept's analysis and assumptions.

2.1.1. The Counterfactual Scenarios

19. Concept assumes that, without regulation, 2degrees will be an ineffectual competitor or will exit the market. In terms of their quantitative analysis, this translates to smaller reductions in retail mobile prices relative to the factual. Concept do not provide any financial analysis to support these assumptions. Instead, they rely on the results of the Phoenix Research study (page 16-17) and an assumption that 2degrees will be unable to offer attractive pricing (page 17-18).
20. We discuss the Phoenix Research study in the next section and show that there are deficiencies in the study's design, and the results cannot be interpreted in the way that 2degrees and Concept do. In our view, the Phoenix study gives no evidence that on-net pricing will make it difficult for 2degrees to compete for customers.
21. Concept appear to base their counterfactual on the undertakings provided by Telecom and Vodafone (page 16):

Consistent with the Commission's approach to its FTM CBA, we assume that the rates in the Telecom and Vodafone interconnection agreements would apply.
22. It is not clear whether the 'interconnection agreements' referred to include the secret deal between Vodafone and 2degrees, but it appears not since the Commission only used the undertakings for its counterfactual analysis. As Vodafone demonstrated in their submission (¶361), MTM termination regulation is likely to make 2degrees worse off relative to the secret deal until 2012. In addition, FTM termination regulation will unambiguously make 2degrees worse off.
23. Concept also provide an example (page 18) that it claims demonstrates that 2degrees will be unable to compete with on-net SMS pricing. The example is incorrect because each text message is usually part of a two-way exchange of messages, and so texts sent off-net will tend to generate another in reply. As Vodafone submitted, a text originated off-net tends to elicit a reply from Vodafone customers [] VNZRI of the time. This correlation means that any text sent off-net generates, with quite high probability, a reply text in the opposite direction. Concept ignore this in their calculations and as a result it is easy to generate a large loss from their assumptions.
24. The result is that SMS traffic between networks has a strong tendency to be balanced. This is why, even if the SMS termination rate is symmetric at 9.5 cpt, 2degrees will make

a profit on its offer of 9 cpt to any network, and it is why Vodafone is able to offer 600 texts to any network for \$12, i.e. a price of as low as 2 cpt.

25. We also note that the current prices that 2degrees has set will attract low-spend prepay customers, who tend to receive more calls than they make. At its current retail prices, in the counterfactual termination will most likely be a source of revenue rather than costs for 2degrees.
26. Therefore, absent regulation, 2degrees is likely to make a profit from MTM termination for at least the first three years that it is in the market, it will receive more revenue from FTM termination, and it can compete with on-net SMS offers. It is difficult to reconcile these facts with Concept's assumption that in the counterfactual 2degrees will be a weak competitor or will exit the market. Relative to the true counterfactual, regulation seems likely to harm 2degrees, at least for the first three years, which are arguably an important time for 2degrees to establish its business.

2.1.2. The Factual Scenarios

27. Concept's factual scenarios embody large price decreases relative to the counterfactual, across the complete volume of all four mobile services. It is easy to generate large welfare effects by assuming large price decreases and applying those price decreases to a large quantity. The key questions are whether or not the price changes are reasonable and whether the price changes are attributable to the proposed regulation.
28. Concept state that, in the factual (page 2):

"2degrees entry will stimulate vigorous price competition between all three networks. In a market in which there are high fixed cost and low variable costs, a new entrant will have the incentive to compete aggressively in order to achieve scale."

This incentive does not depend on further regulated MTR reductions. Furthermore, it is not the case that below-cost termination rate (e.g. bill-and-keep) will lead to more intense competition. Bill and keep is usually associated with receiver-pays, and it is difficult to compare the overall competitiveness of in a receiver-pays market with a caller-pays market.

29. In a recent and comprehensive cross-country econometric study for Ofcom, CEG found that there is no evidence of a link between the level of the MTR and usage or per-minute prices.⁴ This suggests that the level of the MTR does not determine the intensity of competition and the pricing that is observed in different countries. They did however find a link between the level of the MTR and take-up of mobile services, i.e. evidence of a waterbed effect that works through subscription or other fixed charges such as handset subsidies.

⁴ CEG, *Wholesale Termination Regime, Termination Charge Levels and Mobile Industry Performance*, 20 April 2009, available from <http://www.ofcom.org.uk/consult/condocs/mobilecallterm/annex7.pdf>.

30. Concept's factual assumptions are largely based on some observations about price changes over time in some other countries after additional operators entered the mobile markets in those countries. It is difficult to know how prices would have changed anyway if entry had not occurred, and the type of casual empirical analysis undertaken by Concept may overestimate the price reductions that are attributable to new entry. Equally importantly, Concept do not establish that these benefits of entry stemmed from regulated reductions in MTRs.
31. The study by Abrantes-Metz and Pereira (2007) relied on by Concept (page 7) as the basis for the factual scenarios does not attempt to construct a counterfactual of what would have happened to mobile prices in Portugal absent entry, or to control for other factors that may have been affecting prices at the same time. Abrantes-Metz and Pereira simply test whether the distribution of prices after entry differs from the distribution before, and find a significant difference. This says that entry affected prices, but the authors do not say how much of the observed price decrease was attributable to entry. Furthermore, MTR regulation is not discussed in their paper.
32. We also note that the third entrant in Portugal entered in 1997, when the factors affecting mobile pricing were likely very different from now. For example, the market was far from saturation and it was still an emerging technology, and the services and bundles offered by mobile operators were not as sophisticated as now. In addition, the case of Portugal tells us nothing about how a regulated MTR reduction will affect retail mobile prices, or whether entry depends on the level of the MTR. As shown in Figure 10 of the Draft Report, the MTR in Portugal was around €0.22 at the beginning of 2004, and was presumably significantly higher when the third entrant entered in 1997. Similarly, in Australia when Hutchison entered in 2003, the MTR was around AU 23 cpm. For these reasons the international evidence presented by Concept tells us nothing about how further regulated reductions in MTRs will affect retail mobile prices.
33. In the New Zealand context, 2degrees has already entered the market and announced pricing. The price reductions created by 2degrees have already occurred and cannot be attributed to the proposed regulation. Given the costs of operating a mobile network in New Zealand, it is not clear that there is scope for further significant price reductions that can be attributed to regulation. That entry affects retail prices is not surprising. What matters is the extent of the price change and, crucially, whether this can be attributed to regulation.
34. Concept assume price reductions will apply to all current levels of mobile traffic. Prices for on-net voice minutes and texts are already quite low, and it does not seem feasible to assume that these prices will fall by a large amount as a result of regulation. The current low prices are, to a large extent, not driven by low per-minute prices, but by the popularity of flat-rate pricing such as 'bestmate'. Under Concept's factuals, Vodafone's average on-net voice price, for example, would fall from [] VNZRI to [] VNZRI or [] VNZRI.⁵ Given what we believe are reasonable estimates of the

⁵ These figures use the revised information that Vodafone provided to the Commission on 5 August 2009.

cost of mobile origination and termination in New Zealand, it is not clear that such prices would be sustainable for Vodafone or for 2degrees.

35. The possibility for the significant price reductions that Concept assumes therefore does not apply to the majority of minutes and text messages. This is not because 2degrees cannot compete with on-net pricing, but because these prices are already very low. In addition, regulation may cause mobile subscription prices to rise due to the FTM and MTM waterbed effects. The latter is an effect that needs to be included in a complete analysis of the welfare effects of regulation.
36. One of the main reasons that Concept generates big welfare effects is that they apply their large price reductions to a very large volume of minutes and texts. As explained above, the scope for competition to lead to price reductions of current on-net prices is probably limited. Using Concept's model and maintaining all their other assumptions, if only off-net minutes and texts are considered, along with the associated prices, as reported by Vodafone and Telecom to the Commission, then the consumer welfare benefits decrease by about two-thirds and the total welfare benefits decrease by more than half, across all four scenarios.
37. This demonstrates that the majority of the benefits that Concept calculate depend on large price reductions for on-net calls that are already priced at very low levels. We do not believe that this will occur to the extent assumed by Concept, with or without regulation. We also note that 2degrees has submitted in favour of a ban on on-net pricing (¶7.6c). This would likely mean that on-net prices would rise, and so under 2degrees' preferred scenario, the price reductions assumed by Concept will not occur.
38. Furthermore, a significant amount of the benefits calculated by Concept depend on their assumptions about pricing and elasticity of demand for mobile broadband. Under their assumptions, between 12% and 14% of the consumer welfare benefits and around 30% of the total welfare benefits come from mobile data. Given that mobile broadband does not require any kind of 'termination' on another mobile network, and that it is not covered by the current investigation, it is not clear how regulation will improve an entrant's ability to compete on data pricing.

2.1.3. Elasticity Assumptions

39. Concept use assumptions about demand elasticities for the four services (voice, SMS, MMS and data) to determine the quantity demanded of each service in each year in the counterfactual and factual scenarios, based on the change in price from the previous year. The elasticities for voice and data change over time, from -1.1 in 2008 to -0.6 in 2015 for voice and from -2.5 to -1.5 for data. SMS and MMS elasticities remain constant at -0.19.
40. The initial voice elasticity estimate used by Concept is significantly higher than those in the academic literature referenced by Concept in their Table 8. They base this on some observations about how prices and volumes changed in a few other countries after entry of an additional mobile operator. As Concept note (page 14), this does not account for other factors that would have affected mobile usage over time.

41. Concept also refer to changes in prices and voice usage in New Zealand in recent years, and find that demand was very elastic (page 14). We note that this coincides with the introduction and widespread take-up of flat-rate plans such as 'bestmate'. Given that a consumer chooses such a plan, their decision about how many minutes of calls to make will be based on the price that they face at the margin, which is zero. It is likely that flat-rate plans will induce a greater quantity response than a similar price reduction if consumers still faced a positive per-minute price.
42. As we discussed above, we believe there is little scope for competition to further reduce the prices of on-net plans, particularly flat-rate plans. Any further price reductions are likely to be in per-minute prices, such as for off-net calls. It is not appropriate to apply an elasticity that was calculated on the basis of strong consumer response to flat-rate pricing to changes in per-minute prices where consumers still face a positive per-minute price.⁶
43. For these reasons, we believe that Concept's voice elasticity estimates are too high. Once the likely form of competition is taken into account, the size of the response of consumer demand will not be as large as in response to the introduction of flat-rate pricing. If voice elasticity remains constant at -0.6 in all years, Concept's consumer welfare benefits reduce by 13% to 17%, and total welfare benefits reduce by more than 40%.
44. In terms of mobile data, in our view there is still considerable uncertainty about the demand for these services, and therefore the value to consumers. This uncertainty means it is hard to place much confidence in demand elasticity estimates for mobile data, and therefore the welfare benefits that flow from changes in these prices. In any case, as above, it is not clear that these benefits should be attributed to the proposed MTAS regulation.

2.1.4. Surplus Calculations

45. To calculate the 'welfare triangles', Concept assume linear demand. Linear demand is a simple but extreme assumption. Demand is usually found to be convex to the origin, and therefore welfare effects calculated using linear demand will overestimate the change in welfare. For this reason, the welfare effects calculated by Concept should be considered as an upper bound. We also note that Concept use a constant-elasticity assumption to calculate the quantity demanded of each service, based on the change in price from year to year. Concept's welfare calculations based on linear demand are therefore inconsistent with its assumption about how the quantity demanded is determined.
46. Concept's total welfare calculations depend on cost estimates for the calculation of producer surplus (page 21). Voice cost estimates are based on some adjustments to the model that WIK developed for Australia. As we have submitted, comparability issues make it difficult to take cost estimates for one country and apply them in another. Furthermore, the ACCC has stated that it believes the WIK model underestimates costs

⁶ A similar concern arises when estimating the SMS elasticity based on recent price and volume changes in New Zealand (page 15 of Concept's report).

for Australia. This casts considerable doubt over the voice cost estimates that Concept uses in their calculations.

47. Their SMS cost estimate is based on comments by WIK that do not take account of New Zealand conditions, and is considerably below the Commission's own benchmark of the SMS cost. Again there is a lot of uncertainty associated with this number, and therefore the total welfare results.
48. Concept's data cost is based on retail pricing in the UK. It is not clear why this is a reasonable proxy for the cost of mobile data in New Zealand. The UK retail price will reflect cost and demand conditions specific to that market.
49. Taken together, these issues mean that Concept's welfare results will probably overestimate the true change in welfare for a given change in price, and there is significant uncertainty about whether their total welfare results are relevant for New Zealand, given the difficulty in obtaining cost estimates.
50. There is also a spreadsheeting error in Concept's SMS calculations, but this does not significantly affect the final results.⁷

2.1.5. Terminal Values

51. Concept also present welfare results including 'terminal values', which assume that the net benefits in 2015 continue to grow in perpetuity at a rate of 2% per annum (page 21). These are discounted back to present value terms using a discount rate of 6%. Since the discount rate is greater than the growth rate, the present value of the infinite stream of future benefits is finite.
52. Including future benefits in this fashion has the effect of extending the period of analysis. The benefits that may accrue very far in the future are subject to a lot of uncertainty. To some extent this is taken care of by discounting, but the 6% discount rate used by the Commission and Concept does not seem to have been developed to take account of uncertainty that would arise beyond the six-year horizon used in the Commission's analysis.
53. For this reason, the Commission rejected the use of terminal values in the cost-benefit analysis during its previous mobile termination investigation.⁸ We see no reason why it is appropriate to change that conclusion in the present investigation.

⁷ In the 'SMS volumes' tab, the elasticities referred to in the 'Volumes' rows are one column to the right of what they should be. The effect is that the volume of SMS does not change between 2014 and 2015 even though the price decreases.

⁸ Commerce Commission, *Schedule 3 Investigation into Regulation of Mobile Termination*, Final Report, 9 June 2005, paragraph 502.

2.2. Concept's Analysis of Vodafone and Telecom RI⁹

54. In section 2 of their second report, Concept discuss some of the restricted information provided by Vodafone and Telecom to the Commission about prices and volumes in the mobile market. Concept use this information to make conclusions about the current state of competition in the mobile market, and to make inferences about the relevant counterfactual for their analysis. Concept claim (page 1) that the data shows that the current state of competition in the market is poor, and that without regulation an entrant will not be able to compete.
55. Concept argue that (page 1) [
] VNZRI/TNZRI. Concept (page 2) [
] VNZRI/TNZRI.
56. However, there is no sense in which an on-net call or text differs from an off-net call or text, from a consumer's point of view. What the consumer cares about is calling a particular person. All the data shows is that people respond to cheaper prices in a rational way, and an economic distortion is not created. If the same volume of calls was made in total but they were distributed equally between on- and off-net calls, consumer welfare would be the same as it is now. Put another way, the distribution of calls between networks does not matter for the amount of economic welfare created by these calls, and one distribution of calls is not more efficient than another.
57. Based on their observations about revenues and the distribution of calls and texts, Concept conclude that (page 2) the mobile market is not highly competitive, and competition between Telecom and Vodafone is "softened". In our view this conclusion is not correct, because it does not consider the effect of on-net pricing on the intensity of competition for mobile subscribers, i.e. it is a partial analysis. It can be shown that the network effects created by on-net discounts cause mobile networks to compete more intensely for mobile subscribers.¹⁰ The overall effect of this is to reduce profits and increase consumer surplus, everything else equal.
58. Concept do not consider any of the other dimensions over which mobile networks compete, such as subscription prices, handset prices, coverage, quality, and so on. Simply looking at the difference between average on- and off-net prices and the resulting calling patterns does not tell us anything about the intensity of competition for mobile subscribers. In general, analysing market outcomes in the way that Concept have done reveals little about the competitive process that lead to these outcomes. This problem is exacerbated by only undertaking a partial analysis of the relevant outcomes.
59. The SMS example given by Concept on page 3 again overlooks the fact that SMS traffic between networks has a strong tendency to be balanced, for the reasons that we discussed above. Further we note that this example implicitly assumes that consumers care about the size of the entire network to which they belong, when in reality people

⁹ Page numbers in this section refer to the restricted information version of Concept's second report.

¹⁰ See, for example, Armstrong & Wright (2009), section 2.2.

only communicate with a very small subset of the network. These facts mean that it will not be difficult for 2degrees to compete, if it offers similar on-net pricing.

60. In terms of Concept's analysis of the average price of mobile-to-fixed (MTF) calls (page 4), we note that 2degrees has chosen to price MTF calls at 44 cpm, giving it a mark-up of 4300% over the fixed termination cost of 1 cpm.¹¹ However, there is no obvious relationship between the price of MTF calls and the MTR, and we therefore do not view the current MTF prices as giving evidence that regulation will lead to large price reductions for consumers.
61. Overall, Concept attempts to describe the outcomes observed in the retail mobile market as representing a lack of competition. The reality is that prices for calls and texts are low and falling, driven by competition between the networks. In our view, the correct interpretation, as supported by economic theory, is that the networks are competing intensely for mobile subscribers, and this has led to low prices. To a large extent this outcome reflects the popularity of flat-rate mobile pricing plans, under which consumers face a zero marginal price for calls and texts, leading to high usage volumes and potentially large consumer surplus. Given the benefits delivered to consumers, it is difficult to reconcile Concept's conclusion that the market is not competitive.

¹¹ Concept's MTF mark-up calculations also omit the cost of mobile origination.

3. The Phoenix Research Study

62. Some market research conducted by Phoenix Research for 2degrees is referred to in the 2degrees submission (e.g. ¶1.7b) and also the Concept Economics submission for 2degrees (page 18). We have reviewed the summary of Phoenix’s methodology and findings that is available on the 2degrees website.¹² While the Phoenix Research results were not directly submitted to the Commission, given the emphasis that 2degrees places on this research in its submission, we believe it is appropriate to cross-submit on the Phoenix study.
63. Phoenix surveyed a total of 240 students at Auckland and Otago universities and two high-schools in each city in late 2008 and early 2009. They found that, of the students surveyed, 97% of the Auckland students were Vodafone users and 89% of the Dunedin students were Telecom mobile users. In addition, the students who were surveyed made almost all of their most recent calls and texts on-net.
64. According to the 2degrees submission on the Draft Report, the Phoenix results show that tariff-mediated network externalities created by on-net pricing are “enormously strong in New Zealand” (¶1.7b), and that “the current market is best characterised by a series of discrete monopolies owned by one or other of the incumbents” (¶5.6).
65. However, there are some problems with Phoenix’s research methodology and the interpretation of the results by Phoenix and 2degrees. It is not possible to reach the kinds of conclusions that 2degrees does on the basis of this research.

3.1. Sampling and Research Design

Students have special characteristics

66. Phoenix surveyed high-school and university students. While students are probably relatively heavy users of some mobile services (e.g. texting), they are not representative of the mobile market as a whole in terms of their usage patterns. Students also have other characteristics that make them unrepresentative. In particular, students may be:
 - Relatively strongly affected by peer pressure, and therefore likely to join the same network as their friends simply to conform;
 - More easily influenced by advertising; and
 - Relatively price sensitive, and therefore more likely to be attracted by on-net discounts and to organise or coordinate their behaviour to take advantage of such pricing.
67. These characteristics of students mean it would be strange *not* to observe groups of students belonging to the same mobile network. The last point (price sensitivity) means

¹² See http://www.2degreesmobile.co.nz/c/document_library/get_file?uuid=fff7bd97-ed42-4cce-9b92-70dd46149805&groupId=10128.

that students will have a strong incentive to coordinate their network choice with their friends, in order to take advantage of on-net pricing.

68. This does not mean, however, that groups of students will not switch to another network that offers competitive pricing. In fact, the opposite may be true. If a new entrant were to offer cheaper on-net deals, price sensitive students have an incentive to coordinate switching to the new network, and may do so *en masse*.
69. It is very unlikely that most students care about which network all other students in the same school or university belong to. Within a school, small price-sensitive groups of friends can be induced to switch in a coordinated fashion to another network that offers better pricing. These groups may then induce other less price-sensitive consumers (e.g. their parents) to switch. In our opinion, it may be quite a good strategy for a new entrant to offer cheap on-net deals targeted at price-sensitive students.

The sample is not representative of mobile users or of schools

70. Only two universities and four high-schools were sampled. It is not clear how or why these particular places were chosen for sampling. In any case, even if the schools were chosen randomly, this is not a representative sample of the population of mobile users and it is not appropriate for 2degrees to reach broad conclusions about competition in the mobile market based on a survey of students at a few schools.
71. Since a very small number of schools are sampled, and the schools are in two pre-determined locations, it is also not possible to draw reliable conclusions at the level of the school. We cannot be sure that students in most schools behave the way that those in the Phoenix study did, because only four schools and two universities were surveyed.

The analysis of calling and texting patterns is flawed

72. In order to determine the calling and texting patterns of the students who were surveyed, Phoenix examined the records in each student's phone of the most recent ten calls and texts. There are some problems with this methodology:
 - It is not a random sample of calls and texts from each phone;
 - The most recent ten calls and texts may be biased towards those numbers most frequently called/texted, if there is some correlation in calling patterns. For example, 'bestmate' type pricing may lead to a pattern of frequent but short duration calls, which are more likely to show up in the most recent calls; and
 - The duration of calls was not reported.
73. If, as Vodafone's data indicates, a text elicits a reply [] VNZRI of the time, then the expected number of texts in a conversation is approximately [] VNZRI. This means that Concept's strategy for sampling text messages is likely to only pick up messages in one or two text conversations, i.e. to one or two different numbers. This will not give an accurate picture of the overall texting patterns of a mobile user.

74. We also believe that Vodafone has a higher market share among students than Telecom, due to Vodafone's higher proportion of prepay customers and its marketing strategy. Sampling only students would therefore tend to bias towards finding on-net calls for Vodafone customers. Indeed there is some possible evidence of this in the Phoenix results, with Auckland survey respondents on Vodafone making 94% of calls, while Dunedin Telecom respondents made 88% of calls on-net.
75. These problems mean that it is difficult to make accurate inferences about a person's overall calling/texting behaviour simply by looking at the most recent ten calls or texts. This is particularly true for texting, as explained above.

3.2. Interpretation of Results

76. The biases in the methodology discussed above mean it is not possible to use the Phoenix results to make inferences in the way that 2degrees does about the mobile market, or about competition in the mobile market. The results from the Phoenix study do not tell us how easy or hard it will be for 2degrees to attract customers from Vodafone and Telecom.
77. As we and Vodafone have previously submitted, consumers care most about the network choice of their 'calling circle', i.e. the people that they communicate with most often. In the case of a 'bestmate' type offer, this will be only one or a few other people. Phoenix does not report how many *unique* mobile numbers it found on average among the most recent ten calls and texts for each student. However, evidence from Vodafone suggests that these calling circles are small, and members of a circle will have an incentive to coordinate their network choice. Consumers are therefore unlikely to care very much about the size of the network as a whole that they belong to, and a new entrant will not face much difficulty in competing if it also offers similar on-net prices.
78. Phoenix also examined the inbound calls to the students and found that most of these were on-net. They then conclude "Those who call and text the students we interviewed were also very inclined to make their calls and send their texts on net". We simply can't make this conclusion from this data – we have a sample of size one of the outgoing calls of the people who were not directly surveyed.
79. More generally, by simply observing market outcomes, as the Phoenix study does, it is very difficult to reach conclusions about the competitive behaviour of firms that drives these outcomes. For example, all petrol stations charge the same price and change their prices more or less simultaneously. This is the outcome that we would expect to observe under perfect competition and also under collusion. Just observing pricing behaviour and the response of consumers to it tells us nothing about assess the state of competition in the market, and we must be cautious about making statements about the market process based on simple observations of market outcomes.
80. The results of the Phoenix study also do not tell us anything about the effects of on-net pricing on consumer welfare. If there were no difference in price between on- and off-net calls, on-net calls would probably be more expensive than they are now, and off-net calls would be cheaper. It is not clear *a priori* whether this will make consumers better off, particularly considering the fact that under 'bestmate' type pricing the price faced

by a consumer for an additional call or text is zero. As we discussed in our submission, on-net pricing causes networks to compete more intensely for customers.¹³ Absent on-net pricing, we therefore expect consumers to be worse off, everything else equal. Further, the relevant network that consumers care about (the people they communicate with frequently) is relatively small, so these effects are not likely to be a significant barrier to entry.

81. We also note that all mobile networks in New Zealand are now based on GSM. This means that a mobile user with a suitable handset is able to SIM-swap easily to take advantage of on-net pricing. In effect, consumers do not have to be loyal to a single network and can choose which network to use for any given call. Due to the reduction in switching costs, the intensity of competition between mobile networks will increase. For this reason we believe that on-net pricing does not generate significant competition barriers as 2degrees claims.

¹³ Covec, *MTAS Regulation Quantitative Analysis*, 27 July 2009, section 4.1.2.

References

Armstrong, M. & J. Wright (2009). Mobile call termination. *Economic Journal*, **119**: 270-307.