



Telecom New Zealand Limited

**Submission on Vodafone's pass-through data in
respect of the**

**Commerce Commission's Draft Reconsideration
Report for its Schedule 3 Investigation into
Regulation of Mobile Termination**

Public Version

6 March 2006

- 1 The Commission has allowed parties the opportunity to respond to new information provided by Vodafone in its cross-submissions ("**Vodafone cross-submissions**") on the Commission's Draft Mobile Termination Reconsideration Report, dated December 2005 ("**Draft Reconsideration Report**") in relation to pass-through.
- 2 Telecom notes that it has submitted in detail in its submissions and cross-submissions on the Draft Reconsideration Report that it is outside the jurisdiction of the Telecommunications Act 2001 to regulate retail prices. Requiring pass-through (in any form) of a reduction of mobile termination rates would be *ultra vires* the Act. Without prejudice to Telecom's view, Telecom responds to the new pass-through data and, in particular, the reliability of that data.
- 3 In Vodafone's cross-submissions, Vodafone claims that the "The Commission can not expect a high level of pass-through without enforcement"¹. Vodafone's claim is based on a comparison of its estimate of pass-through rates for a number of countries with and without the regulation of pass-through. Telecom submits that Vodafone's analysis is fundamentally flawed and should be disregarded by the Commission for the following reasons:
 - The relevance of the Teligen fixed-to-mobile prices for assessing and comparing pass-through between countries is limited;
 - Vodafone's estimates of pass-through rates in Table 5 and Table 6 are based on a misuse of regression modelling and thus draws false conclusions; and
 - A reduction in retail fixed-to-mobile rates is only one way the benefit of a reduction in mobile termination rates might be passed through to end-users.

Relevance of Teligen fixed to mobile prices

- 4 Vodafone's source of the fixed to mobile pricing information is the Teligen/OECD T-Basket benchmark of prices of telecommunications services in the OECD set of countries. The T-Basket is a reliable source of information about pricing of telecommunications services in general.

¹ Before paragraph 20, Vodafone cross-submissions, dated 21 February 2006

However, as with any benchmark, it has limitations due to the process by which information is collected. As a result, Vodafone's treatment of the T-Basket data is not suitable for estimating pass-through

- 5 With respect to PSTN services, as a rule, the T-Basket includes a single price for a service that is offered by the incumbent in each OECD country at a given point in time, even though there are many service providers in each country that offer a variety of pricing plans.² Therefore, the data in the T-Basket differs markedly from the data the Commission used to estimate pass-through which is based on average fixed-to-mobile prices in the residential or business markets, not a single price point for each market.
- 6 As a result, much of Vodafone's analysis relies on how current the Teligen database is and whether the recorded price point captures the actual competitive fixed-to-mobile price. Teligen places a significant reliance on service providers to keep them informed of changes in prices. For example, early last year Telecom identified and informed Teligen that the fixed to mobile prices were out of date. This is the reason that the residential fixed-to-mobile price in the database falls from 63 cpm in February 2005 to 43 cpm in May 2005. For the same reason, the business fixed-to-mobile price falls from 42 cpm in February 2005 to 35 cpm in May 2005. These are the only changes for New Zealand in the retail fixed-to-mobile prices over the sample period from August 2002 to November 2005 in the Vodafone data.
- 7 To illustrate the point that the T-Basket data may not keep track of detailed changes in fixed-to-mobile prices, the Commission's residential fixed-to-mobile price series decreases from 60.27 cpm in 2002, to 60.04 cpm in 2003 and 56.60 cpm in 2004. In contrast, the T-Basket data for New Zealand, which is included in the Vodafone data set, records the price is fixed as 63 cpm over these three years. Similarly, the Commission's business fixed-to-mobile price series decreases from 34.55 cpm in 2002, to 33.97 cpm in 2003, and 33.51 cpm in 2004, whereas T-Basket data, which Vodafone includes, has the fixed to mobile price is steady at 42 cpm over these three years.
- 8 In summary, this suggests that the T-Basket data is inadequate for the timely measurement of price changes required by Vodafone's regression analysis. This point seems to be recognised by Vodafone, as they use

² For several countries, the T-Basket does include an additional fixed line service provider or additional price points, however these are exceptions to the rule and Teligen does not regard these as part of the standard benchmark.

the Commission's fixed-to-mobile pricing data for New Zealand, rather than the T-Basket. Vodafone has, however, made no similar adjustment to the T-Basket data set in relation to other countries.

- 9 Furthermore, according to Vodafone's data, mobile termination prices in New Zealand reduced from 30cpm in April 2002 to just 26 cpm in October 2005. At the same time, residential fixed-to-mobile prices fell from 63 cpm to 43 cpm. The result is that in Vodafone's chosen time series the realized drop in calling prices was actually 500% greater than the drop in mobile termination price. Business calling prices experienced a similar drop from 42 cpm to 35 cpm, such that the drop in fixed-to-mobile prices was 175% greater than the drop in mobile termination price. Vodafone's calculation of only 30% expected drop in the residential market and 76% in the business market is the result of some basic errors in econometric modelling.

- 10 Part of the reason for this difference is that Vodafone's sample period is very short, and very few changes in either price occur over the period. For New Zealand, only one change in fixed-to-mobile price occurs over the entire period. In the residential market, Australia-Optus, Austria, Belgium, Denmark, Germany, Ireland, Italy, Japan, Luxembourg, Norway, Switzerland and UK-NTL all have less than two changes in fixed-to-mobile price over 14 sample points. For Sweden there are none. This lack of variation in fixed-to-mobile prices for these countries reduces the value of any statistical inference that may be drawn. It also draws into question whether this data is sufficiently representative of fixed-to-mobile prices in these countries to estimate pass-through rates. In particular, Vodafone draws conclusions regarding the pass-through for Australia-Optus, Belgium, Denmark, Ireland, Italy, Norway, Switzerland and UK-NTL when there is only a minimal variation in the fixed-to-mobile prices to support their conclusion. In addition to this lack of variation in the fixed-to-mobile price data raising concerns regarding the validity of the estimate for some of the countries, there is a more general issue regarding the validity of all the estimates even though the basic test statistics reported by Vodafone suggest otherwise.

Misspecification of pass-through model

- 11 Vodafone's analysis of the pass-through rates gives a false sense of certainty. Even though the value of the t-statistic for the estimates of the pass-through parameter may suggest that the values of the estimates are statistically significant, this is misleading due to the way the model is constructed:

Equation 1

$$\text{Retail Rate} = a + \beta \text{MTR} + \text{error}$$

- 12 The dependent variable, *Retail Rate*, is the retail price for fixed-to-mobile calls. The equation says that this equals a constant term a plus the parameter β multiplied by the mobile termination rate MTR , plus an *error* term that captures the effect of random unexplained events. Vodafone suggests that parameter β represents the pass-through rate.
- 13 The issue with this model is that it is misspecified. It is misspecified because, in reality, the *Retail Rate* includes a 'random walk'³ which is not taken into account in Vodafone's model. It is a random walk because the current retail price is not only dependent on the extent of pass-through following a change in the model termination rate, but it also depends on the retail price from the preceding period. The presence of a random walk presents a set of issues that must be addressed when estimating models. The estimation of such models is a standard topic addressed in econometric texts³. If these issues are not addressed, then the use of data characterised by a random walk "has the potential to lead to serious errors in inference"⁴, as any estimates are likely to be biased. This means that no reliance can be placed on any of Vodafone's estimates of β .
- 14 The model of fixed-to-model prices, which is consistent with the process outlined above and addresses the issues related to the random walk characteristic of the fixed-to-mobile prices, is:

Equation 2

$$R_t = R_{t-1} + \gamma (M_t - M_{t-1}) + u_t$$

- 15 This states that the retail fixed to mobile price R_t in period t equals the retail fixed to mobile price R_{t-1} in the preceding period $t-1$, plus the pass-through rate γ multiplied by the change in the mobile termination rate $(M_t - M_{t-1})$ between periods t and $t-1$, plus the variable u_t that captures the effect of random unexplained events.
- 16 It can be shown by rearranging Equation 2 that each successive mobile termination rate captures the effect of all previous random events, hence capturing the 'random walk' characteristic of the retail price described above. The problem of drawing a statistically valid

³ The following references give the technical definition of random walk and its implication for econometric models: W.H.Greene, *Econometric Analysis, second edition*, page 560; J. Johnston, *Econometric Methods, third edition*, page 372; and, A. Harvey, *The Econometric Analysis of Time Series, second edition*, page 81.

⁴ As noted in W.H.Greene, *Econometric Analysis*, page 562

inference can be addressed econometrically, as noted by Greene, Johnston, and Harvey³, amongst others, by specifying the equation in 'first differences' That is, Equation 2 is equivalent to the first difference of the fixed-to-mobile price:

Equation 3

$$(R_t - R_{t-1}) = \gamma (M_t - M_{t-1}) + u_t$$

- 17 This means that the change in the fixed-to-mobile price between periods is equal to the rate of pass-through multiplied by the change in the mobile termination rate, plus the effect of random unexplained events. It is worth noting that, although the Commission's estimate of pass-through is not explicitly derived using econometric techniques, it is consistent with this Equation 3. By substituting the Commission's estimates of the fixed to mobile prices and mobile termination rates in 2004 in Equation 3, the Commission's calculation of pass-through can be obtained:

Equation 4

$$\frac{(R_{2004} - R_{1997})}{(M_{2004} - M_{1997})} = \gamma$$

- 18 The numerator is the difference between the fixed-to-mobile price in 2004 and 1997, the denominator is the difference between the mobile termination price in 2004 and 1997, and γ is now the Commission's estimate of the pass-through rate.

Other ways to pass-through the benefit to end-users

- 19 Vodafone's analysis is implicitly based on the assumption that a reduction in retail fixed-to-mobile rates is the only way service providers might pass-through the benefit of reduced mobile termination rates. Vodafone (and the Teligen data) gives no consideration to other potential benefits that may have been passed through to end-users.
- 20 As previously submitted by Telecom, there are a number of ways that service providers might pass through the benefit of lower mobile

termination rates to end-users. For example, service providers may choose to:

- Invest in new infrastructure;
- Improve the range and quality of services offered; or
- Reduce the prices of other products.

- 21 It is a flawed analysis to only consider the reduction in retail fixed-to-mobile rates, without consideration of other benefits that have been passed on to end-users.
- 22 As previously noted, the ACCC has also endorsed Telecom's view that the extent of pass-through is not the only measure of the extent to which a lower price for the mobile termination rate promotes competition in the market or the long-term interests of end-users generally.