

International Price Comparison for Retail Mobile Telecommunications Services 2013

Telecommunications monitoring report

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Table of contents

List of Tables	3
List of Figures	3
Executive summary	4
Mobile phone services	4
Stand-alone mobile broadband services	6
Introduction	7
Purpose	7
Empowering legislation	7
Data	7
Benchmarking approach	7
Mobile telecommunications services	9
Background	9
Mobile phone services	10
Mobile phone services benchmarking results	12
Time series results for mobile phone services	15
Stand-alone mobile broadband services	18
Mobile broadband benchmarking results	19
Time series results for mobile broadband services	22
Attachment 1 - Factors affecting the results of retail price benchmarking	24

List of Tables

Table 1: Summary of mobile phone services benchmarking	5
Table 2: Summary of OECD mobile voice benchmarking	6
Table 3: Mobile phone services usage baskets	11
Table 4: NZ mobile phone services average usage per month by customer segment	11
Table 5: Results of mobile phone services benchmarking	12
Table 6: Results of OECD mobile broadband benchmarking	19

List of Figures

Figure 1: 400 messages basket results	13
Figure 2: 30 calls + 100MB basket results	14
Figure 3: Trend in \$NZ prepay price of filling lower use baskets	15
Figure 4: Trend in prepay price of filling lower use baskets compared to OECD average	15
Figure 5: Trend in \$NZ price of filling medium to higher use baskets	16
Figure 6: Trend in price of filling medium to higher use baskets compared to OECD average	16
Figure 7: 1.5GB mobile broadband basket results	20
Figure 8: 6GB mobile broadband basket results	21
Figure 9: Trend in \$NZ price of filling mobile broadband use baskets	22
Figure 10: Trend in price of filling mobile broadband baskets compared to OECD average	22

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Exchange Rate

All foreign prices are converted to \$NZ using OECD purchasing power parity (PPP) exchange rates.

Executive summary

The purpose of this report is to compare New Zealand's retail prices for mobile voice, text and data services with those applying in other OECD countries. Comparing prices of telecommunications services in New Zealand with those paid overseas gives an indication of the relative competitiveness of New Zealand telecommunications markets.

The results of the price comparisons for a basket of services are summarised for each of the following sets of services:

- mobile phone services, being voice, text and data services as at August 2013
- stand-alone mobile broadband services as at June 2013.

We also report on the change in prices and rankings over the last three years.

Mobile phone services

Nearly all of us carry a mobile phone, with mobile phone connections equal to 107% of the population. Furthermore, 54% of the adult population are reported to have a smartphone as their mobile phone.¹

The rise of the smartphone, which has nearly all the functionality of a PC, means that nowadays most users of mobile phones want to buy a bundle of voice minutes, text messages and broadband data. All the baskets of mobile phone services that were benchmarked in 2013 have these three services in them, apart from the 400 messages basket which has only text messages plus 15 minutes of voice calls.

The results of mobile phone services price benchmarking are summarised in Table 1. Average New Zealand usage is closest to the 30 calls basket, which was priced at around 40% below the OECD average and the same as Australia.

The plan closest to the 30 calls basket in New Zealand was a \$19 a month prepay bundle that gave unlimited texts, 100 minutes of calling and 500MB of data.

It was only the 900 calls basket, with its very high amount of calling, where the New Zealand price was materially above the OECD average. This basket also contains 2GB of data and 350 texts but it was the portion of the price that can be attributed to calling which was most expensive in New Zealand. Australian prices were much lower than New Zealand's for the higher usage baskets.

¹ <http://services.google.com/fh/files/misc/omp-2013-nz-en.pdf>

Table 1: Summary of mobile phone services benchmarking

Mobile phone services basket	NZ rank in OECD	June 2013 price (NZD PPP)			NZ % price var. from	
		NZ	Aust.	OECD Average	Aust.	OECD Average
400 messages	5/34	12	20	24	-39%	-51%
30 calls + 100MB <i>Prepaid and postpaid GST included</i>	11/34	19	19	31	+1%	-39%
100 calls + 500MB <i>Prepaid and postpaid GST included</i>	13/34	35	32	48	+10%	-27%
300 calls + 1GB <i>Prepaid and postpaid GST excluded</i>	17/34	57	36	58	+61%	-3%
900 calls + 2GB <i>Prepaid and postpaid GST excluded</i>	26/34	103	36	86	+190%	+20%

Source: Teligen

New Zealand's benchmarking results in the low to medium usage and prepay mobile market segments improved since 2011, with prices dropping significantly compared to the OECD average. However, there were no relative improvements in the price of the higher usage baskets. This may have been due to there being more intense competition in the low to medium usage and prepay market segments where the third entrant, 2degrees, largely concentrated its attention. High volume users may also have been less price sensitive.

Since the benchmarking was undertaken there have been substantial falls in the price in of plans catering to high amounts of calling.

Stand-alone mobile broadband services

There is now a multitude of mobile devices that can make use of mobile broadband without voice, including tablets, e-readers, as well as the traditional laptop.

Two baskets of stand-alone mobile broadband services were benchmarked. The first basket required 1.5GB of data a month, which was around the middle of the range of plans offered in New Zealand.

Using mobile broadband as a substitute for a fixed-line broadband service is likely to require considerably more data, and it is this sort of usage that the second, 6GB, basket was meant to replicate.

The mobile broadband benchmarking results are summarised in Table 2. While the price of the 1.5GB basket was a little above the OECD average, the price of the 6GB basket was over double the OECD average. At \$98 per month, this price is too high for mobile broadband to be considered a clear substitute for fixed-line broadband.

Table 2: Summary of OECD mobile voice benchmarking

Mobile broadband basket	NZ rank in OECD	June 2013 price (NZD PPP)			NZ % price var. from	
		NZ	Aust.	OECD Average	Aust.	OECD Average
1.5GB <i>GST included</i>	23/34	29	20	26	+45%	+11%
6GB <i>GST included</i>	33/34	98	35	46	+180%	+111%

Source: Teligen

Introduction

Purpose

The purpose of this report is to compare New Zealand's retail mobile prices for voice, text and data services at a fixed point in time against those in other OECD countries. The comparison of mobile phone services was as at August 2013 and the comparison of stand-alone mobile broadband services was at June 2013. The comparisons should give some indication of the competitiveness of New Zealand's telecommunications markets. The report is published to inform consumers, policy makers and the industry.

Empowering legislation

This report is released under section 9A of the Telecommunications Act 2001, which requires the Commission to monitor telecommunications markets and generally make available reports, summaries, and information resulting from the monitoring.

Data

The price comparisons used by the Commission were based on data collected by Teligen.² The Teligen services that were purchased to conduct the benchmarking are summarised in the table below.

Services	Teligen product
Mobile phone services including voice calls, texting and data	OECD Mobile Voice Price Benchmarking
Stand-alone mobile broadband services	OECD Mobile Broadband Price Benchmarking

The benchmarking results were generated using OECD calculated purchasing power parity (PPP) exchange rates.³ The use of PPP rates was preferable to using spot exchange rates as PPP rates are a more stable measure.⁴ To enable ready comparison to retail prices, we are now including GST/Value Added Tax (VAT) in the price of services mainly used by residential customers, but excluding installation and other similar one-off charges, which we found to not be particularly reliable. The overall effect on the rankings is not material. Tax remains excluded from the price of services more likely to be used by small business customers.

Benchmarking approach

The Commission benchmarked monthly retail prices for mobile telecommunications services, with a focus on services likely to be consumed by residential consumers and small businesses.

Medium to larger businesses usually negotiate a discounted and confidential price for a bundle of telecommunications services, making benchmarking for this group more difficult.

² <http://www.teligen.com>.

³ See <http://www.oecd.org/dataoecd/48/18/18598721.pdf>.

⁴ There is still some imprecision when comparing telecommunication prices between countries using general OECD PPP rates which were based on a 2008 survey and updated using a measure of general inflation.

Mobile phone service comparisons were conducted using OECD consumption baskets. Details of publicly available retail telecommunications plans were used to calculate the lowest price to fill each OECD usage basket in each OECD country.

Stand-alone mobile broadband comparisons also used OECD countries. Consumption baskets were selected based on New Zealand usage patterns and previous benchmarking. A lack of historic data limited the year-on-year comparisons that could be made.

The results of retail price benchmarking of telecommunications services should be interpreted with caution as they can be affected by a number of factors. A range of these factors are outlined and briefly discussed in Attachment 1.

Mobile telecommunications services

Background

Mobile telecommunications services first started to be offered in New Zealand by Telecom in the late 1980s. BellSouth entered the New Zealand market as a mobile network operator in 1993 and was subsequently purchased by Vodafone in 1998.

In November 2007, not long before it was sold, Bell South became the first operator to start offering prepay mobile services. The wide availability of prepay mobile services sparked a period of mostly strong market growth, with mobile connections increasing from just 15% of the population in March 1998 to 108% of the population 10 years later.

The New Zealand mobile market essentially remained a duopoly until 2degrees started operating its own network in 2009.

A Commission investigation that eventually concluded in June 2010 found the wholesale charges set by the mobile network operators for terminating mobile calls and text messages on their networks to be above cost and in need of regulation. Mobile termination charges were regulated and reduced with effect from May 2011, with the charge for terminating voice calls further reducing to a cost-based price from April 2012.

The three mobile network operators in New Zealand are also the only significant mobile retailers. While there are a handful of mobile virtual network operators (MVNOs), who rely on reselling services purchased from the mobile network operators, none have a significant number of customers. TelstraClear had built up the largest MVNO business (although still only around 50,000 customers), but it was purchased by Vodafone in October 2012.

Vodafone and Telecom both operate nationwide mobile networks, reaching around 97% of the population. 2degrees now has its own infrastructure in most major towns and cities, reaching around 88% of the population, and relies on a national roaming agreement with Vodafone to provide coverage outside those areas.

All three mobile providers in New Zealand now operate 3G networks which allow mobile broadband to be provided in addition to voice and text messages. Vodafone and Telecom started rolling out 4G networks in 2013 and 2degrees is expected to follow later in 2014. 4G can provide much higher data speeds to customers, similar to what can be achieved with fixed-line copper connections.

Just under two thirds of mobile subscribers in New Zealand use prepay plans. This puts New Zealanders among the higher users of pre pay plans in the OECD. In 2011, the percentage of mobile prepay subscribers in OECD countries ranged from 1% to 85%, while the average was 41% and New Zealand had 66%.

Individuals with low usage are even more likely to use prepay mobile plans, which previously led the Commission to start benchmarking prepay plans and on-account plans separately for the lower usage baskets.

The 2013 mobile benchmarking has reverted to benchmarking prepay and on-account plans together, and taking whatever plan is cheapest as the benchmark. However, the time series analysis continues to use prepay results only for the lower usage baskets.

Mobile phone services

Originally mobile phones could only make and receive voice calls but from the mid 1990s a short message service (SMS), allowing messages of up to 160 characters to be sent between phones, became available. The use of SMS, commonly known as texting, quickly became popular in New Zealand, at least in part because of the relatively high price of mobile voice calls at that time.

Mobile data services allowing mobile devices to send and receive data, and access the internet, started becoming available from the mid 2000s. However, the use of data services on mobile phones did not become popular in New Zealand until after the arrival of the smartphone and better pricing of data services.

A smartphone has nearly all the functionality of a PC, and the smartphone revolution started in New Zealand with the release of the iPhone in July 2008. It is reported that 54% of the adult population now have a smartphone.⁵

To meet the needs of smartphone owners it is now common for mobile phone services to be sold in a bundle that includes voice minutes, texts and data.

The OECD has for many years used a set of consumption baskets to enable cross-country comparisons of retail prices for mobile voice and text messaging services. These baskets are updated around every five years to reflect changing consumption patterns of member countries.

Teligen, the firm that collects retail price data to allow the practical use of the OECD consumption baskets, has recently created some new baskets that add data to each basket of voice minutes and text messages. These are more typical of current mobile phone service consumption so the Commission has used these modified baskets for its 2013 benchmarking. Standard baskets without data are still used for the time series analysis.

Teligen generally collects data on plans of two of the most popular mobile providers in each OECD country. Business plans have been included in recent years and accordingly Teligen allows the results to be filtered to include just residential or just business plans if desired. We have not filtered the results, and business plans do appear as the benchmarked plan for the medium to higher usage baskets, which we have assumed would be more likely to represent businesses consumption. The prices shown for these higher usage plans have GST excluded.

The OECD baskets used to generate the results of the mobile phone services retail price benchmarking are shown in Table 3.

⁵ <http://services.google.com/fh/files/misc/omp-2013-nz-en.pdf>

Table 3: Mobile phone services usage baskets

User type	Basket name	Voice minutes	Texts	Data for 2013 benchmark
Texter with little voice use	400 messages	15	400	N/A
Low voice use, moderate text and moderate data use	30 calls	50	100	100MB
Medium voice, moderate text and medium data use	100 calls	188	140	500MB
High voice, medium text and high data use	300 calls	569	225	1GB
Very high voice use, high text and very high data use	900 calls	1,787	350	2GB

On average, New Zealand mobile subscribers use 83 voice minutes⁶, 228 texts and 131 MB of data, per month although it is more informative to split the customers into the market segments of prepay, on-account non-business, and on-account business. The metrics for these market segments, based on industry questionnaire responses to the Commission from Vodafone, Telecom, and 2degrees, are shown in Table 4 below.

Table 4: NZ mobile phone services average usage per month by customer segment

Customer segment	Voice minutes	Texts	Data
Prepay	42	311	76MB
On-account non-business	114	193	292MB
On-account business	195	104	202MB

⁶ This compares with 2012 metrics for the UK of 122 voice minutes and Australia of 137 voice minutes per month.

Mobile phone services benchmarking results

The results from benchmarking mobile phones services, comparing New Zealand to Australia and the OECD average are show in Table 5 below.

Table 5: Results of mobile phone services benchmarking

Mobile phone services basket	NZ rank in OECD	June 2013 price (NZD PPP)			NZ % price var. from	
		NZ	Aust.	OECD Average	Aust.	OECD Average
400 messages	5/34	12	20	24	-39%	-51%
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900 calls + 2GB <i>Prepaid and postpaid GST excluded</i>	26/34	103	36	86	+190%	+20%

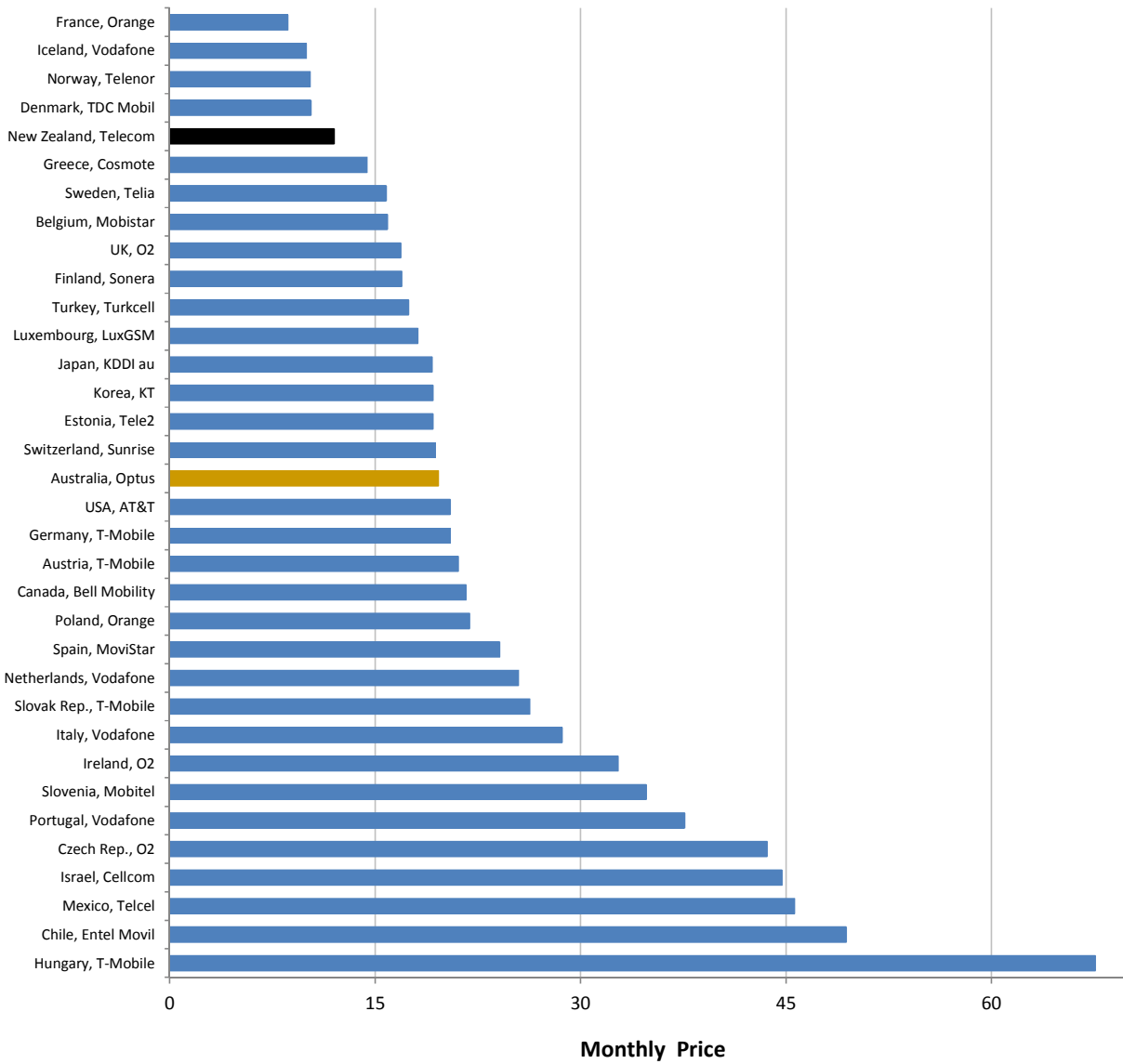
Source: Teligen

New Zealand prices for lower amounts of voice and data usage came in well below the OECD average. The best rating was for the 400 messages basket, representing a higher amount of texting and very little calling, where New Zealand ranked 5th in the OECD with a price half the OECD average.

It is only the 900 calls basket that has a very high amount of calling, with close to 1,800 minutes a month, where the New Zealand price was materially above the OECD average. This basket also contains 2GB of data and 350 texts but it was the portion of the price that can be attributed to calling which was most expensive in New Zealand, and so largely responsible for New Zealand's poor ranking. Australian prices were much lower than New Zealand's for the higher usage baskets.

The following figures give a graphical representation of how New Zealand pricing of mobile phone services compared to other OECD countries for selected baskets.

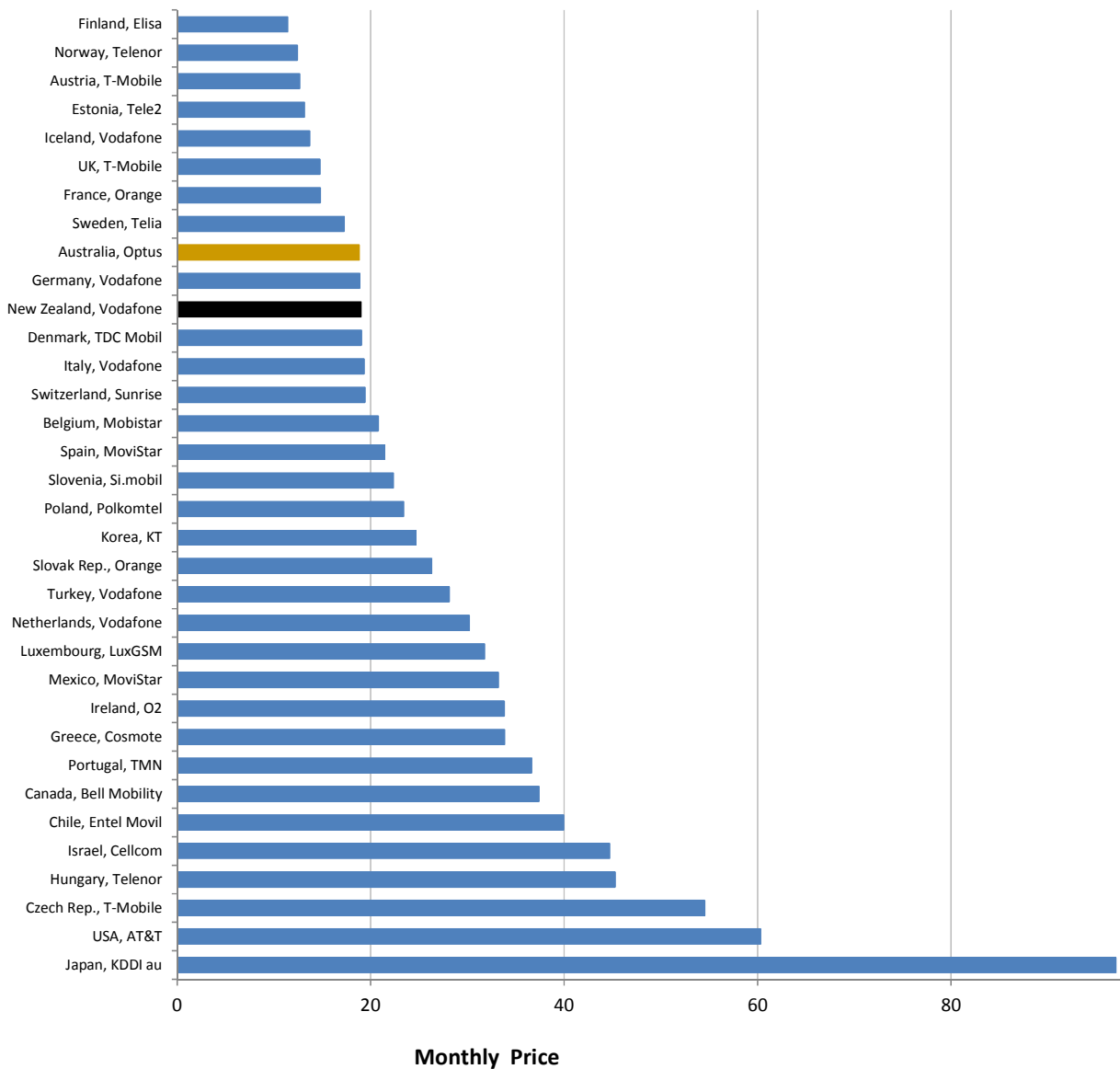
Figure 1: 400 messages basket results



Source: Teligen

New Zealand’s result put it close to the top of the chart showing the price of the 400 messages basket in each OECD country. The plan giving the New Zealand benchmark was Telecom’s Smart Prepay plan with 500 texts for \$9 a month and 15 minutes of calling for an additional \$3. This basket could be filled even more cheaply now.

Figure 2: 30 calls + 100MB basket results



Source: Teligen

The 30 calls + 100MB basket is the basket closest to the average New Zealand mobile usage. New Zealand's result was in a cluster of countries with almost identical prices, including Australia, just below the top quartile. The benchmarked New Zealand plan was Vodafone's Prepay Smart19Data which gave 100 minutes of calling, unlimited texts and 500MB of data for \$19 a month. However, Telecom's plan could equally have been chosen as the benchmark as its Smart Prepaid \$19 Big Value Pack was almost identical. 2degrees was not benchmarked by Teligen but it also offered a very similar prepay plan for \$19 a month.

Time series results for mobile phone services

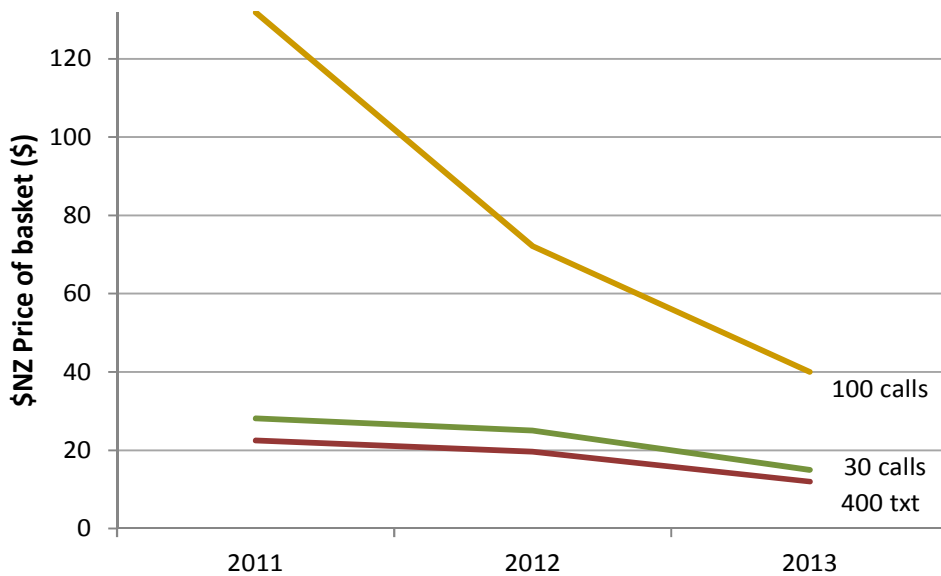
Tracking benchmarking results over time gives an indication of how markets are changing. We have compared prepay plan results for the lower to medium use baskets for the last three years and compared the results for all types of plans for medium to high use baskets.

The \$NZ nominal prices are tracked to see how prices are trending in \$NZ terms. The prices as a percentage of the OECD average are also tracked as possible indicators of changes in New Zealand’s relative competitiveness compared to the OECD.

Low to medium use prepay baskets

The changes in \$NZ prices of filling low to medium use baskets with prepay plans are shown in Figure 3. To ensure consistency, no data was included in the baskets.

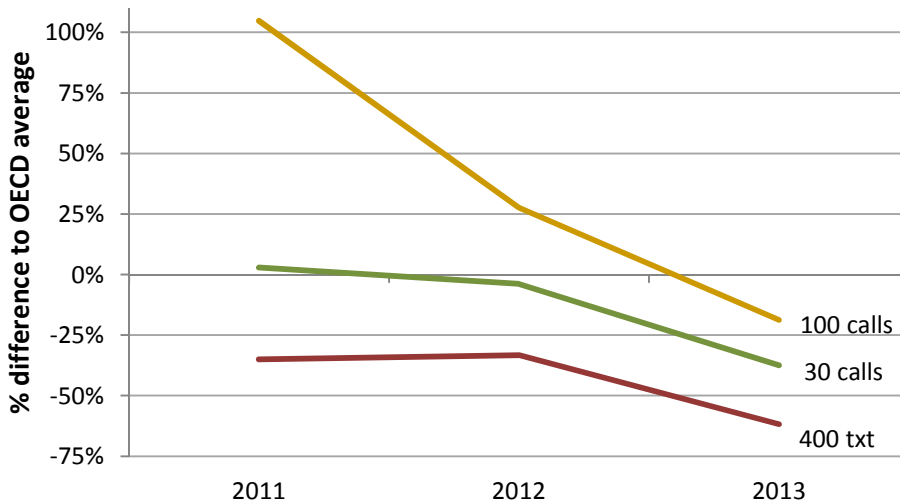
Figure 3: Trend in \$NZ prepay price of filling lower use baskets



Source: Teligen

The changes in the price of these baskets compared to the OECD average is shown in Figure 4.

Figure 4: Trend in prepay price of filling lower use baskets compared to OECD average



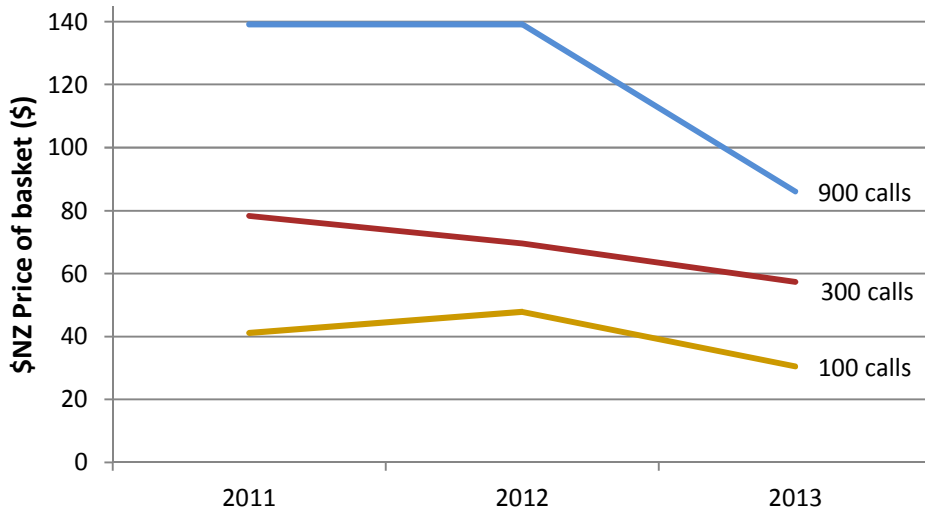
Source: Teligen

It is clear that there has been a very significant reduction in New Zealand prepay pricing over the last three years, both in absolute and relative terms. New Zealand prepay prices for the low to medium use baskets fell to around 20 to 60% below the OECD average, with the 100 calls basket price falling from over double the OECD average in 2011.

Medium to high use baskets

The changes in \$NZ prices of filling medium to high use baskets with the cheapest of prepay or on-account plans are shown in Figure 5. No data was included in baskets for the time series.

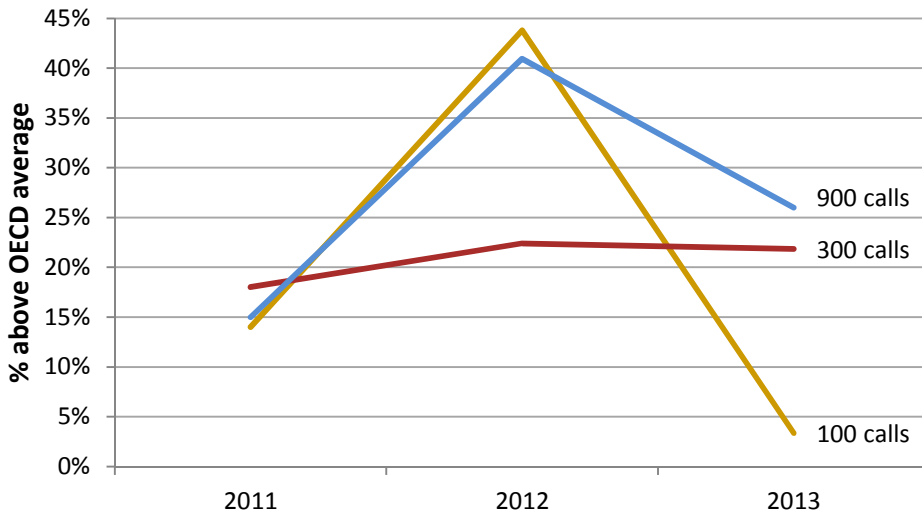
Figure 5: Trend in \$NZ price of filling medium to higher use baskets



Source: Teligen

The changes in the price of these baskets in New Zealand compared to the OECD average (all were priced above the OECD average) are shown in Figure 6.

Figure 6: Trend in price of filling medium to higher use baskets compared to OECD average



Source: Teligen

While there was a reduction in the nominal price of the medium to higher use mobile plans over the last three years, particularly for the 900 calls basket, there was no reduction in the price of the higher use plans compared to the OECD average. Only the medium use 100 calls basket improved in relative terms to move down to 3% above the OECD average. It remained cheapest to fill this

basket with an on-account plan but the price differential between prepay and on-account significantly reduced over the three years.

New Zealand's performance against the OECD average was volatile partially as a result of volatile PPP rates for some other OECD countries.

Comparing Figure 4 to Figure 6 indicates that competition has been more intense in the low to medium use and prepay segments of the market, with a clear trend in prices dropping compared to the OECD average in these market segments. This may have been due to these being the market segments where the third entrant, 2degrees, largely concentrated its attention. High volume users may also have been less price sensitive.

We note that there has been a move both in New Zealand and overseas for higher-end mobile plans to give unlimited minutes and texts and then price only according to the amount of data included in the bundle. Since the benchmarking was undertaken, more plans with unlimited minutes have been introduced in New Zealand and the price of such plans has decreased.

Stand-alone mobile broadband services

Originally mobile broadband was provided only by way of a data stick/dongle that plugged into a laptop because mobile phones did not use data and laptops were the only mobile devices requiring data available. Mobile broadband was commonly used by business people, on the move, in cities.

Nowadays, there are a multitude of mobile devices that can make use of a mobile broadband service, including phones, tablets, and e-readers. These are used by a range of different types of consumer. Mobile devices can make use of data directly or they can often be used to provide a WiFi hotspot so that other devices can use mobile broadband.

A stand-alone mobile broadband service offering relatively large amounts of data still tends to be provided via a data stick, but this is not necessarily the case. For the OECD mobile broadband benchmarking undertaken, all types of mobile broadband plans were eligible to be selected.

The Teligen service used generally collects data from several of the larger providers of mobile broadband services in each OECD country. For New Zealand, data was collected on the mobile broadband plans offered by Vodafone, Telecom and 2degrees. Data on the publicly available plans was used to calculate the cheapest price to fill each usage basket in each country.

The results can be filtered by the advertised peak speed. However, for mobile broadband the peak speed generally bears little relation to the average speed experienced by users. Furthermore, all the mobile broadband services appearing in the results offer peak speeds of at least 2Mbps. Accordingly, no speed filtering was undertaken.

The usage baskets chosen for mobile broadband benchmarking for data stick type users were the same used in the Commission's last benchmarking exercise in 2011, being 1.5GB and 6GB per month. The consumption patterns in this segment of the market appear to have changed relatively little since 2011, with plans still tailored for consumption of only several GB of data a month at most.

The Commission does not have any information on the average data consumption of New Zealand users of data sticks. However, data collected by the Australian Bureau of Statistics on fixed wireless broadband connections, most of which use mobile technology, showed an average use of 1.44GB per month in the three months to 30 June 2013.

The 6GB basket has been used to test whether mobile broadband is suitable as a full substitute for fixed-line broadband services which typically offer much more data.

Although there has been huge growth in the use of tablets since 2011, these tend to use less data than a PC or laptop and often consume data via WiFi connection rather a mobile connection. It therefore appears that while the number of stand-alone mobile broadband connections have increased, the average amount of data consumed by these connections has not increased as rapidly as the average amount of data used by mobile phone users. Certainly, the average mobile data consumption per connection is nowhere near the average fixed-line broadband consumption per connection. The Commission estimates the latter to be at least 25GB per month.

Mobile broadband benchmarking results

The results of OECD mobile broadband benchmarking comparing New Zealand to Australia and the OECD average are shown in Figure 6 below.

Table 6: Results of OECD mobile broadband benchmarking

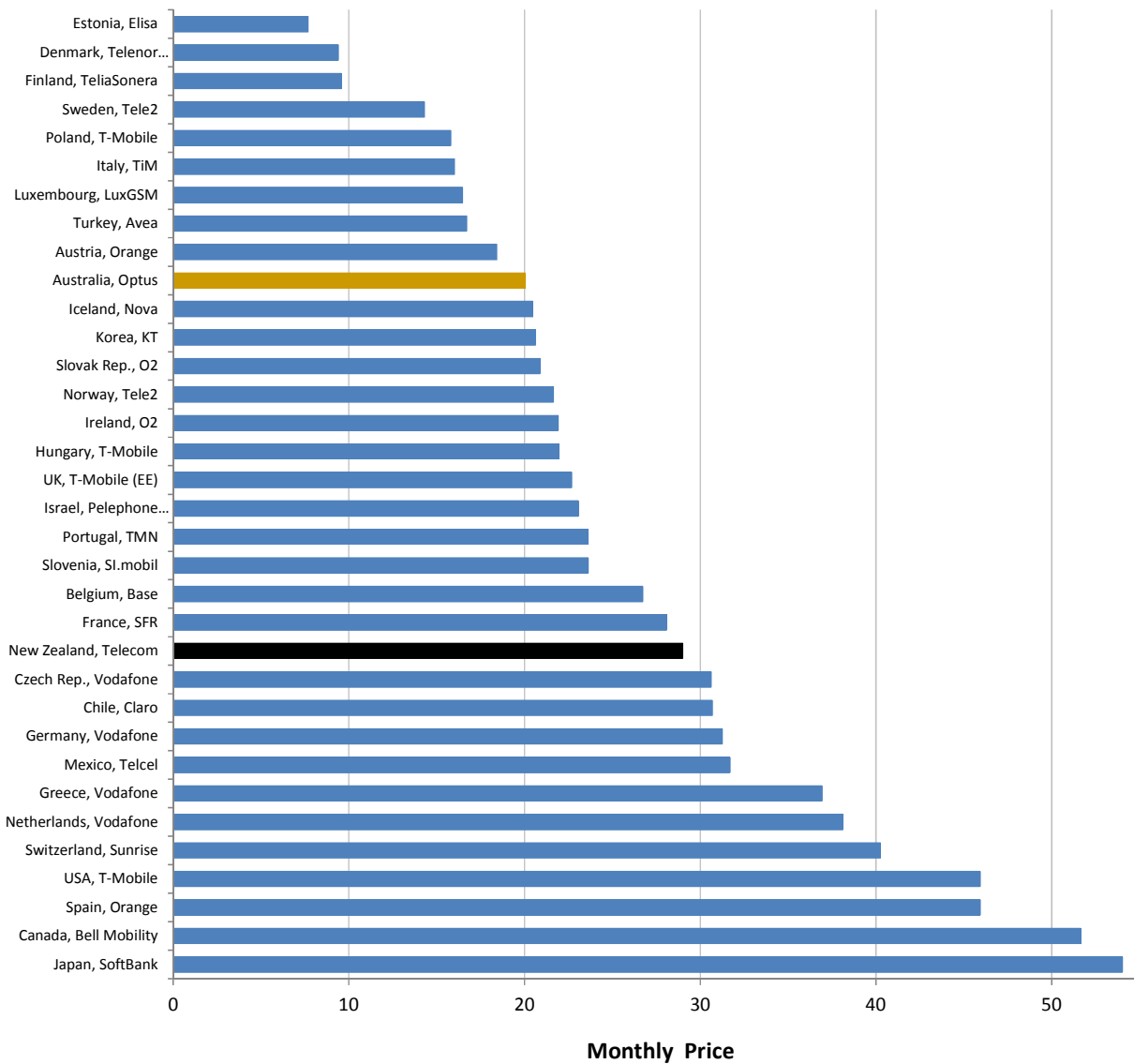
Mobile broadband basket	NZ rank in OECD	June 2013 price (NZD PPP)			NZ % price var. from	
		NZ	Aust.	OECD Average	Aust.	OECD Average
1.5GB <i>GST included</i>	23/34	29	20	26	+45%	+11%
6GB <i>GST included</i>	33/34	98	35	46	+180%	+111%

Source: Teligen

The New Zealand price for 1.5GB of data was a little above the OECD average, but was substantially higher than the Australian price. For 6GB of data a month, the New Zealand price was more than double the OECD average and nearly three times as much as the Australian price.

A graphical representation of how the New Zealand pricing of stand-alone mobile broadband services compared to other OECD countries for the two baskets is shown on the following pages.

Figure 7: 1.5GB mobile broadband basket results

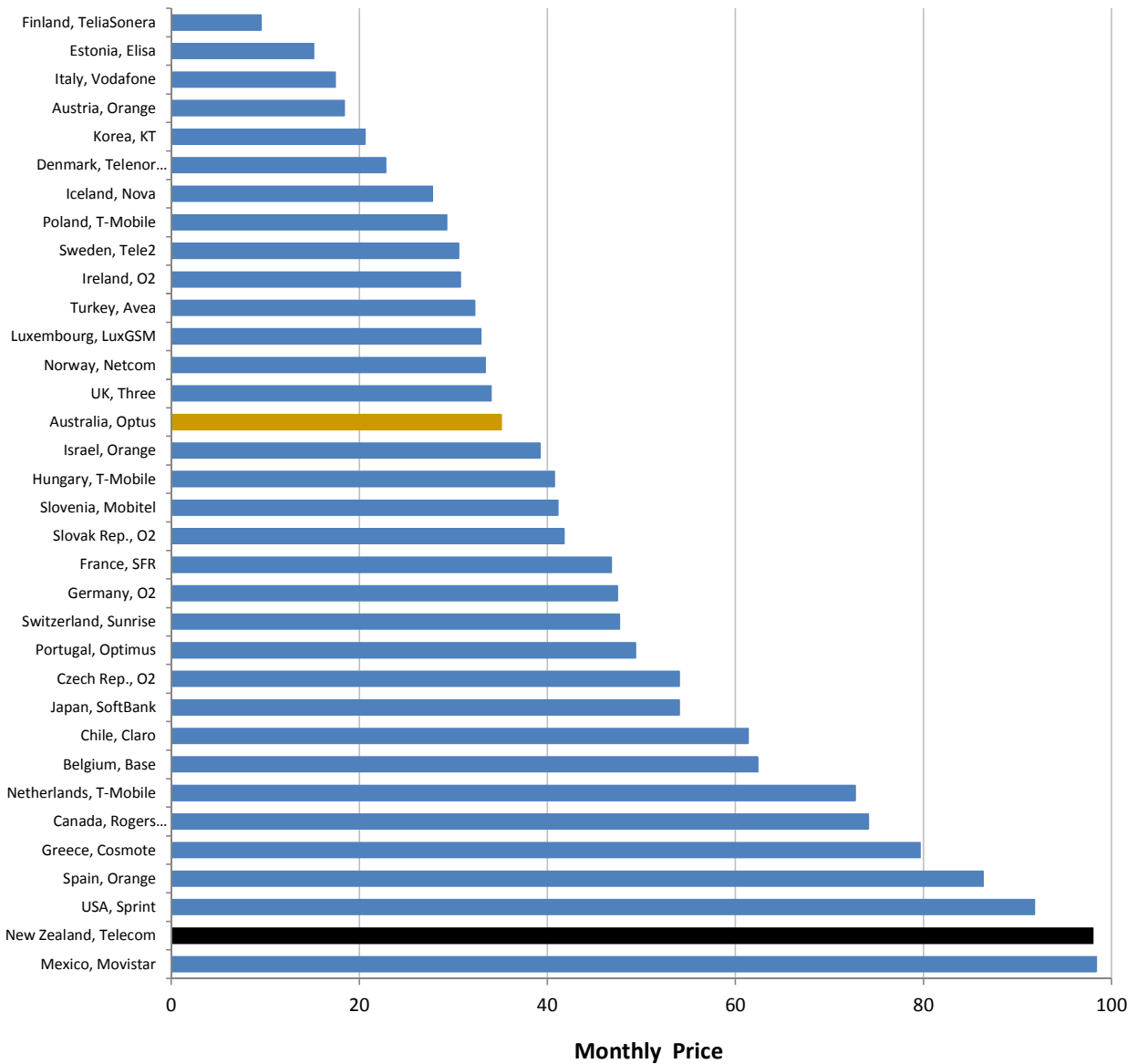


Source: Teligen

New Zealand's result put it a little below half-way down the chart. The benchmarked plan was Telecom Mobile Broadband 1.5GB priced at \$29 per month. This data could be purchased for use on any mobile device, and could be purchased as an on-account or prepay plan.

Since the benchmarking was completed some special offers have appeared in the market. For example, for prepay users on the 1.5GB plan, Telecom is currently offering double the data, so 3GB for \$29, until the end of April 2014.

Figure 8: 6GB mobile broadband basket results



Source: Teligen

New Zealand’s result put it second-to-bottom on the chart of the 6GB basket prices for each OECD country, just a few cents cheaper than Mexico. The benchmarked plan was Telecom Mobile Broadband 3GB, doubled up, so the monthly price of \$98 came from having to purchase two \$49 plans to get the required 6GB.

At the time of benchmarking Vodafone also appeared to have 3GB as the maximum amount of data included in a mobile broadband plan although it subsequently increased this to 5GB, which can now be purchased for \$80. 2degrees sells 12GB of mobile broadband data for \$99 but, like the Vodafone 5GB data plan, the data can be used over a six month period.

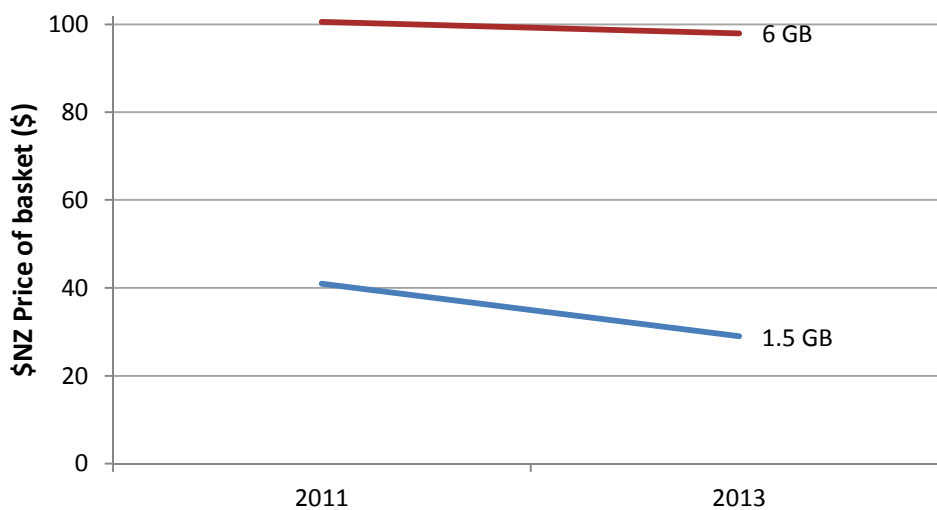
Time series results for mobile broadband services

Tracking the results for mobile broadband benchmarking over time gives an indication of whether the mobile broadband market is changing. We have only two data points available to use in the time series, 2011 and 2013. The price of mobile phone services showed big changes over this period.

The \$NZ nominal prices were tracked to see how prices were trending in \$NZ terms and the prices as a percentage of the OECD average were also tracked as possible indicators of changes in New Zealand's relative competitiveness.

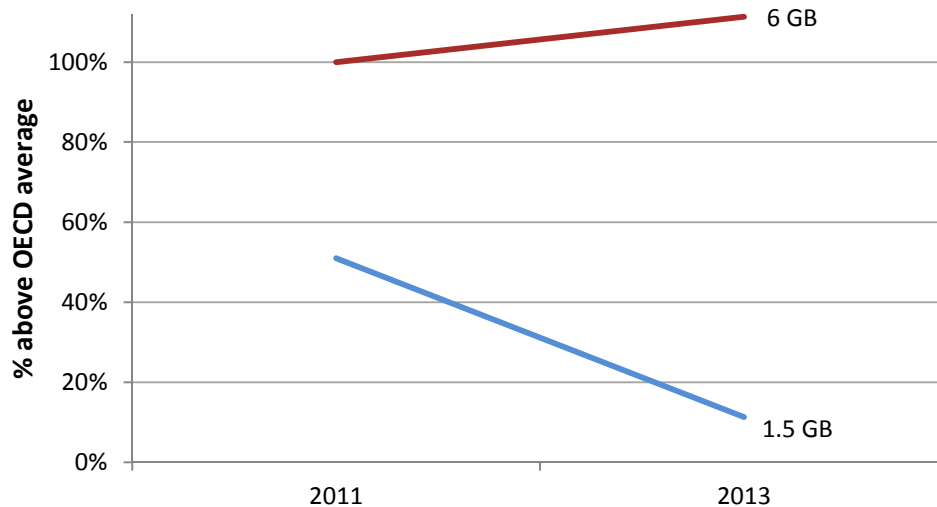
The changes in \$NZ prices of the 1.5GB and 6GB baskets used are shown in Figure 9.

Figure 9: Trend in \$NZ price of filling mobile broadband use baskets



The changes in the price of these baskets in New Zealand compared to the OECD average (both remain priced above the OECD average) is shown in Figure 10.

Figure 10: Trend in price of filling mobile broadband baskets compared to OECD average



The price of the 1.5GB basket decreased significantly between 2011 and 2013, which brought it to within 11% of the OECD average. The price of the 6GB basket barely changed so, in the face of falling prices elsewhere, its margin above the OECD average increased by 11%.

The \$98 price for the 6GB of mobile broadband basket in New Zealand suggests that mobile broadband is not a good substitute for fixed-line broadband given the standard fixed-line phone line and broadband bundle with at least 30GB of data is priced at \$75 a month or less.

It is not clear whether the high cost of mobile broadband is discouraging consumers from using more than several GB of mobile broadband data a month, or whether a lack of demand for larger amounts of mobile data means mobile providers are not selling mobile broadband plans with higher data caps and a cheaper per GB price.

Mobile broadband delivered to a fixed point via a roof antenna (fixed wireless broadband) is one of the key offerings of the Rural Broadband Initiative (RBI), which aims to deliver broadband to rural households at prices and levels of service comparable with urban areas. It appears that the aim is for fixed wireless broadband to be priced at a similar level to fixed-line broadband, given it is being used as a substitute.

The fixed wireless broadband plans offered by Vodafone and resellers under the RBI are more competitively priced than other mobile broadband plans. For example, Vodafone offers 15GB of data for \$110 a month. However, the RBI plans are still expensive compared to fixed-line broadband plans.

We note that smaller, niche providers of fixed wireless services that do not use cellular mobile technology appear to be offering wireless broadband at prices and performance comparable to fixed-lines. For example, Inspire Net offers a 5Mbps fixed wireless service with 50GB of data for \$70 a month.

Attachment 1 - Factors affecting the results of retail price benchmarking

Factor	Sub issue	Discussion	Benchmarking approach
Comparability	Sample	Comparable services from each country should be included in the benchmark set. For example, benchmarking the cheapest service offered by the incumbent in each country is consistent, although such benchmarking is unlikely to give the cheapest price for each country.	For retail mobile voice benchmarking, data is generally collected on the plans offered by the two largest operators in each country. For mobile broadband benchmarking, data is generally collected on plans from three of the largest operators in each country.
	Technology	Often a telecommunications service can be provided by different technologies or different variations of the same technology. This may impact on comparability. For example, a fixed-line broadband service can be provided over copper, cable or fibre, and one may provide a better quality service.	The OECD mobile benchmarking generally looks at services provided within the general technology category of cellular mobile services. Results can be filtered by advertised speeds but these are unlikely to reflect actual user experience.
	Quality	Some telecommunications services like mobile broadband services can have significant quality differences between providers. Such quality differences will affect comparability.	There is insufficient reliable data available to try to adjust mobile broadband benchmarking for quality factors.
Conversion	Exchange rate	When the price of services is compared between countries, each national price needs to be converted into common currency. This conversion can be based on the spot exchange rate or an average exchange rate over a longer period to iron out shorter term fluctuations. The option chosen can affect the result.	The market exchange rate is one option that can be selected with OECD benchmarking but the Commission selects the PPP option.
	Purchasing power adjustments	Rather than using market exchange rates, the exchange rate used for conversion can be adjusted to take account of the differing cost of living in different countries. Such an adjusted exchange rate is called a purchasing power parity (PPP) exchange rate. There are different methods for calculating PPPs.	The OECD calculates its own PPP rates, which are referred to as OECD Comparative Price Levels. The Commission chooses to use these PPP rates.
	Tax	The retail price of telecommunications services usually includes a value added tax (VAT) like GST, and the tax rate varies between countries. The price consumers pay includes tax but it can be argued that a better indication of underlying price differences between countries excludes	The user can choose whether to include VAT or not. The Commission now chooses to include VAT/GST in its benchmarking of consumer plans and excludes it for business plans (as businesses get a credit for GST paid).

		<i>taxes added to the retail price.</i>	
<i>Bundling</i>	<i>Discount allocation</i>	<i>It is common for telecommunications services to be sold at a discount when two or more services are purchased for one bundled price. The discount might not be allocated evenly to each service.</i>	<i>The stand- alone price of telecommunications plans is used or the price of the whole bundle of services.</i>
	<i>Imputed price</i>	<i>Sometimes telecommunications services like broadband are only available (at least from some suppliers) in a bundle with another service like voice. An imputed price for the second service is therefore required to price the first service if a disaggregated price is required.</i>	<i>Bundled prices are not disaggregated in this report so no imputation is needed.</i>
	<i>Custom deals</i>	<i>Larger businesses usually negotiate a confidential price for a customised package of telecommunications services, making it difficult to benchmark the price of affected telecommunications services and to make any such benchmarking publicly available.</i>	<i>The benchmarking used assesses plans applicable to residential customers and small businesses only.</i>
<i>Timing</i>	<i>Price changes</i>	<i>The prices used for the benchmarking are picked at a certain point in time or within a certain time range. Pricing may change between the time the prices are selected and time the benchmarking results are published. This may make a particular provider and/or country look better or worse if its prices move up or down in the intervening period.</i>	<i>It is usually obvious when a local plan changes in price or terms so it is tempting to adjust the benchmarking results. However, adjusting the local price without reviewing all the overseas prices would be unfair. If the Commission is aware of a material change in the price or terms of a local plan it will generally mention this fact in the commentary.</i>
	<i>Short term deals</i>	<i>Telecommunications retailers often offer special deals that are only available for a limited time, so it may be unfair to take these as the prevailing price. However, often these deals are extended or are replaced by similarly cheap deals. Furthermore, retailers can withdraw ordinary retail plans and replace them with something cheaper or more expensive at any time.</i>	<i>In general, the OECD benchmarking now includes promotions and discounts that are available beyond the month for which data is being collected. Whether a particular promotion or discount is included will depend on how it is presented and the judgement call made by Teligen.</i>