TELIKOM PNG
Always there!

Office of Chief Executive Officer
Telikom PNG Limited
P. O. Box 1349, Boroko, NCD,
Papua New Guinea

Ph: (675) 3004010/3005658
Fax: (675) 3250665

Our Ref: CA 27/1/4

06th April 2018

Mr. Charles Punaha
Chief Executive Officer
National Information and Communication Technology Authority
P O Box 8444
BOROKO
N.C.D

Dear Mr. Punaha,

SUBECT: MOBILE RETAIL SERVICES DETERMINATION – CROSS-SUBMISSIONS

We thank NICTA for the opportunity to provide input comments on submissions made by Digicel, Digicel's expert and ICCC (dated 09 February 2018) to NICTA on the Public Inquiry into a potential Retail Service Determination (RSD) regarding certain mobile telephony services supplied by Digicel; the discussion paper of which was issued on 20th November 2017.

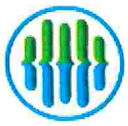
Attached are our main cross-submission commentary and the accompanying expert commentary by our Consultant, Mr. John de Ridder.

As our cross – submission comments summarises Telikom's view is that there is no case against a new MRSD. Telikom further concludes in this cross-submission by concurring with NICTA on its recommendation to the Minister of a RSD on Digicel's mobile services.

Yours sincerely,

Xavier Victor
Acting Chief Executive Officer

Encl:



Telikom PNG Limited

Cross-submission to NICTA

NICTA 2017 Public Inquiry for potential Retail Services Determination regarding certain mobile telephony services supplied by Digicel

Date: 6 April 2018

Mobile Retail Service Determination 2017 Cross Submission

1. This paper responds to submissions made by the ICCC, Digicel and its consultant (Mr Aaron Schiff) in relation to the NICTA proposed mobile retail service determination of 2017 (MRSD 2017).
2. All the economic issues raised in the submissions of Digicel and its expert are addressed in the attached paper by Telikom's expert Mr John de Ridder.

Summary

3. In Telikom's view, Digicel has not made a case against a new MRSD. The main submission relies on technical legalities, the failure of the 2012 MRSD to affect market outcomes and its desire to continue its 1TOK+ promotion. The supporting expert's submission wrongly asserts that two-part pricing exists in the prepaid market.
4. While the focus of the previous MRSD was on the on/off-net tariff differential, the proposed MRSD should do a better job of curtailing Digicel's potential abuse of significant market power (SMP) if:
   A. No on/off net discrimination is permitted[1]
   B. Any on/off-net tariff differential needs to be cost justified in advance with NICTA
   C. All Digicel's retail tariffs are transparent (published on its site)
   D. Post-paid tariffs are covered by the MRSD
   E. The term of the MRSD is 5 years
5. The merger of bmobile/Vodafone and Telikom mobile is a significant step in building a sustainable competitive market in PNG. But, it needs time as the process of integration will take at least 2 years before significant market impacts will be seen. The proposed MRSD is needed to protect the emergence of a real competitor.
6. Telikom notes that the ICCC is in general agreement with NICTA's proposal for a new MRSD.

[1] This deals with billing consistency and also helps deal with bundles; e.g. the same number of included minutes or SMS for on and off net.

Do we need another MRSD?

7. Digicel contends that if the first MRSD had not been made, there would have been no difference to observed market outcomes. So, it concludes that there is no point in having a second MRSD. In fact, there are two other possible conclusions for this counter-factual:

    - Market outcomes might have been a lot worse without the 2012 MRSD; one or both the small mobile carriers might have folded. It may be only government ownership that has avoided this outcome.
    - The 40% allowed tariff differential allowed under the 2012 MRSD was so generous that the constraint was ineffectual and therefore had no impact on market outcomes. On NICTA figures, Digicel's market share of revenue is more than 5% points higher than before the 2012 MRSD. This is the most likely explanation because the prohibition of discrimination (i.e. any difference would have to be cost-justified) would have allowed bmobile and Telikom mobile (Citifon) to perform better.

8. These three possibilities are all thought-experiments that it is impossible to prove one way or the other. Not having a new MRSD to control the potential abuse of SMP by Digicel is risky. Digicel cannot prove it is safe to do that; any more than we can prove a new drug is safe. In the case of no MRSD, nobody will die but the competitive process might.
9. A new MRSD does not mean that the ex-post discipline that the ICCC can exercise is not relevant. Trying to prevent anti-competitive behaviour with ex-ante controls like the proposed MRSD does not remove the need for ex-post competition regulation. Telikom has a case before the ICCC now which could have been averted with the ex-ante controls above. No MRSD can pre-empt all abuses.

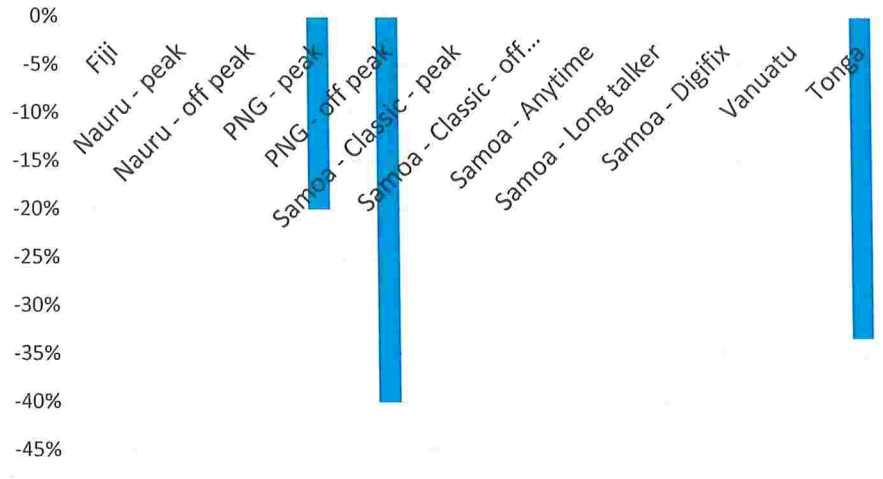
Will a new Retail Service Determination be effective?

10. Yes, a new MRSD will prevent on-net pricing consolidating the club effect thus improving the prospects for enhanced market competition.
11. Yes, the ICCC in its submission says (pg 4) "It is the combination of of the exploitation of market power and extreme price discrimination which causes damage to the market".
12. Yes, the KTH restructure could lead to a stronger competitor for Digicel, given time and the support of a new MRSD.

Why does Digicel need an on/off-net tariff differential?

13. Currently, Papua New Guinea and Tonga are the only Digicel markets in this region where Digicel has an on/off-net differential for prepaid tariffs, as shown in the chart. Why is that?

Fig. 1 On/Off-net tariff differential



14. The chart in Fig. 1 shows Digicel's prepaid rates in local markets as at March 2018. The off-peak on/off-net tariff differential in PNG is the largest at the 40% allowed under the 2012 MRSD.
15. As noted by the ICT Appeals Panel and as proposed for the new MRSD, if Digicel wants such a tariff differential in this market, it should justify it on cost. That cost is not just the MTR implied in NICTA's proposed second pricing principle. Calls have two ends and retail costs in addition to the costs at each end of the call.

Who called in the umpire?

16. Digicel says that the ICT Appeals Panel Decision (IAPD) should be put aside because the "purported decision contained a number of errors, both in law and in substance" (para 13a). These are not explained.
17. Telikom suspects the real reason is the ICT Appeals Panel's rejection of the 40% differential between Digicel's on and off-net pre-paid mobile as "not justifiable in the circumstances of the market and the dominance of Digicel" (paragraph 66, IAPD).
18. Challenges to regulatory decisions are not found only in PNG. In Turkey, mobile operators took decisions by the telecoms regulator not only to civil and administrative courts but also to the International Court of Arbitration[2]. It is advisable that civil courts do not adjudicate

[2] Atiyas and Dogan 2007, discussed later

administrative decisions and that any high level administrative body have sufficient expertise. This is a role competently fulfilled by the ICT Appeals Panel in PNG.

Empirical findings ignored

19. Mr Schiff found just 3 country case studies: Chile, Turkey and Germany. But our expert, Mr de Ridder, found not only that these cases were distorted but also that there several other important cases that had been overlooked. Some of these are discussed in the table below.

Table 1: Empirical observations and case studies on Regulatory Actions including Kenya and Singapore

Country	Empirical Observation	Case study on Regulatory Action
Kenya	• Retail voice market not competitive • club effects resulting from significant on-net/off-net price differentiation, especially in markets that exhibit:	• On-net/off-net price rule at the retail level • Price cap for off-net call prices to their level of on-net prices
Singapore	• The authority (IDA) argued that differentiated pricing favors MNOs with lager subscriber base • Restriction on price discrimination deemed necessary to foster competition	• On-net/off-net price rule at the retail level • MNOs prohibited from engaging in on-net/off-net price differentiation (except for short term promotions) until the specified time period when the regulator lifted the restriction after finding the market was mature and competitive.
Colombia	• Regulatory commission regulated the on-net/off-net price differentials that can be charged by the dominant MNOs.	• On-net/off-net price rule at the retail level • the price of off-net minutes of all tariff plans offered by Comcel must be equal to or lower than the average price of on-net minutes in those plans plus the MTR
Slovenia	• High off-net/on-net price difference	• Late and ineffectual regulatory intervention led to the exit of the entrant.

20. Finally, all the regulatory actions taken were temporary until the market became more competitive and mature and with more balanced traffic patterns.

Legal framework

21. For an RSD to eventuate, certain provisions in the legislation will have to be satisfied and that includes Section 158 and 159 and 160. The Minister only endorses the RSD when he is fully satisfied with the proposal put before him by NICTA seeing the need.
22. The Regulated Principles per section 3 and the objectives per section 2 of the NICTA Act stresses sustainable development of ICT services being conducted in a fair, efficient and competitive manner in order to promote the business and most importantly the consumer welfare.
23. Competition shall be enforced in a conducive environment so that welfare of the customers are maintained at all times. In other words, a healthy and fair business conducted with fair and honest pricing can give customers maximum satisfaction.
24. The primary objective of the NICTA Act is for all ICT operators to conduct business in a free, fair and competitive environment to satisfy customers with the affordable prices in the end.

Conclusion

25. Telikom concurs with NICTA on its recommendation of an RSD on Digicel's mobile services.
26. NICTA's decision is consistent with Retail Regulation Criteria and the overall objectives of the NICTA Act.
27. The purported failure of 2012 MRSD cannot be assumed to be repeated with the 2017 RSD on the basis of bmobile and or Telikom's lack of growth so far.

John de Ridder

Telecommunications Economist
deridder@bigpond.com
www.deridder.com.au
ACN 64 114 025 713

Phone 61 (02) 4981 0953
Fax 61 (02) 4981 2693
Mobile +61 409 804 278

Comments on the submissions made by Digicel and its expert concerning the proposed Mobile Retail Service Determination.

For Telikom PNG Limited,

John de Ridder

25 March, 2018

Summary

In my view, Digicel and its expert have not made a case against a new MRSD.

The supporting expert's submission wrongly asserts that two-part pricing exists in PNG's prepaid market. He does this because much of the theoretical literature he relies on depends upon that context and so do his conclusions about the outcomes of a new MRSD in PNG.

There are three main parts to Mr Schiff's submission:

1. Theoretical and empirical literature
2. Market outcomes in PNG since 2012
3. Effects of the proposed MRSD

Almost all of the theoretical literature assumes non-linear (e.g. two-part) tariffs which are not relevant to PNG where the market is predominantly prepaid (i.e. linear tariffs). In my view, it is not possible to argue that the prepaid market in PNG exhibits two-part pricing.

The empirical literature referenced by Mr Schiff has three country case studies which do not support his position as much as he would like us to think:

A. For Turkey, the Karaçuka, Çatik, and Haucap study has nothing to say about the role of on/off-net pricing because "Tariffs are calculated as the average of the on-net- and the off-net-calling price per minute in a standard tariff plan"

   Atiyas and Dogan (2007) describe in detail how the two incumbents (Turkcel and Telsim) tried to deter market entry in Turkey. The authors conclude: "The Turkish experience confirms the existence of significant first-mover advantages in the mobile telecommunications industry. These advantages are amplified by the existence of tariff-mediated network externalities and switching costs."

B. For Chile, Rojas says "in this particular case this regulatory intervention has (in the short-run) *likely* harmed consumers and benefited firms. Long-run competitive effects, such as changes in market structure, are neither captured by the model nor have yet been observed in this market."

   Agostini et al (2017) note that Rojas looked at the short-run effects of linear pricing while their study looks at non-linear pricing. Even so, "The results show that the largest companies offered a few plans with an off-net/on-net price differential larger than what a competitive theoretical model predicts. This larger differential is consistent with the notion of predation defined by Hoernig (2007) as reducing a competitor's profits".

C. For Germany, Zucchini, Claussen, and Trüg say "Our empirical results show that large operators are more likely to offer tariffs with on-net discounts. We cautiously interpret this as suggesting that large operators using tariff-mediated network effects as a competitive instrument are the dominant reason for on-net price differentials... (and) ..We also contribute to the policy discussion by offering tentative evidence that regulators may be correct to impose limits on on-net price differentials".

There are some other country case studies of interest too. Mr Schiff, who comes from New Zealand, has not mentioned that the Telecommunications Group (TMG) prepared a paper for the New Zealand Commerce Commission on behalf of 2degrees (a mobile entrant) on international precedent

on regulatory remedies adopted to address *on-net/off-net* price differentiation in the mobile market. Case studies were drawn from:

- Kenya
- Singapore
- Colombia
- Turkey
- Slovenia
- Portugal

The second part of his submission argues that there was no market impact from the 2012 MRSD due Digicel's "superior coverage and quality of service". In my view, the 2012 MRSD was ineffectual because the allowed on/off-net differential was so large. No differential should be allowed unless it is cost justified.

The third part of his submission on the effects of the proposed MRSD implicitly accepts that Digicel has SMP and relies incorrectly on the existence of two-part tariffs in the prepaid PNG market.

The relevance of assumptions and two-part tariffs to PNG

The theoretical literature is only useful if the assumptions are relevant to PNG. As Mr Schiff says (p13): "Whether on-net pricing[1] is beneficial, harmful, or neutral for consumers and competition appears to depend on market specific factors". This is why the relevance of assumptions to the PNG context are important.

The literature which finds pricing differentials may have beneficial effects depends on:

Table 1: Key assumptions

	Assumption	PNG situation
1	that interconnection prices are set by a regulator at cost	**Not so** - Figure 1 in NICTA 2017 shows the MTR is a third of what it was four years ago but nobody has claimed that 8t/min is at cost.
2	that networks charge two-part (i.e. non-linear) tariffs	**Not so** - More than 95% of the market is prepaid which do not entail a fixed subscription
3	that there are only two competing firms and that they are symmetrical	**Not so** – Figure 4 in NICTA 2017 shows that Digicel dominates the mobiles market
4	that calling patterns are balanced	**Not so** – Clause 4.1.19 of NICTA 2017
5	that the two networks have the same cost structure	**Not so** – Footnote 6 of NICTA 2017 says minimum efficient scale is achieved only with a market share "in the order of 15-20%"
6	that the market expansion potential is limited	**Not so** – Mobile penetration in PNG is low by international standards

Mr Schiff effectively admits that the two-part tariff assumption is a problem by going to extraordinary lengths to try and make it fit with the prepaid market in PNG (p11): "For example, customers must obtain a handset and SIM card, and the prices of these could be thought of as fixed fees in a static model. Alternatively, pre-paid customers must periodically "top up" their credit, and there is a cost associated with the time and effort required to do so. To the extent that networks can influence that time and effort, such as by making the top-up process easier or by having sales outlets

[1] Note that Mr Schiff uses "on-net pricing" to mean different prices for on-net and off-net calls and SMS.

in more locations, it can be thought of as equivalent to a recurring fixed fee". This is very imaginative but incorrect.

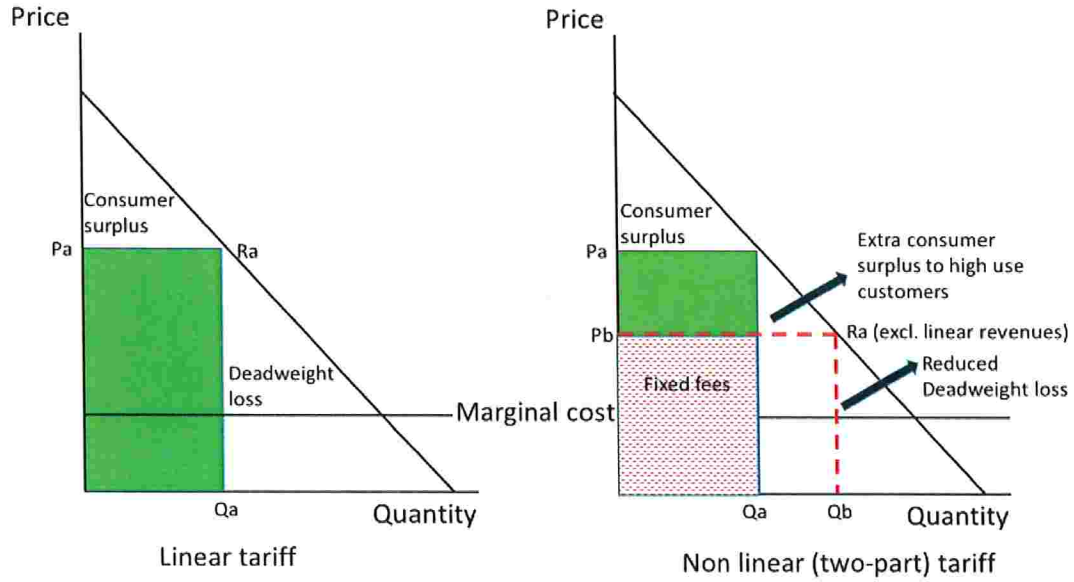
The Palgrave Economics Dictionary[2] says: "A two-part tariff is a pricing scheme according to which the buyer pays to the seller a fixed fee and a constant charge for each unit purchased.....Further, linear pricing may be understood as an extreme case of a two-part tariff where the fixed fee is set to zero; the other extreme case is that of only a lump sum payment, independently of the units purchased."

Also,

"Generally, telecommunication operators charge consumers for their services using non-linear tariffs that comprise several price components like monthly fixed fees, minute prices per call, prices per text message, etc. Some of these tariffs have a lower per-minute price for calls to subscribers on the same network than for calls to subscribers on different networks". (Zucchini et al 2013)

To illustrate, the first chart below shows a linear tariff because all customers pay Pa per unit regardless of who they are or how much they buy. Revenues are shaded green. In the second chart, the same price is retained for low-use customers but for those who would like to buy more at a lower price, the firm can offer a price of Pb (lower than Pa but above marginal cost) provided that the high-use customer pays the fixed fee shown by the shaded box. So, marginal prices (and average prices) paid by the two consumers will now differ. That is non-linear price discrimination. Revenues from users paying the two-part tariff are shown within the box defined by the red dotted line.

Figure 1: Linear prices and two-part tariffs



The two-part tariff is a tariff mechanism to discriminate between customers. The examples of "fixed fees" given by Mr Schiff above are common to all prepaid customers. There is no tariff discrimination.

[2] https://link.springer.com/referenceworkentry/10.1057/978-1-349-95121-5_2985-1

1a - The theoretical literature

Mr Schiff was a consultant to Digicel for the original MRSD inquiry and is aware of the extensive literature review in NICTA's Second Discussion Paper of 4th May 2012. The comments he makes on the theoretical academic literature shown below with NICTA's observations and my own.
Note that when Mr Schiff refers to "on-net pricing" he refers to differentials between on-net and off-net pricing. Also, I have **added emphasis** to some remarks.

Table 2: Theoretical literature

Study	Quote
Armstrong and Wright (2009)	**P8 Schiff**: on-net pricing creates network effects and this increases intensity of competition between symmetric networks, reducing profits and **increasing consumer welfare**, everything else equal. **P60 NICTA 2012 and p14 NICTA 2017:** 'the chief anti-competitive motive [of a mobile network operator] to set high off-net call charges' is to **harm its rivals' abilities to** compete by encouraging fewer calls to be made to the subscribers of rival networks'. **De Ridder:** They draw very different conclusions from the same paper.
Hoernig (2007)	**P9 Schiff**: on-net and off-net prices depend on firms' market shares, and larger networks will tend to set higher off-net prices. In some cases, this arises from anticompetitive behaviour of the larger network, but in other cases it is simply the profit maximising pricing behaviour that arises if firms take account of the value that consumers get from receiving calls. Hoernig notes that **"the distinction between the predatory and [nonpredatory] scenarios is not easy in practice**. The difference between the two is quantitative rather than qualitative, and regulators or competition authorities very likely do not possess the necessary information to make an informed judgement." **P60 NICTA 2012 and p14 NICTA 2017**: Hoernig considered on-net/off-net price discrimination in the context of price predation. He considered the scenario of both **'full predation'**, in which the large network seeks to induce a smaller network to exit the market by driving down its market share and profits by setting arbitrarily low on-net prices and high off-net prices, and **'limited predation'**, in which the larger network seeks to restrict the small network's profits and cash flows (rather than its complete exit from the market) to make it more difficult to invest in either network improvement or customer retention. Hoernig found that, given call externalities, **the difference between the larger network's on-net and off- net prices is driven by 'the difference in market shares** [between the large and small network operators] **and strategic considerations'**. **De Ridder:** Hoernig (2007) is a rare exception to the theoretical literature's reliance on the two-part pricing assumption. He finds "the large network competes more vigorously using lower on-net prices if competition is in linear tariffs". Also, he explains that the difference between the two types of predation is not qualitative: "There is then a quantitative difference in behaviour (which may be large, nevertheless), rather than a qualitative one. The distinction of the two types of behaviour, if it is to be based on market data, could in principle be done by

	calibrating market equilibrium models. If the necessary information is not available then international comparisons may help at least to identify extreme cases." While "calibrating market equilibrium models" is beyond most of us, benchmarking is not and Hoernig also tells us that "the large network competes more vigorously using **lower on-net prices if competition is in linear** tariffs [**De Ridder: as in PNG**], and lower fixed fees if competition is in two-part tariffs. This is usually accompanied by higher off-net prices. The resulting on-/off-net differential can be substantially larger than in Nash equilibrium. Thus even **while a large differential may not be the main weapon for predation, it can indicate its presence**".
Hoernig (2014)	**P9 Schiff:** provides a sophisticated model of network competition with many realistic features such as elastic subscriber demand, on-net pricing, calling externalities (i.e. consumers value receiving calls), and asymmetric costs and market shares between networks. Hoernig shows that on-net pricing arises as a profit-maximising behaviour in some circumstances, and it is not always anti-competitive and not always harmful to consumers. Again, the Discussion Paper [NICTA 2017] discounts this paper on the basis that it assumes **two-part pricing**, but, in my view, it is an important contribution because it relaxes many of the other restrictive assumptions used in other research. **P15 NICTA 2017:** shows that regulatory intervention to prevent on-net/off-net price discrimination involves a trade-off between a more efficient pricing structure and more viability of small networks on one side, and short run consumer surplus on the other, but **that trade-off disappears in the medium run** if network effects are so strong that without regulatory intervention the smaller networks would not survive. **De Ridder:** Apart from the two-part pricing assumption issue, it is important to note that long-term benefits can outweigh short-term benefits.
Hoernig, Inderst and Valletti (aka HIV) (2011)	**P9 Schiff:** allow for the realistic assumption that consumers tend to make calls to small groups of contacts, rather than randomly to all subscribers of a network as assumed in many other research papers. The authors show that the effects on consumer welfare of a ban on on-net pricing are ambiguous and depend on demand-related characteristics. This paper also assumes **two-part pricing**, but it makes a very useful contribution by relaxing the restrictive random calling pattern assumption. **P15 NICTA 2017:** Hoernig, Inderst and Valletti **(2014)** find that **total welfare is maximised when there is no price discrimination between on-net and off-net calls (and the MTR is set at cost)** but when calling patterns are highly concentrated (and the MTR is set at cost) the restriction of on-net/off-net price discrimination may not maximise consumer surplus **because there will be less reduction in the fixed fee component of two part (i.e post-paid) tariffs.** **De Ridder:** The authors' own abstract for the paper says: "We introduce a flexible model of telecommunications network competition with nonuniform calling patterns, accounting for the fact that customers tend to make most calls to a small set of similar people. Equilibrium call prices are distorted away from marginal cost, and competitive intensity is affected by the concentration of calling patterns. **Contrary to previous predictions, jointly profit-maximizing access charges are set**

	above termination cost in order to dampen competition if calling patterns are sufficiently concentrated. We discuss implications for regulating access charges as well as on- and off-net price discrimination". http://onlinelibrary.wiley.com/doi/10.1111/1756-2171.12046/abstract (2014)
Jeon, Laffont, and Tirole (2004)	**P9 Schiff:** consider the implications for network competition if consumers are assumed to value receiving calls and if call receivers can affect the duration of calls. They conclude that on-net pricing is a "mixed blessing" because it leads to on-net prices that internalise the value obtained by call recipients, but it **also leads to higher off-net prices that limit, or in some cases eliminate, cross-network calling**. **P60 NICTA 2012**: show that the call externality creates strong incentives for an MNO to **'strategically manipulate' its off-net prices in order to reduce the number of calls made to the rival network, thereby reducing the attractiveness of the rival network to subscribers'**. They also show that a large network will tend to charge a higher off-net price and have a greater on-net/off-net differential, than a small network. **P14 NICTA 2017**: concluded that, at its extreme, this can lead to a situation where off-net call charges are so high that all off-net calling is completely eliminated—a scenario they called a 'connectivity breakdown'. **De Ridder:** While this article discusses the concept of connectivity breakdown, it is based on the receiving party pays situation, as existed in the USA but not in PNG. Also, it assumed symmetrical networks and non-linear tariffs.
Lopez and Rey (2016)	**P9 Schiff:** consider competition between an incumbent network and an entrant and consider whether the incumbent can profitably foreclose the market by setting a high access charge. They show that such **foreclosure is only profitable with on-net pricing,** but even with on-net pricing foreclosure is not always profitable. In addition, in their model, **foreclosure is only profitable when it completely deters entry.** This means that if we observe that on-net pricing has not deterred entry in a real-world market, it is unlikely that any on-net pricing in that market was used with anti-competitive intentions. **De Ridder:** This conclusion is too strong. The paper highlights the fact that high access charges (MTRs) combined with on/off-net price discrimination is dangerous. Also, it has been observed in a **Turkish** study (not cited by Mr Schiff) that: "the collapse of two entrants in the Turkish mobile telecommunications market has been regarded as an example for **a case where the winners take all customers in an unregulated market** (see, e.g., Atiyas & Dogan, 2007)." This study is considered in Table 4 below. Another observed case where a new entrant had to exit the market is **Slovenia**. See Trilogy 2011 in Table 4 below.
Sauer (2011)	**P10 Schiff:** shows that consumers benefit from on-net pricing as the induced network effects make firms compete more intensely. **The model assumes two-part tariffs** but allows the market size to be variable (i.e. elastic subscriber demand),

	which relaxes a restrictive assumption used in other papers. The pro-competitive effects of on-net pricing are shown to be stronger when the market size is not fixed. **P16 NICTA 2017:** Hoernig (2008) and Sauer (2011) (using the same basic model and some results), and also Hoernig, Inderst and Valletti (HIV) (2014) and Hoernig (2014), show that, in the absence of full market penetration, on-net/off-net price discrimination can lead to increased consumer welfare through increased competitive intensity, although total welfare may not necessarily improve. **However, in all cases the increase in consumer welfare is in the short run** (not the long run) **and derives from reductions in the fixed fee component of two part** (i.e. post-paid) tariffs in response to the increases in the average call prices under discriminatory on-net/off-net pricing. **De Ridder:** Mr Shiff argues that two-part literature is relevant to the prepaid market in PNG. I dispute that and note that in Turkey exclusionary tariffs were attempted with two-part pricing (see Table 4 below).

1b - The empirical literature

As Mr Schiff says, while the mathematical models in theoretical papers depend on assumptions, empirical cases are not laboratory experiments and separating the effects of on/off-net pricing from other factors can be difficult – but not impossible. A few studies that he has overlooked are included below.

Table 3: Empirical literature

Study	Quote
Birke and Swann (2006)	**P12 Schiff:** investigate the role of network effects in consumers' choice of mobile phone network and calling patterns. They show that even if on- and off-net prices are identical, the existence of "pure" network effects unrelated to pricing means that consumers will make a disproportionate amount of on-net calls. Thus, an observation that the majority of calls are on-net cannot be attributed entirely to the effects of on-net pricing. Birke and Swann also show that individuals' choice of network is heavily influenced by the choices of other people in the same household. **De Ridder:** The same authors published another study 4 years later. The abstract says "The aim of this paper is to **estimate the importance of (tariff-mediated) network effects** in the use of mobile telephones and the impact of the structure of social networks on consumer choice. This is done using social network data obtained from surveys of students in several European and Asian countries..... We find that students strongly coordinate their choice of mobile phone operators if their operators induce tariff-mediated network effects, but not if prices for calls to other networks are the same as prices for calls to the same mobile phone network. **This suggests that this coordination depends on tariff-mediated network effects rather than on information contagion or pressure to conform to the social environment**". Network effects, network structure and consumer interaction in mobile telecommunications in Europe and Asia 2010 https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=res2007&paper_id=324

Confraria Ribeiro, and Vasconc s (2017)	**P12 Schiff:** use discrete choice experiments to decompose consumer preferences for mobile networks into calling club effects, "pure" network effects, and the effects of commitment periods, monthly fees, and on-/off-net prices. They found that "pure" network effects unrelated to pricing have statistically significant effects on network choices, reflecting the findings of Birke and Swann (2006). **They also found that network choice was more sensitive to on-net prices than off-net prices**, which they hypothesised **could be due to tariff-mediated network externalities**, or due to network size acting as a signal for network quality if consumers cannot observe quality directly. **De Ridder:** This is a consumer laboratory experiment which I have not seen.
Haucap And Heimesh (2011)	**P13 Schiff:** empirically analysed how consumer behaviour is affected by on-net pricing. They found evidence of a "price differentiation bias", i.e. that people tend to overestimate how much they will save from reduced on-net prices, due to inaccurately estimating how many on-net and off-net calls they will make. They conclude that on-net pricing does not automatically raise competition concerns, as smaller networks may find it beneficial to introduce such charges to take advantage of such biases in consumer behaviour, and they advocated against an outright prohibition on such pricing. **De Ridder:** It is not known how these authors "empirically analysed" behaviour. But I agree that there should not be a blanket prohibition on price discrimination – only for the operator with SMP.
Karaçuka Çatik, and Haucap (2012)	**P13 Schiff:** used survey data from **Turkey** to analyse the factors that affect consumers' choice of mobile network. They found such choices are significantly affected by the choices of other consumers with whom the consumer is more likely to interact. Such "local" network effects were shown to be more important than the overall size of the network. **De Ridder:** This is very interesting but Zucchini et al 2013 (see below) note that if this were so, "**This might make on-net discounts less attractive for large operators** than in a situation with global network effects because consumers in the same calling club tend to cluster on networks in any case, so high on-net discounts of large operators would not deter entry by small operators". Also, the Karaçuka, Çatik, and Haucap study has nothing to say about the role of on/off-net pricing because "**Tariffs are calculated as the average of the on-net- and the off-net-calling price** per minute in a standard tariff plan" Karaçuka, Çatik, and Haucap in Telecommunications Policy 37 (2013) pp334-344 at https://www.researchgate.net/publication/257162939_Consumer_choice_and_local_network_effects_in_mobile_telecommunications_in_Turkey
Rojas (2015)	**P10 and 13 Schiff**: looks directly at the welfare effects of a ban on on-net pricing. He shows that a ban increases the price of on-net calls and reduces the price of off-net calls, so the **overall welfare effects are ambiguous**. Using a calibrated model, Rojas estimates that the **ban on on-net pricing adopted in Chile in 2012 reduced consumer welfare.** **De Ridder:** To quote directly from Rojas: "The off-net/on-net price differential in mobile voice observed in many countries is much larger than what can be explained away by

	standard economic theory. This situation has generated important anticompetitive concerns, leading some authorities to contemplate (and even impose) a ban on such practice. In this paper I propose a model of the mobile industry to simulate the **short-run** welfare impact of this regulatory intervention. This ban will force the market to offer prices that do not depend on what network the call is terminated thereby increasing current on-net prices and decreasing current off-net prices. **Thus, the short-run effect of the policy, for both consumers and producers, is a priori ambiguous.** The model simulates how consumer and producer welfare would be affected under various scenarios for the ex-post undifferentiated (average market) price. Importantly, **the model allows policy makers to determine the maximum ex-post undifferentiated market price that would guarantee no welfare loss.** I illustrate the model using results from **Chile** where the competition authority recently banned this practice; **using firms' *actual* choices** of undifferentiated post-ban prices in the market (together with the corresponding observed call volumes) and the model results lead the analysis to the conclusion that **in this particular case** this regulatory intervention has (in the short-run) ***likely*** harmed consumers and benefited firms. **Long-run competitive effects, such as changes in market structure, are neither captured by the model nor have yet been observed in this market."** See also Agostini et al (2017) below.
Zucchini, Claussen and Trüg (2013)	**P10 and 13 Schiff**: show that on-net pricing can be used both by large networks to harm smaller rivals, or by small networks as a pro-competitive response and as a strategy for gaining market share. They show that in **Germany** between 2001 and 2009, larger networks were more likely than small networks to offer on-net pricing, suggesting that **tariff mediated network effects were the main cause of on-net pricing**. **De Ridder:** The authors' own conclusion says: "On-net discounts are a pervasive phenomenon in telecommunication markets. Although there is widespread agreement that they are used as a competitive instrument, there are two different explanations as to why. **On the one hand, research on tariff-mediated network effects posits that large operators use on-net discounts to leverage their installed base and decrease the attractiveness of smaller rivals** (Laffont et al., 1998). This theory predicts that on-net discounts should be offered primarily by larger operators. **On the other hand, recent work on strategic discounting suggests that on-net discounts are used by small operators: they advertise with low on-net prices to attract subscribers** while keeping off-net prices high to ensure profitability (Haucap and Heimeshoff, 2011). This strategy is costly for their larger rivals to imitate as low on-net prices would cause them much greater opportunity costs due to their larger networks. This theory implies that on-net discounts should be offered primarily by smaller operators. "Our empirical results show that large operators are more likely to offer tariffs with on-net discounts. **We cautiously interpret this as suggesting that large operators using tariff-mediated network effects as a competitive instrument are the dominant reason for on-net price differentials**"... and "We also contribute to the policy discussion by offering tentative evidence that **regulators may be correct to impose limits on on-net price differentials".** https://econpapers.repec.org/article/eeeindorg/v_3a31_3ay_3a2013_3ai_3a6_3ap_3a751-759.htm

Agostini et al (2017)	**Schiff:** This study is not cited by Schiff and refers to the same **Chile** case as Rojas. **De Ridder:** Agostini says "The analysis complements the one by Rojas (2015), which focuses on the short run welfare effects of banning price discrimination in **Chile**. For that purpose, **he only considers linear prices and the prepaid segment**, which represented around 72% of the customers in April 2013 and around 26% of the total outgoing traffic. Instead, our focus is on the period before the ban and the extent to which the off-net/on-net price differentials could be considered anticompetitive. **The analysis is restricted to non-linear prices and the post-paid segment**, where the largest fraction of traffic is generated." And this empirical study finds two-part pricing was anti-competitive: "This paper uses a model of strategic interaction among firms –that set discriminatory and **nonlinear** prices – in addition to public information on prices of the plans marketed by the three major mobile phone companies, to assess the extent to which on-net/off-net price differentials in the plans they offered could represent predatory practices in the mobile telephony market in **Chile**. The results show that the largest companies offered a few plans with an off-net/on-net price differential larger than what a competitive theoretical model predicts. **This larger differential is consistent with the notion of predation defined by Hoernig** (2007) as **reducing a competitor's profits.** Despite the fact that these plans were a small fraction of all the plans mobile phone firms offered, they were recently banned by the antitrust authority because of their potential anticompetitive effects." In Telecommunications Policy May 2017 at https://www.researchgate.net/publication/317296357_Predation_and_network_based_price_discrimination_in_Chile
Atiyas and Dogan (2007)	**Schiff:** This study is not cited by Schiff and refers to **Turkey**. **De Ridder**: The authors describe how the two incumbents (Turkcel and Telsim) tried to deter entry in **Turkey.** First, in March 2001 they raised the termination rate from 1.4 Euro cents/minute to 20 cents/minute; which raises the cost for off-net calls. Second, in the same month **Turkcel increased its off-net price from 29 to 34 cents/min and reduced its on-net price from 23 to 11 cents/min and also reduced its fixed monthly fee from 2.5 to 1 Euro per month (i.e. a two-part tariff**). The new entrant (Aria) started in March 2001 with a promotional package offering on and off-net calls at 32 cents/min. The authors draw a number of interesting conclusions from their analysis of Turkey; "The most important is that the Turkish experience confirms the existence of significant first-mover advantages in the mobile telecommunications industry. **These advantages are amplified by the existence of tariff-mediated network externalities and switching costs."** Atiyas & Dogan 'When good intentions are not enough: Sequential entry and competition in the Turkish mobile industry" Telecommunications Policy Vol 31 Nos. 8-9, Spring/October 2007
TMG (2011)	**Schiff:** This study is not cited by Mr Schiff. **De Ridder**: Mr Schiff comes from New Zealand and should have been aware that the Telecommunications Group (TMG) prepared a paper for the New Zealand Commerce Commission on behalf of 2degrees (a mobile entrant) on international precedent on

	regulatory remedies adopted to address *on-net/off-net* price differentiation in the mobile market. Case studies (see Table 4 below) were drawn from: • Kenya • Singapore • Colombia • Turkey • Slovenia • Portugal Only Turkey is included in Mr Schiff's case literature (Karaçuka, Çatik, and Haucap). On **Turkey**, TMG reports that "In September 2007, the Information and Communications Technologies Authority (ICTA, previously TA) of **Turkey** imposed: (i) a price cap on off-net calls; and (ii) an "internal" non-discrimination obligation". "Both obligations initially **applied only to the dominant MNO**. The price cap set a price ceiling for off-net calls, while the **"internal" non-discrimination obligation set a price floor for on-net calls"**. "**These remedies were designed to cover both sides of the club effect.** Rather than using low, cost-based MTRs on a stand-alone basis (note that MTRs in **Turkey** were lower than in any European Union (EU) member state at July 2010), the ICTA adopted *ex ante* rules covering the incoming call side of the club effect via an off-net price cap and the originating side of the club effect through an "internal" non-discrimination rule to reinforce MTR regulation". TMG "On-net, Off-net Price Differentiation: Review of International Precedent"
Trilogy (2011)	**De Ridder:** The founders of Trilogy, which now has a majority stake in 2degrees, were responsible for the new entrant that pulled out of **Slovenia**. "Western Wireless International (WWI) entered the **Slovenian** mobile communications market in 2001 under the brand name "VEGA". WWI was one of the largest international investors in Slovenia at the time, and the only multinational company to invest more than $200 million in the period 2001 to 2005". "After four years of operations, WWI attracted less than 2% market share, with the incumbent Mobitel retaining over three-quarters of the market.... Mobitel's ability to retain overwhelming market share resulted largely from **its anti-competitive cross-subsidisation of on-net calls by its high charges for off-net calls**. "WWI filed a formal complaint in April 2003 under Slovenia's Telecommunications Act and Mobitel's pattern of anti-competitive behaviour was repeatedly brought to the attention of Slovenia's national telecommunications regulatory authority and national competition authority and the relevant government ministries but no concrete action was taken to curb such behaviour. As a result, WWI ceased all investments and ceased to trade in Slovenia on 31 May 2006." www.comcom.govt.nz/assets/Imported-from-old-site/industryregulation/Telecommunications/Investigations/MobiletoMobileTermination/ContentFiles/Documents/Trilogy-International-Partners-submission-27-July-2009.pdf

It is interesting to compare the situations where regulators have taken on/off-net tariff discrimination by large operators very seriously with the situation in PNG.

Table 4: TMG's summary of cases

Table 1: Summary of factors influencing *ex ante* intervention over *on-net/off-net* price differentials in the countries reviewed

Country	On-net traffic	Off-net traffic	Largest network's market share	Smallest network's market share	On-net/off-net price differentials
Kenya (2010)	96.27%	3.09%	79.4%	2.7%	96%
Singapore (2001)	N/A	N/A	49.55%	16.09%	N/A
Colombia (2009)	~90%	~10%	67.2%	11%	N/A*
Turkey (2007)	89.52%	6.39%	58%	16%	N/A
Slovenia (2005)	72.98%	18.58%	78%	2%	N/A
Portugal (2005)	74.66%	16.28%	44%	20%	N/A*

Note: N/A means not available. Off-net traffic refers to calls terminated on other mobile networks only, except for Colombia where the off-net traffic information provided by the regulator is not sufficiently disaggregated. On-net and off-net traffic for Colombia, Portugal and Slovenia are for 2010, 2009 and 2007, respectively.
*The price differential was deemed significant by the regulatory authority and was taken into account in the analysis of the competitive impact of the pricing practice. However, the actual figures were redacted from the regulatory decision.
Sources: See sources cited in Tables 2, 3, 4, 5 and 6 below and in Figures 1, 3, 4 and 6 below and in note 63.

PNG (NICTA 2017)	96.5%	3.5%	89%	3%	40%

The row added to the foot of the table above is drawn from NICTA's November 2017 Discussion Paper. PNG is well within the envelope of factors considered by regulators who chose to act.

2 - Market outcomes

Mr Schiff sets out to test whether the last MRSD had any impact on the competitive positions of Digicel and its rivals.

He concludes that the last MRSD had no impact on market outcomes. In fact, there are two other possible conclusions:

A. Market outcomes might have been a lot worse without the 2012 MRSD; one or both the smaller mobile carriers might have folded without it. It may be only government ownership that has avoided this outcome.

B. The 40% allowed tariff differential allowed under the 2012 MRSD was so generous that the constraint was ineffectual and therefore had no impact on market outcomes. On NICTA figures, Digicel's market share of revenue is more than 5% points higher than before the 2012 MRSD. This is the most likely explanation because the prohibition of discrimination (i.e. any difference would have to be cost-justified) would have allowed bmobile and Telikom mobile (Citifon) to perform better.

These three possibilities are all thought-experiments that it is impossible to prove one way or the other. In my view, not having a new MRSD to control the potential abuse of SMP by Digicel is too risky. Digicel cannot prove it is safe to proceed without an MRSD. It is not possible to prove a new

drug is safe. In the case of proceeding without a new MRSD, nobody will die but the competitive process might.

All of Mr Schiff's supporting figures are redacted so the following comments are tentative[3].

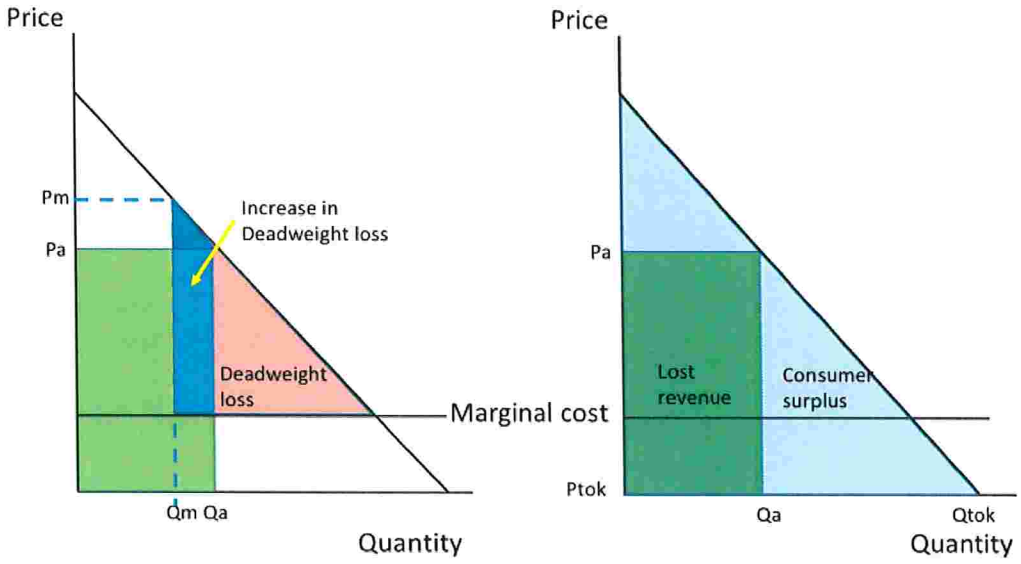
Schiff Fig 1 – I suspect that Mr Schiff observes no change in shares from which he draws the conclusion that the last MRSD did not reduce market shares. In fact, it is worse than that because Telikom's submission showed at Figure 4 that Digicel's market share actually increased. In my view, a more valid interpretation of the static or upward movement in share is that the MRSD was ineffectual because the allowed differential was very large.

Schiff Fig 2 – Mr Schiff finds that the share of Digicel call minutes that stay on-net is "stable" with fluctuations around promotions. Of course, the 1TOK+ promotion would have increased the share of on-net calls, as he says. I am more interested to know what happened in his Figure 4.

Schiff Fig 3 – shows the share of Digicel's originated calls that are prepaid; also shows the impact of 1TOK+.

We do not have the redacted Figure 3. But we can analyse the "significant welfare benefits" of 1TOK+ using the second chart below – the first chart illustrates how an operator with SMP can raise prices which increases deadweight losses and reduces output. The second appears to illustrate 1TOK+ with the price of on-net calls reduced to zero and an increase in the number of calls from Qa to Qtok. Note that lost revenue (shaded green) is part of the large blue consumer surplus triangle.

Figure 2: Monopoly pricing and 1TOK+ pricing



Free on-net calls to 2 million customers must be financially crippling as 95% of all mobile originated calls in PNG are on the Digicel network[4] and around 5 million on-net call minutes per day were being made just before the promotion[5]. Applying 0.7t/minute (the simple average of Digicel's current

[3] Digicel did express a willingness to supply redacted data under an NDA but I felt that accepting that might compromise my ongoing work for Telikom and potentially delay the current process.
[4] Para 4.1.19 NICTA Discussion Paper, November 2017
[5] Para 63 of the Digicel main submission.

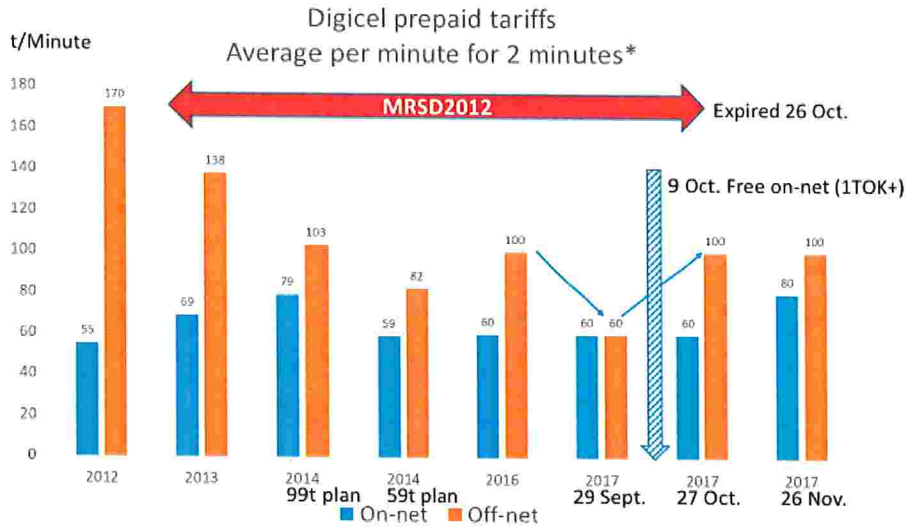
standard prepaid off-peak and peak rates) to just 5m minutes a day over a year would cost over K1.2 billion; which is more than Digicel PNG's total revenues in the year to March 2017.

Digicel would have us believe that it is offering this promotion for the good of its customers. It is not a charity. A well-run private company would consider a price cut as some sort of investment – usually to gain market share. But, Digicel already has a very large share of the market, as noted by NICTA. So, why is Digicel doing it and for how long? It does not make sense – unless it is intended to administer the coup de grâce to the KTH merger before it becomes a real threat.

To assess this further would require Digicel to show its business case for 1TOK+ to NICTA and the change in the number of prepaid customers that followed the introduction of 1TOK+.

Schiff Fig 4 - shows "an apparent decrease in the volume of off-net calling after October 2017" (p19). Why is he surprised? This decrease would have occurred just after a price decrease was reversed (See Figure 3 below). The off-net price was reduced from 100t/min to 60t/min for just 4 weeks from 29 September 2017?[6] What we really need to know is what increase in volume took place over the four weeks that the price was reduced; which would indicate pent-up demand for lower off-net pricing.

Figure 3: Digicel prepaid tariffs



* Up to 2014, the first and subsequent minutes were sometimes charged at different rates

Schiff Fig 5 – shows the volume of calls from other networks to Digicel. Nothing to comment on.

Schiff Fig 6 – we do not know what this is about. The placement of this figure is not shown in Mr Schiff's redacted submission and there is no reference to Figure 6 in his commentary.

Schiff Figs 7/8 (p21/22) – shows maps of cell site locations. Why have these been redacted when p9 of NICTA's discussion paper has coverage maps at 2016? Are updates available?

[6] Mr Schiff says (p15) that on 29 September 2017: the prepaid off-net calling price was reduced [from 100t/min] to 60T/min, equal to the on-net price [both peak and off-peak]. Removing the differential followed Digicel's practice in every other market in this region except Tonga. However, the decrease was reversed at 27 October 2017 [i.e. off-net is now again at 100t/min for peak and off-peak], while the on-net price remained at 60t/min [peak and off-peak]. Then on 26 November the on-net peak time rate was raised to 80t/min.

Mr Schiff says (p23) that "In areas of PNG where only Digicel has coverage, there will be a very high proportion of on-net calls, regardless of pricing". I agree that there are local effects but that does not rule out the "global" role of pricing in deterring off-net calling.

3 - Effects of the proposed MRSD

As Mr Schiff says, expected outcomes of a new MRSD must be tested by the retail regulation criteria:

158. RETAIL REGULATION CRITERIA.
The "retail regulation criteria" are as follows –
(*a*) that making a retail service determination for the retail service in respect of an operator licensee for a particular period will further the achievement of the objective set out in Section 124 but disregarding Section 124(2); and
(*b*) specifically, in relation to the competition objective, that –
(i) that operator licensee has a substantial degree of power in the market within which the retail service is supplied; and
(ii) in the absence of the retail service determination for that period, that substantial degree of power is likely to –
(A) persist in the market over that period; and
(B) expose retail customers to a material risk of higher prices and/or reduced service where they acquire the retail service from that operator licensee during that period; and
(*c*) specifically, in relation to the efficiency objective, that the operator licensee will not be prevented from achieving a return on assets during that period sufficient to sustain investment necessary to supply the retail service; and
(*d*) the aggregate likely benefits of making that retail service determination outweigh any aggregate likely detriments.

158 (a) achievement of Section 124 objectives (except (2)).

Section 158 (a) refers to the competition and economic efficiency objectives in Section 124[7]:

124. OBJECTIVE OF THIS PART.
(1) The objective of this Part and Part VII of this Act is to –
(*a*) promote effective competition in markets for ICT services in Papua New Guinea, to be known as the "competition objective", subject to –
(*b*) promoting the economically efficient use of, and the economically efficient investment in, the facilities by which ICT services may be supplied, to be known as the "efficiency objective".

Mr Schiff: "It is unclear how the proposed RSD will succeed where the previous RSD has failed. It is also not clear how the proposed RSD will overcome the significant disadvantages caused by bmobile and Telikom's lack of coverage".

De Ridder: It is true that Digicel's 2/3G coverage was superior to both its mobile rivals over the period of the 2012 MRSD. It is not known if that is the case now and how it may change over the next 5 years with the Kumul Telikom Holdings (KTH) merger of the bmobile and Telikom networks.

But KTH will not be able to benefit from any improved network coverage while Digicel can exercise unconstrained SMP.

[7] Part VII of the Act, referred to at 158 (a), deals with consumer protection and Section 124 repeats the regulation criteria at clause 158 verbatim.

As posited above, in my view the previous MRSD was ineffectual because of the 40% allowed on/off-net tariff differential. None should be allowed now (unless cost justified) and that would be the case under the proposed MRSD.

158 (b)(i) presence of SMP

Mr Schiff: Note that Mr Schiff makes no attempt to deny that Digicel has SMP.

De Ridder: NICTA establishes SMP across sections 3.2.1 to 3.2.11 of its discussion paper.

158 (b)(ii)(A) persistence of SMP

Mr Schiff: Given the previous observation, it is not surprise that Mr Schiff has no comment on this.

De Ridder: The NICTA sections mentioned above deal with this. Also, in my view, it will take at least two years for restructure of KTH to realise the synergies expected and longer to reach efficient scale: Cadman[8] "*When we consider issues such as economies of scale, we are not concerned with the economies of scale of the upstream business where the incumbent has SMP, but only with those in the downstream retail business*". He says it is not possible to be reasonably efficient until the entrant has 20-25% market share. NICTA says that "*the point of inflection, after which economies of scale seriously atrophy, is reached at around 30% of the demand level*"[9].

158 (b)(ii)(B) material risk of higher prices/lower service

Mr Schiff: "The [NICTA] Discussion Paper asserts that 'Without the draft determination, Digicel's on-net/off-net price discrimination will result in a deadweight loss, preventing pricing from being efficient as an allocator of resources to their most valued uses' (paragraph 5.2.6). As a general point, it is not always the case that price discrimination reduces welfare. In many cases, price discrimination can increase welfare by reducing prices to some consumers in the market, increasing the quantity consumed, and increasing welfare".

De Ridder: NICTA's concern was illustrated in the first chart of Figure 2 above.

Again, Mr Schiff is assuming that two-part tariffs exist in the prepaid market so that it may be possible to "increase welfare by reducing prices to **some** consumers in the market" (**emphasis added**). The way that works with two-part tariffs was shown earlier in the second chart of Figure 1.

But, even with the linear pricing, which is what we have in the PNG prepaid market, a deadweight loss occurs whenever price is above marginal cost – as shown in Figure 1. A firm has market power if it finds it profitable to raise price above marginal cost.

Mr Schiff ignores a footnote to the quote from NICTA that he uses. The footnote references the ICT Appeals Panel which says that "If price discrimination creates/increases barriers to entry, as NICTA concludes, this helps protect or maintain Digicel's substantial market power and so it is reasonable to conclude that the net effect on efficiency (technical, allocative and dynamic) is negative" (Para 48).

Digicel's pricing at the expiry of the previous MRSD (Figure 3) shows that it has the power to raise prices with impunity; a clear sign of significant market power.

---

[8] Richard Cadman "Margin squeeze: defining a reasonably efficient operator" Intermedia, March 2011 at http://spcnetwork.eu/uploads/Intermedia_Vol_39_Margin_Squeeze.pdf

[9] NICTA submission to ICCC on the proposed acquisition of shares in Bmobile by Telikom PNG, April 29017

158 (c) sufficient returns to sustain investment

Mr Schiff: NICTA's claims (Discussion paper paragraphs 5.2.9 (a) and 5.2.10 (c)) that Digicel's returns would be unaffected by the proposed MRSD do "not appear to be correct" according to Mr Schiff because "the proposed RSD [para 6] prevents Digicel from implementing any pricing such that the effective on-net price per minute is less than the interconnection charge".

On NICTA's claim that "preventing price discrimination does not in itself reduce profitability" (paragraph 5.2.9 (b)), he says "In general, this is not correct. The essential feature of price discrimination is that it enables firms to charge relatively low prices to consumers with low willingness to pay while maintaining higher prices to other consumers with higher willingness to pay".

De Ridder: On the first, Mr Schiff is implying that the cost of on-net calls is below the cost it charges to terminate calls – otherwise it would not be profitable to price that way. In fact, the cost of on-net calls includes both termination and origination (which would be the same) plus some retail cost per minute.

On the second, Mr Schiff is again invoking two-part pricing, which does not apply here.

158 (d) benefits of a determination outweigh likely detriments

Mr Schiff: "The assessment of these factors in the Discussion Paper is almost entirely qualitative and contains no attempt to quantify the impacts of the proposed RSD on Digicel's profitability, or to quantify the benefits and detriments in the PNG mobile market more broadly."

De Ridder; It is doubtful that any quantitative forecasts would be accepted by Digicel and the retail regulation criteria do not require a quantitative assessment.

Digicel contends that a new MRSD would prevent it from offering innovative prices like its 1TOK+ (indefinite) promotion[10]. In fact, it is amazing that it has not yet chosen to withdraw this offer yet.

The analysis of welfare benefits is short-sighted. If competition is stifled at birth, there will be no long-term benefits.

John de Ridder

25 March 2018

[10] If the 1TOK+ promotion started 9 October 2017 (Schiff p15) and NICTA was not asked to clear it during the period of the MRSD, Digicel was in breach of that MRSD which expired on either 24 October (Digicel p8) or 26 October 2017 (based on gazettal in 26 Sept 2012).

Bio for John de Ridder

John is an independent telecoms economist with over 30 years' experience in the telecommunications industry. He is recognized internationally as an experienced telecommunications economist with expertise in pricing and regulation. Clients have included InfoDev (World Bank), ITU (United Nations), Australian government departments and agencies, OECD, APEC and the NZ Commerce Commission.

John worked for 18 years at Telstra. In Australia he also worked as an economist for ICI and as the research manager for IBIS Consulting. In London, he worked for Shell International as an economist and for DRI-McGraw Hill.

Education

Doctoral research (Phd uncompleted) 1976, Cambridge, UK

BA (Hons) Social Science, 1973, Middlesex Polytechnic, UK

Work History

2002 – present Principal Deridder Consulting P/L. Published work is on www.deridder.com.au

2000-2002 General Manger Data Pricing, Telstra Wholesale

1992-2000 Manager Pricing Strategy, Telstra Corporate Marketing

1991-1992 Commercial Manager Interconnect, Telecom Network Products

1990-1991 Director Strategic Studies, Telecom Corporate Strategy

1983-1990 Chief Economist, Telecom Corporate Finance

1982-1983 Economist to ICI Australia

1982-1982 Research Manager, IBIS Consulting

1976-1982 Forecasting and Research Manager, DRI-McGraw Hill (London)

Relevant experience includes

2013 – present Consultant to Telikom PNG on pricing matters

2012 Consultant to NICTA for first MRSD and other issues

2011 External author/editor for Module 2 (Competition and Price Regulation) of the *info*Dev/ITU on-line ICT Regulatory Toolkit. http://www.infodev.org/en/Publication.1140.html

2010-2011 Study for Dept. of Commerce in Western Australia on gaps in broadband coverage and the impact of the National Broadband Network on that state's infrastructure and economy.

2009-2010 Provided economic advice on costing alternatives to TSLRIC+ in an Australian access dispute for a declared service which had not yet been subject to regulated prices.

2008 Wrote the regulatory submission for a client bidding for part of the National Broadband Network. Provided assistance with writing the bid and presenting it to the Government.

2007 Performed a cost benefit study on the implementation of mobile number portability in Bahrain.

2007 Provided expert advice in relation to a shareholder class action against Telstra.

2007 Performed an econometric analysis of why broadband penetration rates differ across the OECD. Published by the OECD and presented to the TPRC meeting in Washington, September 2007. This report was used by Berkman Centre at Harvard University in a 2009 report to the FCC on US broadband policy. http://www.oecd.org/dataoecd/34/34/39360525.pdf

2007 Advised on pricing for a submission to the NZ Commerce Commission's Mobile Services Review.

2006-2007 Provided advice on retail-minus pricing of unbundled bitstream access to ISPs in New Zealand. Also assisted on appeal and imputation testing Telecom NZ broadband prices.

2006 Conducted training workshops in Hanoi and Sydney for the wholesale division of the incumbent in Vietnam.

2004 Provided economic advice in the peer review of an interconnection costing model built for the NZ Commerce Commission.

2004 With LECG, a major economics consultancy, investigated international internet connectivity and charging arrangements for the Department of Communications to support Australian policy development.

2003-2004 Led a team comprising the APEC Study Centres in Australia and Taiwan performing a stocktake of telecoms liberalisation across the 21 economies in the region. Organised a workshop at APEC-TEL28 in Taipei (Oct 2003) and wrote the report presented to APEC-TEL30 (September 2004).

2002 At the invitation of the OECD, talked in Dubai to delegates from various middle eastern countries on price rebalancing and the impact of competition on universal access and pricing.

2000 Developed a framework for benchmarking interconnection prices for Indonesia. The report also proposed targets for interconnection and retail prices. The draft report was presented to an ITU workshop on Fixed-Mobile Interconnection in Geneva.

1997 Advised Indonesian government civil servants and academics in Jakarta on options for revising price cap controls as part of a mission sent by overseas investors in Indonesia.