CCRED

Working Paper 4/2013

Centre for Competition, Regulation and Economic Development
University of Johannesburg
www.uj.ac.za/cce

Are mobile networks always a substitute for fixed networks?

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Abstract

Fixed to mobile substitution is a trend that is reshaping the telecommunications industry. Telkom's response to this trend, for example, has been to build a mobile network to recapture revenues lost to mobile operators. The question is, to what extent are fixed and mobile networks substitutes, and are there groups of customers for whom fixed and mobile are not substitutes? There is evidence that suggests that, for many customers using voice services, fixed and mobile services are to some degree substitutes. However, for small, medium and large enterprise customers, and for high-usage residential customers, there is evidence that mobile broadband networks are not a substitute for fixed broadband networks. There is a trade-off between speed and throughput in mobile networks that does not exist to the same degree in fixed networks. This is due to the limited capacity and shared nature of the use of radio frequency spectrum for broadband. Fixed incumbent operators worldwide are able to distinguish between business and residential customers, and very often charge significantly higher prices to business and high-end residential customers. They are able to do this because the telecommunications operators are able to identify business customers separately from consumers, and are able to prevent arbitrage: a copper line running to a business premises cannot be substituted for a copper line running to a house nearby. Operators are also able to identify high end consumers through self-selection by bundling, for example, video content with a DSL subscription. The implications of this are that, rather than adopting a more relaxed approach to the regulation of fixed operators in the face of competition from mobile operators, fixed operators should be closely regulated in order to protect significant groups of customers.

JEL classification: L41 - Monopolization; Horizontal Anticompetitive Practices L51 - Economics of Regulation; L96 - Telecommunications

1. Introduction

Local Loop Unbundling ("LLU") is the process by which an incumbent fixed line operator makes available to smaller rivals the twisted copper pair between a point of aggregation in the incumbent's network (such as a local exchange, also known as a central office) and the end user's premises. Open access policies like LLU are linked (though not without controversy) to higher levels of broadband penetration, which in turn is linked to higher economic growth (Berkman Centre for Internet and Society, 2010).

There are further ways of opening up access to fixed line networks, including by giving new entrants access to the incumbent's ducts and poles for the new entrants to roll out their own fixed line networks.

In developing countries, where most people connect to communications networks using mobile devices, the link between open access fixed line policies and higher economic seems more tenuous: if most people connect to the internet via a mobile device, how will opening up access to fixed line infrastructure increase broadband penetration and therefore economic growth?

This question is addressed using the competition law and economics technique of market definition and the assessment of anti-competitive effects to assess whether fixed and mobile broadband are indeed in the same market for competition law and economics purposes or whether anti-competitive effects could arise for any group of customers, and therefore assess the extent to which open access fixed line policies are a desirable policy intervention for South Africa.

2. Market definition, price discrimination markets or sub-markets

Markets are generally defined, at least in theory, using the Small but Significant Non-transitory Increase in Price ("SSNIP") test which asks the question: would a hypothetical monopolist over a narrowly defined market profitably be able to raise prices by more than 5-10%? If the answer to this question is yes, then the narrowly defined market should be used for the next steps in the competition analysis: are there any dominant firms in this market, have there been any anti-competitive effects in this market, or would a merger between two firms in this market give rise to a lessening of competition? If the answer is no, then the market should be widened to include additional products or geographies, and the SSNIP test should be re-applied.

The SSNIP test involves assessing the extent to which customers can use substitutes to the product/s being examined, or source the product in question from geographies outside of the one being examined: this is known as demand side substitution. The SSNIP test also requires the assessment of supply-side substitution or new entry, though this is sometimes examined after markets have been defined in the rest of the competition analysis such as the effects of a merger, or the anti-competitive effects of the abuse of dominance. In the United States (the "US"), supply side substitutability is not taken into account in the market definition phase (US Department of Justice Horizontal Merger guidelines, 2010), while the in the European Union, supply-side substitutability is taken into account in the market definition phase of the

analysis. The analysis of supply side substitution is the assessment of whether, in response to an increase in price by a hypothetical monopolist, entry by a new supplier would be timely, likely and sufficient to defeat the price increase (US Department of Justice Horizontal Merger guidelines, 2010).

In practice, the SSNIP test is very rarely directly applied. In fact in some instances markets need not be defined at all to evaluate a competition problem. Instead in the assessment of horizontal mergers, for example, the price effects of a merger are directly assessed if the data is available through techniques like merger simulation, which does not require any precise delineation of relevant markets (Motta, 2004: 243).

In other cases, a range of indirect quantitative evidence on relevant markets is assessed, including whether the prices of two different products are correlated (the prices of the two products are dependent on one another), or whether the relationship between the prices of two products is stable over time (whether the relative prices are stationary). If the prices of two products are correlated, then as one price increases the other increases, for example. This suggests that the prices of the two products are in one market since the prices of the products appear to be dependent on one another. If the relationship between two prices is stable over time, or equivalently there is no random divergence in the price paths that the two prices follow, this would also suggest that the two products might be in the same market, since we would expect over time that the relationship between prices in two separate markets would diverge. These tests are not conclusive, since a range of factors could cause the prices of two unrelated products to move together, including changes in costs that are common between the two products and inflation.

Price differences if not justified by differences in cost or quality, might also indicate that products or geographies are separate markets. If prices of two products in the same market were markedly different consumers should, everything else equal, choose the lower priced product, and the second product would not exist in the market.

There also exist non quantitative methods of market definition, including the assessment of practical indicia such as product characteristics and customer groups, to define relevant sub-markets or 'price-discrimination' markets. Practical indicia were used in the prohibited merger between JD Group and Ellerines by South Africa's Competition Tribunal (78/LM/Jul00). The seven practical indicia identified in the Brown Shoe case include:

- Industry or public recognition of the submarket as a separate economic entity;
- The product's peculiar characteristics and uses;
- Unique production facilities;
- Distinct customers;
- Distinct price;
- Sensitivity to price changes; and
- Specialized vendors.

'Practical Indicia' have been used to define markets in horizontal mergers between retailers, where firms produce differentiated products. They are also important in the assessment of 'Price discrimination markets' which are markets (usually groups of customers) over which a

monopolist is able to profitably raise prices (Baker, 2006). Price discrimination is usually undertaken by a firm with market power in order to extract consumer surplus from consumers that have a low elasticity of demand (are not price sensitive) while continuing to sell to customers that have a high elasticity of demand (are price sensitive).

There are several forms of price discrimination: First degree price discrimination is where a firm with market power is able to charge a price to each user such that all consumer surplus is extracted by the producer. This is largely a theoretical construct and is not seen in practice. Second degree price discrimination is the method by which producers allow customers to self-select into different price groups. This might be, for example, by offering volume based discounts of a product, thus charging high usage customers lower average prices. This might also be through bundling of different services such as a video on demand subscription with internet access to have customers self-select into different pricing groups: customers that have high broadband usage patterns because they watch internet video, and customers that have low usage patterns because they do not. Third degree price discrimination is where producers explicitly charge different prices to different customer groups such as charging higher prices to business customers explicitly due to the identity and address of the customer.

Where firms are able to engage in price discrimination, this may be evidence of market power. In a competitive market it would be difficult for any one competitor to charge a high price to one group of customers and a low price to others: a rival charging a single price would capture the group of customers being charged a high price. There are also forms of price discrimination that are seen in competitive markets that have low barriers to entry, such as the restaurant business. People that drink wine at restaurants for example usually pay more for their meals than people that do not far in excess of the incremental cost of the wine itself. Since barriers to entry are low in the restaurant industry and the market is competitive, this sort of price discrimination should not be of concern from an anti-competitive effects perspective (Baker, 2003). This does not, nonetheless, mean that restaurants do not have market power.

Price discrimination in the telecommunications sector is pervasive and historically was seen as the optimal solution to the pricing of services by a natural fixed line monopoly. This is known as Ramsey-Boiteaux pricing, in which the optimal price that a customer ought to pay is inversely related to that customer's elasticity of demand, subject to a profitability constraint. The key question is whether the introduction of mobile services has eliminated the fixed line incumbent's ability to engage in price discrimination or whether indeed the incumbent has been able to continue to identify groups of customers to which it is able to raise prices.

3. Market definition, price discrimination markets or sub-markets

There are two important sets of information that are needed to define markets for telecommunications services: customer information and the information on the technologies used to serve customers. Each of these sets of information is discussed next.

Customers

There are at least three dimensions to the way in which the markets for telecommunications services can be described.

The first is in respect of usage, which in turn has several aspects including applications (such as email, data or video), speed that the applications require, bandwidth usage, and other quality measures such as latency which is the time that a packet of information travels from the user's device to a remote server and back.

The second dimension is in respect of customer size and income. This dimension includes income and the number of users per connection where residential customers are concerned and number of employees where business customers are concerned. Small enterprises are often categorized as having 1-10 employees, a medium enterprise has 11-200 employees, a large enterprise has 201-1000 employees and a corporate has greater than 1000 employees.

Finally, the third dimension is in respect of the customer's geographic location, such as a Central Business District, a residential suburb, a rural town, a remote village, or a farm in a rural area.

There are two groups of customers that are candidates for being defined as price discrimination markets or customers that may experience higher prices as a result of market power where broadband services are concerned. The first is high-income households with multiple devices consuming largely internet video in urban areas and the second is Small and Medium enterprises (between 1 and 200 employees) consuming largely data applications (such as email, storage and backup) and video communications, located in CBDs and urban areas that are well covered by fixed line networks.

Cisco, a very large manufacturer of internet routing equipment, predicts that by 2016, 80% of internet consumed in South Africa will be internet video, which is mostly movie and TV streaming services such as YouTube (Cisco, 2012, see Figure 1 below).[1] Streaming all of that traffic will absorb significant amounts of data volumes (almost 320 petabytes, or 1000^5 bytes). Video communications (such as Skype or Google Talk), on the other hand, will absorb only 2% of all consumer internet use. While the latter requires low latency connections to enable communication in real time, the former does not: internet streaming does not require real time data quality.

Streaming standard definition video requires a connection of at least 2.5 Megabits per second ("Mbps"), while streaming a high definition video requires a connection of at least 10Mbps. A 15 minute YouTube video would therefore use at least 280 Megabytes ("MB") if it is in standard

1 Cisco is able to monitor actual network usage in conjunction with a range of communications services providers worldwide, and uses actual network monitoring data as well as assumptions about various markets to make predictions about future usage of the internet.

definition and would use 1.1 Gigabytes of data if it is in high definition.[2] If internet video is going to be the main application for residential internet, then the medium over which it is transported needs to have very high capacity indeed.

Businesses on the other hand mostly require Internet Protocol (IP) networks to send and receive data, such as applications hosted by Internet Service Providers remotely, storage and back-up of documentation to remote sites, etc. (see Figure 2 below). The volumes of data required can be very large indeed depending on the amount of data generated and stored by the enterprise. The trend in this regard is very much towards higher volumes of data being generated as businesses digitize the content the content they create and automate business processes.

Both the internet video used by residences and the data applications used by enterprises require very large volumes of data to be transmitted over individual connections.

Figure 1: Consumer internet use, 2016

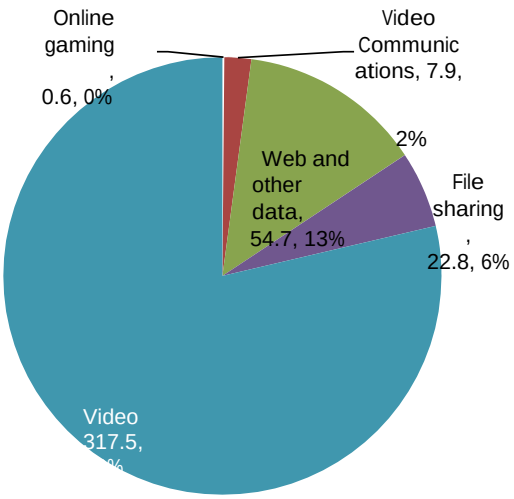
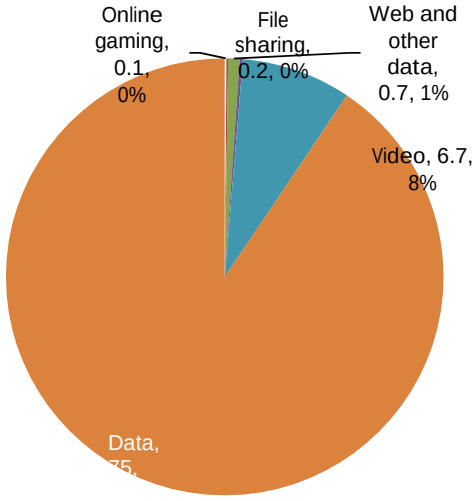


Figure 2: Business IP network use, 2016



Source: Cisco VNI, available: http://ciscovni.com/, last accessed on 13 August 2012

Technology

A wide range of access media are used to serve residential and business subscribers in South Africa. The fixed line access technologies offered include copper lines and fibre optic cables.

[2] The internet itself is a shared network, and so these speeds vary and it is difficult to calculate precisely much data is required to download a 15 minute YouTube video. The calculation used here is as follows: 2.5Mbps x 60 seconds x 15 minutes / 8 bits in a Byte = 280 Megabytes.

Wireless technologies include 3G and High Speed Packet Access ("HSPA) offered by MTN, Vodacom, Cell C and Telkom Mobile (8.ta), Wi-Max (IEEE 802.16), offered by Neotel and Telkom, Wifi (IEEE 802.11), offered by a number of Wireless Internet Service Providers, and Satellite (Very Small Aperture Terminal, or "VSAT"), offered by Vox Telecoms, Telkom and Neotel.

In general, fixed lines tend to have lower latencies than wireless, and there is a trade-off between speed and data throughput over wireless connections that does not exist to the same extent for fixed connections. Mobile data networks that exhibit high average speeds generally limit the amount of data that each subscriber can download. Mobile networks that have low average speeds often offer 'uncapped' connections or connections with very high data caps.

This is because of the physical limitations of the use of radio frequency spectrum to carry broadband: there is only a limited amount of spectrum available, through which all customers using wireless networks must connect to their networks. The radio frequency spectrum is shared: the more users using it, the worse the experience for each user. This is not the case for copper and fibre optic connections: Each copper line and each fibre optic cable between the home and the nearest point of aggregation on a network is not shared, and all of the available capacity on those lines is available to carry data.

This means that wireless technologies are useful for users that have only limited data requirements, while fixed networks are more suited to customers that have large data requirements. This is reflected in Cisco's forecast for South African consumer video (which will account for 80% of all consumer internet in 2016) usage by network: only 16% of consumer video will be transmitted over mobile networks (see Figure 3 below).

A similar picture can be seen in respect of data used by businesses: only 5% of data traffic will be over mobile networks (see Figure 4 below). The balance will take place over the fixed public internet and over Internet Protocol Virtual Private Networks (IP VPNs, or Managed IP), which mostly use fixed networks.

Figure 3: Consumer video (PB) by network, 2016

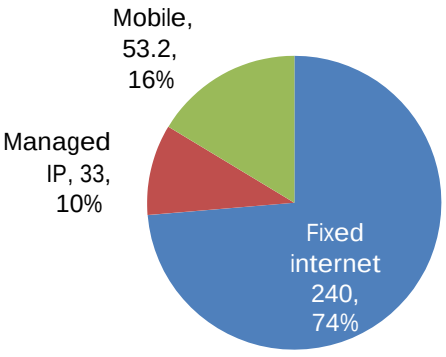
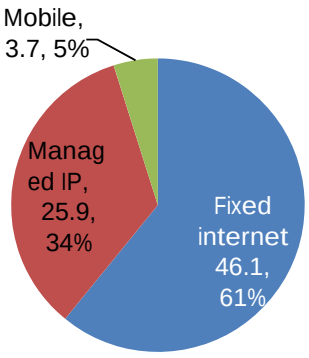


Figure 4: Business data (PB) by network, 2016



Source: Cisco VNI, available: http://ciscovni.com/, last accessed on 13 August 2012

All of this suggests at the outset that mobile networks will not carry a significant proportion of the traffic to be generated by the main applications that internet subscribers will use in 2016.

Potential relevant markets or groups of customers that could be harmed as a consequence of an abuse of market power where broadband services are concerned are examined next.

4. Evidence on markets for broadband in South Africa

The two candidate markets described above are middle and high income residential customers, who largely require their internet connection for video services, and small and medium enterprise customers, who mainly require their internet or managed IP connection for data services.

Industry recognition

Telkom itself explicitly targets high usage customers. According to Telkom's 2007 annual report filed with the SEC, they explain that: "We are focused on increasing the penetration of our ADSL services to retail and high-end residential customers through targeted direct advertising to high internet usage subscribers." (Telkom, 2007) This suggests that there is a category of high usage residential customers that Telkom sees as being separate from other low usage residential customers.

Many of the major Internet Service Providers ("ISPs"), including Internet Solutions, Mweb and Telkom, offer a 'business DSL' service which often has the following characteristics: it is unshaped (i.e. different types of application traffic are not prioritised) and uncapped (there are usage limits but these are very high).

The manner in which business subscribers are identified so that they can be charged higher prices is explicitly through metering: business subscribers require very high bandwidth usage and are therefore offer uncapped data services. They also require an unshaped service so that their businesses will not suffer from delays due to the shaping policies of their ISPs.

There is therefore industry recognition for at least a sub-market or price discrimination market or there is a group of customers to whom prices can be raised: business ADSL users and high usage residential customers.

Survey evidence

Small and Medium Enterprises ("SMEs") rely in large part on ADSL for connectivity. World Wide Worx reports survey results that show that ADSL connectivity is a significant differentiator for

SMEs (World Wide Worx, 2008: 59). In 2008, 250,000 SMEs used computers, and 90% of these SMEs had access to the internet. 63% of SMEs using the internet used ADSL for connectivity. This increased to 73% in 2009 (World Wide Worx, 2009). The proportion of SMEs using wireless broadband declined from 11% in 2008 to 8% in 2009: wireless is not a substitute for SMEs.

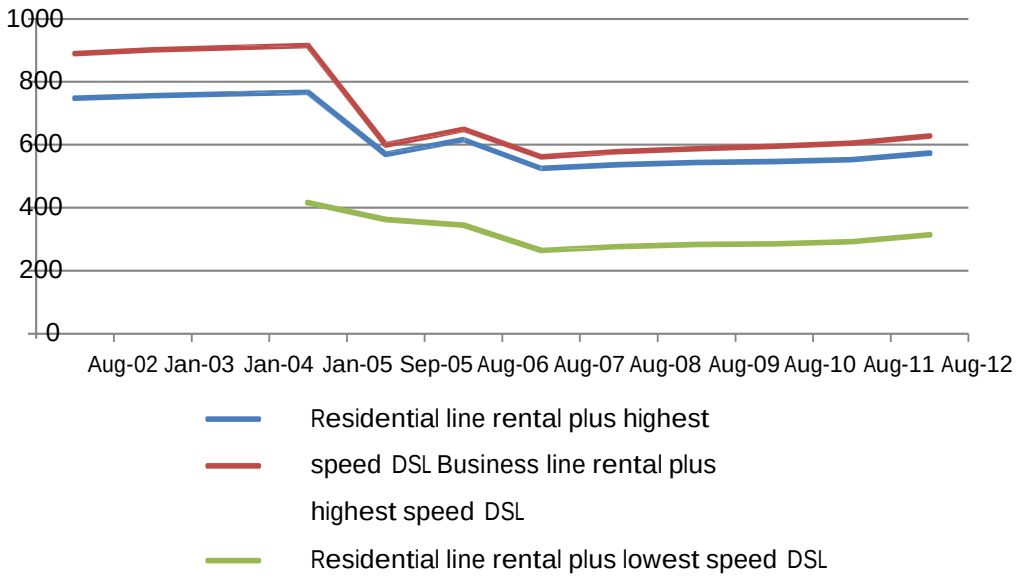
Price differences and price changes

When Telkom first introduced the ADSL service, Telkom explicitly charged business and residential prices significantly different prices. A 512kbps ADSL service provided to a residential customer cost R680 per month plus line rental while the same service provided to a business customer cost R800 per month plus line rental (see Figure 5 below). This pricing structure was sustained for three years (August 2002 – July 2005) before the price difference was reduced. Business DSL users continue to pay 5-10% more for their Analogue line rental plus DSL line charge, and this price mark-up has increased over time due to increasing prices for Business analogue lines.

Telkom is able to discriminate between business and residential customers directly, with only a limited risk of arbitrage, from the name and the address of the subscriber. A copper residential line cannot be resold to a business customer because of the physical presence of the copper cable.

There are some cost differences that explain part of the higher price charged to business customers for DSL. BusinessDSL customers at the time (2002-2005) were promised their own call centre, for example, and faster response times to outages. Nonetheless, there is a segment of the market that can be distinguished from other customers, and to whom higher prices can be charged.

Figure 5: Telkom's Residential and DSL line charges



Source: Telkom Annual Reports filed with the US Securities and Exchange Commission, available at: http://www.sec.gov/edgar.shtml, last accessed on 13 August 2012, and MyBroadband: http://mybroadband.co.za/news/adsl/11740-adsl-prices-then-and-now.html, last accessed on 10 August 2012

There are also significant price differences between entry level speeds and prices, and high end speeds and prices that are not justified by differences in cost. The cost that varies with usage is charged for separately by Telkom and Internet Service Providers (ISPs): Telkom and ISPs charge retail subscribers for internet bandwidth, which is charged for over and above the analogue line rental and DSL subscriber line charge. In spite of this, Telkom charges prices that are significantly higher for their 10Mbps DSL line (R425 per month) than they do for their entry level .384Mbps service (R165 per month). There are different pieces of equipment required for the two kinds of service but the cost difference is nowhere near to 2.5x.

Telkom therefore charges significantly higher prices for high usage users, which it seeks to identify. This strategy has largely been successful, discussed next.

Usage of the Telkom network

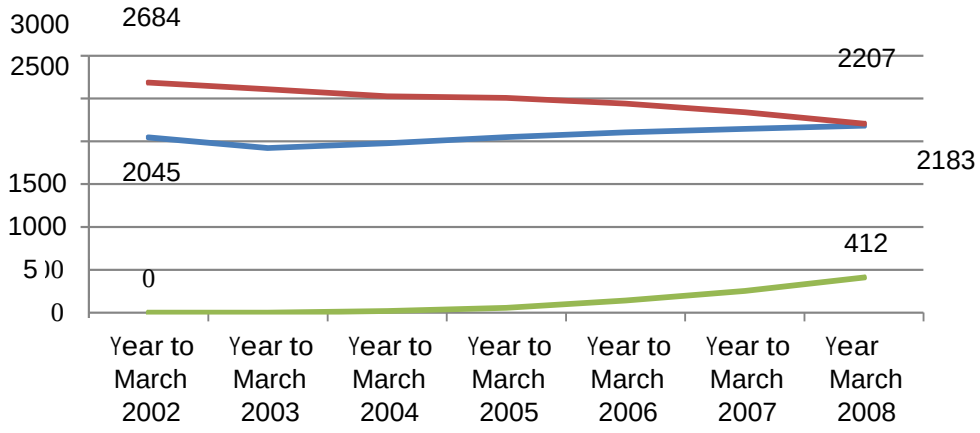
Telkom had 827,091 subscribers on its ADSL network as at 31 March 2012 (Telkom, 2012), and launched its high end 10Mbps DSL service in August 2010 (MyBroadband, 2012). By August 2012, Telkom was approaching its 200,000th 10Mbps DSL customer (MyBroadband, 2012). This suggests that, in less than two years, Telkom converted almost one quarter of its DSL subscriber base to high speed broadband, which suggests that its targeting of high usage residential

customers, and business customers, is succeeding. At the very least, this suggests that higher prices for its higher speed broadband services have not deterred high usage customers from taking up broadband services.

Furthermore, Business lines accounted for almost half of all of Telkom's lines over the period April 2001 – March 2008, when Telkom reported on the percentage of lines supplied to business and residential customers (Telkom, 2012). Over the same period, the number of business lines on the Telkom network fell by approximately 6%, while the number of residential lines fell by approximately 18% (see Figure 6 below). If the trend between 2002 and 2008 continued to the present day, it is likely that the majority of Telkom's lines are used for business purposes currently.

Although this data captures both voice and broadband lines, the data suggest that businesses rely disproportionately on Telkom's network for services and are less able to migrate away to alternatives in response to price increases by Telkom and the increasing availability of mobile broadband alternatives.

Figure 6: Business (Postpaid PSTN and ISDN channels), Residential (Postpaid and Prepaid) and ADSL lines



Note: Excludes payphones
Telkom Annual Reports filed with the US Securities and Exchange Commission, available at: http://www.sec.gov/edgar.shtml, last accessed on 13 August 2012.

Evidence from competition law proceedings

The first relevant decision for internet access services generally is the Mweb / Tiscali merger (72LMSep04). The Tribunal in this instance distinguished between a home-based market (including small business) and a corporate market, opting to focus on customer groups rather than the technologies used to serve those groups. The market at that stage (2004) was comprised mainly of dial-up internet access provided to the "home-based market", and the key question facing the Tribunal at the time was whether a market for "premium" internet access existed, since if it did Mweb and Tiscali would have had an overwhelmingly large market share.

The Tribunal found that, referring to the ability of customers to be able to alternate between premium and low-end dial up internet access services, that (72LMSep04: Para. 58):

> *"This feature would suggest that at the time of this merger, a premium segment has not yet been carved out as a stand-alone relevant market for competition law purposes and that the market is one for internet access by a home-based consumer."*

The price difference alone between Absa's free dial-up internet offering, and Mweb's R145 monthly price for access to dial up internet (excluding the costs of calls to Mweb on the Telkom network) were not sufficient to warrant the identification of separate markets.

The Tribunal did not at that stage assess mobile services as viable alternatives as they were at a "nascent" stage of introduction.

This decision is interesting because it did not distinguish between markets purely on the basis of pricing: the "value" that the customer receives needs to be taken into consideration against the price. The Tribunal nonetheless did not clearly describe what additional value a customer paying R145 per month for connectivity to Mweb rather than paying R0 to ABSA was. There is no real difference in speed: the available line speed at the time was 56kbps over an analogue dial-up connection. There were no line speed differences as there are for ADSL. Given the changes in technologies since 2004, and the advent of ADSL and mobile services, it is difficult to place any emphasis on the Tribunal's decision in Mweb / Tiscali for current markets for broadband services in South Africa.

The Tribunal has also made decisions in matters that concern large enterprises and corporates, including the Telkom/BCX (51LMJun06) and MTN/Verizon cases (81LMJul08). In the Telkom/BCX case the Tribunal reflected its views on the substitutability of wireless services for fixed services, at least insofar as they relate to WiMax services and corporate customers, as follows:

> *"In conclusion, we find that for services provided to large enterprises or organizations that require communications between multiple sites across the country, there are no suitable technical substitutes for fixed line infrastructure. Even if for the purposes of argument, we accept that WiMAx was a perfect technical substitute for fixed leased lines, it is not a commercial substitute for fixed leased lines since it comes with no warranties and SLAs. At best it can be used as a complement to fixed lines in limited circumstances."*

The Tribunal came to this conclusion as a consequence of facts that are as applicable to mobile wireless broadband (3G, HSPA and LTE) as they are to WiMax where SMEs and high-end residential users are concerned:

> *"Other factors that render WiMAX an unsuitable substitute for fixed line access lines are limited availability to establish high sites, limited bandwidth availability, reliability and quality and large capital investments into infrastructure. WiMax also operates on the basis of a shared base station. Hence the ability for it to serve large*

organization's needs is limited by the number of users utilising the base station at the same time. While radio engineering can ameliorate that problem to some extent this is limited."

At the same time, several expert witnesses testified that wireless solutions like Wi-Max are being deployed to small-office and home office environments as a substitute to copper networks. No mention at the time was made of 3G as being an alternative to fixed line networks in the Tribunal's judgement.

While Wi-Max may be an alternative to copper ADSL networks for high end consumers and SMEs, the Wi-Max deployments by operators that have Wi-Max spectrum have been extremely limited to date. Telkom, for example, has discontinued its Wi-Max offering to new customers.

The Tribunal recognized in the MTN/Verizon case that the mobile data networks had evolved significantly but since the merger analysis did not require it, the Tribunal did not decide whether mobile broadband is a substitute, broadly, for fixed broadband.

The evidence presented at Competition Tribunal proceedings has been limited at best as far as the substitutability between mobile and fixed broadband for high-end consumers and SMEs is concerned. The general limitations of wireless as a substitute for fixed services analysed in the Tribunal's judgement in Telkom / BCX are broadly applicable to the debate, nonetheless.

There have been several major abuse of dominance cases brought under the competition laws of various jurisdictions relating to markets for ADSL, including Wanadoo Espana vs. Telefonica (European Commission, COMP/38.784), and European Commission vs. Wanadoo Interactive (European Commission, COMP/38.233). However, many of these cases were brought in markets where mobile broadband services were nascent and in developed markets where fixed line networks penetrate a significantly larger proportion of the population. Furthermore, unlike in the US, the EC takes into account supply-side substitutability at the market definition stage: in Wanadoo Espana vs. Telefonica, for example, the EC defined a market for all ADSL services, irrespective of customer group, because of supply-side substitutability (European Commission, COMP/38.784: para. 154): once a party has begun supplying ADSL services to one group of customers, they can very easily and quickly extend supply to another group. As discussed above, the US on the other hand considers supply-side substitutability when examining anti-competitive effects. A firm may be able to exert market power with respect to a certain group of customers, and not others. Anti-competitive effects may therefore be felt as a consequence of an abuse of dominance by a group of customers.

In an earlier decision in Wanadoo Interactive on the other hand the EC defined separate markets for high-speed and low-speed residential customers. The EC found, among other things, that the average usage of high speed users was 15 x the average usage of low speed users, and found that customers would not substitute between the two services. This decision was made in relation to conduct by Wanadoo Interactive between 2001 and 2002, when the ADSL market was still at a nascent stage of development. Furthermore, the markets defined in

this case were analysed differently in the later 2007 Wanadoo Espana vs. Telefonica case. The EC decisions therefore do not shed further light on the question at hand.

The EC cases have largely related to exclusionary conduct through margin squeeze by an upstream incumbent against a downstream new entrant in markets for DSL. In the US, margin squeeze complaints in markets for DSL have largely been rejected, and so US decisions do not take the matter forwards.

Read together, the case history on broadband markets has not directly addressed the question as to whether or not mobile broadband services are a substitute for fixed broadband services. Nonetheless there are a few accepted principles that apply to the definition of these markets:

1. Wireless has certain limitations because it is a shared resource, and does not have the same physical capacity to carry data that fixed line services have.

2. It is important that whether or not supply-side substitutability is included in the market definition phase or the anti-competitive effects phase, that the impact of a firm with market power's conduct on a group of customers is assessed.

5. Conclusions

There are groups of customers for whom mobile broadband networks are not a substitute for fixed line networks. This is because wireless networks offer shared connections and are not physically capable of carrying the volumes of traffic required by high usage customers. These customers include Small and Medium Enteprises using their connections to transmit data, and high usage residential customers, which will soon largely use their broadband connections for internet video.

From a public policy perspective, SMEs are an important group of customers. Not only is access to ADSL a key competitive differentiator for SMEs but large numbers of people connect to the internet at work at SMEs. SMEs using ADSL in 2008 connected 340,000 people (World Wide Worx, 2008). In 2009, 756,000 people employed by SMEs connected to the internet at work (World Wide Worx, 2009). The number of people connecting to the internet at their SME workplaces today is likely much higher.

Whether these groups of consumers are assessed as customers experiencing anti-competitive effects, or whether they are assessed as customers in sub-markets or price-discrimination markets which are experiencing anti-competitive effects, the anti-competitive competitive effects are no less real.

This suggests that policymakers should address open access policies to fixed line networks, including Local Loop Unbundling and providing access to the incumbent's poles and ducts.

6. References

Competition law / antitrust case references

1. Competition Tribunal decision: Merger between Mweb and Tiscali, case no. 72LMSep04, paragraph 58.

2. Competition Tribunal decision: Prohibited merger between Telkom and Business Connexion, case no. 51LMJun06.

3. Competition Tribunal decision: Proposed merger between MTN and Verizon, case no. 81LMJul08.

4. European Commission decision: Wanadoo Espana vs. Telefonica, case number: COMP/38.784.

5. European Commission decision: European Commission vs. Wanadoo Interactive, case number: COMP/38.233.

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